



Original Article

## The relationship between adaptability and life satisfaction among ostomy patients

Fazel Dehvan<sup>1</sup>, Monir Nobahar<sup>2,3,4\*</sup>, Raheb Ghorbani<sup>5</sup>, Reza Ghanei Gheshlagh<sup>1</sup>, Masoomeh Najafi<sup>6</sup>, Maryam Jan Amiri<sup>7</sup>

<sup>1</sup>Department of Nursing, Faculty of Nursing and Midwifery, Kurdistan University of Medical Sciences, Sanandaj, Iran

<sup>2</sup>Nursing Care Research Center, Semnan University of Medical Sciences, Semnan, Iran

<sup>3</sup>Social Determinants of Health Research Center, Semnan University of Medical Sciences, Semnan, Iran

<sup>4</sup>Faculty of Nursing and Midwifery, Semnan University of Medical Sciences, Semnan, Iran

<sup>5</sup>Social Determinants of Health Research Center, Department of Epidemiology and Biostatistics, Faculty of Medicine, Semnan University of Medical Sciences, Semnan, Iran

<sup>6</sup>Ghaem Hospital, Hamedan University of Medical Sciences, Hamedan, Iran

<sup>7</sup>Student Research Committee, Iran University of Medical Sciences, Tehran, Iran

### ARTICLE INFO

Received 02 March 2019  
Accepted 19 May 2019  
Published 01 July 2019

Available online at:  
<http://npt.tums.ac.ir>

**Key words:**  
ostomy;  
adaptability;  
adjustment;  
life satisfaction

### ABSTRACT

**Background & Aim:** Ostomy surgery is used to provide a means of collecting waste through a channel. However, ostomy can produce functional problems and major changes in adaptability and life satisfaction among the patients. This study attempts to investigate the relationship between adaptability and life satisfaction among ostomy patients.

**Methods & Materials:** This study is descriptive-correlational. 100 ostomy patients referring to Iran Ostomy Association were selected and studied using continuous sampling method and questionnaires of demographic information, Satisfaction with Life Scale (SWLS), and Bell Adjustment Inventory (BAI).

**Results:** The mean  $\pm$  standard deviation of life satisfaction scores and adaptability scores were  $16.8 \pm 4.4$  (of 35) and  $53.1 \pm 23.7$ , respectively. A positive and significant correlations were observed between life satisfaction and adjustment ( $r=0.597$ ,  $p<0.001$ ), and also adjustment dimensions, including home ( $r=0.585$ ,  $p<0.001$ ), health ( $r=0.611$ ,  $p<0.001$ ), social ( $r=0.460$ ,  $p<0.001$ ), emotional ( $r=0.538$ ,  $p<0.001$ ) and occupational adjustment ( $r=0.380$ ,  $p<0.001$ ).

**Conclusion:** According to the results, there was a positive and significant relationship between life satisfaction and adaptability. Thus, therapeutic department members have to help improve life satisfaction among ostomy patients by facilitating adaptability.

## Introduction

Ostomy surgery provides a means for collection of waste for patients with different diseases through opening the intestine on the anterior stomach to deviate the waste path (1). Ostomy surgery is a common treatment for Inflammatory Bowel Diseases (IBDs), diverticulitis, colorectal cancer, and Intestinal trauma, in which it

can solve the urgent or chronic problem of the patients (2).

Among diseases leading to ostomy surgery, the most important cause is colorectal cancer growth (3). Many patients need ostomy surgery as a part of cancer treatment. Some ostomies are embedded permanently, while some other ones are temporal and the patients may need it for a number of months (1). Evidence shows that ostomies are accompanied by some negative and permanent consequences regardless of the ostomy type or cause.

\*Corresponding Author: Corresponding Author: Monir Nobahar,  
Postal Address: Nursing Care Research Center and Social Determinants of Health Research Center, Faculty of Nursing and Midwifery, Semnan University of Medical Sciences, Semnan, Iran.  
Email: nobahar43@semums.ac.ir

These changes widely influence patients' lives quality (1).

Ostomy patients usually do not trust their lives. Their imagination of ostomy deeply affects their functionality in their lives (4). Ercolano et al. (2016) suggested that ostomies result in serious disorders in the life, which affects the entire wellbeing of the patients in physical, psychological, social, and spiritual dimensions (5). Ostomy results in the loss of a part of the natural functionality of the body and can lead to long-term consequences in forms of many challenges in healthcare, sleep disorders, and inflammation around the ostomy (6). It also can produce negative changes in diet, clothing, traveling, sports, sex, isolation, social activities, and job (7). Other problems of ostomy patients are allergic reactions to glues, waste leakage, bad smell, and bloating caused by intestinal gas accumulation (8). The changes start to happen at the beginning of the disease and cause different coping behaviors of the patients. Ostomy patients emphasize the negative aspects of ostomy and its effects on their body image. They do their routine activities by showing reactions in the adaptive process (9). An ostomy is followed by complicated and stable socio-psychological consequences, leading to disordered adaptability and adjustment of the patient in the upcoming problems (10). Given the problems and challenges of the disease, social reactions, and routing life concerns, ostomy patients are hardly adjusted with the ostomy (11).

According to ROY's Adaptability Theory, humans are living, physiological, and social creatures which are in permanent interaction with environmental changes. To make a positive response to the change, individuals have to adapt themselves with it. Thus, they always attempt to adapt.

Adaptation involves the individuals' responses to the environment, which leads to the improved general objectives of them, including survival, growth, reproduction, and skill acquirement. Adapted responses improve the integrity of an individual, leading to the growth, evolution, and increase of their control on the surrounding environment (12). Coping functions involve two strategy groups: problem-focused coping strategies and emotion-focused coping strategies. For the former, the attempts are made around managing or changing the problem and improving the relationship between the individual and the environment. For the latter, on the other hand, attempts are made to replace or adjust the stress-induced emotional effects on the individual (13). These strategies help to effectively manage ostomy and adaptive processes, thereby improving the life quality and normalizing the lives of the patients (15).

Evidence implies that factors such as age, gender, financial status, house owning, employment, insurance, ostomy nurse availability, ostomy association membership, required training on ostomy care, receiving consultation from ostomy centers, meeting people with ostomies, self-care, and medical costs affordability affect the adaptability (16, 17).

In the adaptive process of ostomy patients, negative feelings, such as fear, insecurity, denial, shame, pain, and anger are the most reported experiences. Ostomy patient feels shy, but the feeling gradually changes over time and the new situation is typically accepted. Moreover, positive feelings, such as security, welfare, love, self-efficacy, support, and confidence appear. These are reactions beyond age, gender, skin color, race, religion, and culture (18). In the studies conducted on

ostomy patients, their adaptability has been reported to be low. The results of Hu et al. (2014) in China indicated that 96.9% of ostomy patients had medium to low adaptability levels (17).

Life satisfaction is a personal judgment on happiness, wellbeing, and life quality based on the criteria selected by each individual and is seen as an individual's overall assessment of their lives (19). Life satisfaction is a general assessment of life quality regarding the criteria in each individual's life and shows their positive and negative feelings. It is affected by positive factors, including support, disease acceptance, coping with difficult situations, self-care-level, and healthcare availability and negative factors, such as treatment side effect, disease progress, and feeling lonely (3). The literature review demonstrates the low level of life satisfaction among ostomy patients. In the study of Taha and Moustafa (2013), the life satisfaction of ostomy patients was assessed in Egypt in three stages: during hospitalization, ten days after discharge, and two months after discharge. The results demonstrated that dissatisfaction among the temporal patients was 60.5, 86.8, and 94.7 for the three mentioned stages, respectively. The highest was seen in stage 3. For permanent ostomy patients, dissatisfaction was 60.5, 36.8, and 47.4, respectively (20).

The goal of nurses is to improve successful adaptability for people. The nursing process is searching for the identification, interpretation, and responses to adaptability processes (12). Given that limited studies have been conducted on life satisfaction (20) and adaptability (15) regarding ostomy, the current study was conducted to determine the relationship between adaptability and life satisfaction among ostomy patients.

## Methods

This study is descriptive-correlational. The statistical population consisted of ostomy patients referring to Iran Ostomy Association. To determine the sample size, a preliminary study was done on 20 individuals and the correlation between the two variables was estimated to be 0.25. Considering the confidence level of 0.95 and a test power of 0.80, the sample size was estimated to be 100 individuals using the following equation:

$$n = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{\left(\frac{1}{2}Ln\frac{1+r}{1-r}\right)^2} + 3$$

Consecutive Sampling Method was used. 100 ostomy patients who had referred to Iran Ostomy Association since the beginning of the study in 2016 were investigated. The selection criteria were having permanent or temporal ostomy, age above 18, at least 3 months since surgery, and read and write literacy. The patients who had experienced bad events in the last six months were not included. To collect data, demographic specifications and ostomy information, including age, gender, education level, marital status, job, ostomy type, ostomy location, and ostomy time as well as Bell Adjustment Inventory (BAI) questionnaire (1961) were employed. The questionnaire involved five dimensions: home adjustment, health adjustment, social adjustment, emotional adjustment, and occupational adjustment. Each dimension involved 32 questions. Thus, a total of 160 questions were included in the questionnaire. The questions of the adaptability dimensions were distributed in the questionnaire in dispersed order and each questionnaire had three response choices: Yes, No, and Uncertain. The

questions were scored according to a normed table. In the test, only Yes and No were scored. According to the normed table, the choices received a score of 0 or 1 and the "Uncertain" choice was not scored. Using an embedded key, the scores of the five dimensions were calculated, with the total score being obtained by summing up the individual scores. The lower the score an individual received in Bell test, the more adaptive they were. Bell estimated the total validity of the questionnaire to be 0.94 and obtained 0.91, 0.81, 0.88, 0.91, and 0.85 for home adjustment, health adjustment, social adjustment, emotional adjustment, and occupational adjustment, respectively (21). The validity of the BAI questionnaire in Iran was confirmed in (22). AlipourBirgani et al. (2015) reported the reliability of the questionnaire as 0.86 using Cronbach's alpha in (23). Moreover, this questionnaire was confirmed by Qasemi and its reliability was reported as 0.98 using Split-half Method. The reliability of the questionnaire was reported to be 0.92 using Test-retest Method in (24).

At the same time, life satisfaction measurement means was the standard Satisfaction With Life Scale (SWLS) questionnaire. This questionnaire was designed and validated by Diener et al. (25) in 1985 based on the overall judgment of an individual on comparison of the current life and the previously defined situation. This scale evaluates the positive aspects of an individual's experiences. The above-mentioned scale has five questions that are scored from 1 to 7 on the 7-point Likert Scale in which 1 denotes completely disagree and 7 denotes completely agree (26). The questions of the questionnaire were "My life is ideal in most cases", "my living conditions are excellent", "I am satisfied with my life", "I have achieved my

*intended important things in my life*", and "I would change nothing if I was able to start over my life". The score range was from 5 to 35 in the questionnaire (27). High scores in SWLS represent a high level of life satisfaction (25). The split score of the scale was 20. Score 20 indicated that the individual was neither satisfied nor dissatisfied with their lives. The validity and reliability of the test were obtained to be 0.79-0.89 and 0.84 in foreign studies, respectively (25). The validity and reliability were also investigated in Iran by Bayani et al. (2007). The reliability of the life satisfaction scale was obtained to be 0.83 and 0.69 using Cronbach Alpha and Test-retest Methods, respectively (29).

In the current study, the internal consistency between life satisfaction and adaptability was explored on 30 ostomy patients. Their Cronbach Alphas were calculated to 0.89 and 0.93, respectively. The validity of the means was confirmed using content validity method.

The research was confirmed in the Ethics Committee at Semnan University of Medical Sciences with the No. of IR.SEMUMS.REC.1394.55. Another ethical consideration of this study was giving the presentation to Iran Ostomy Association and receiving their permission. Moreover, the author introduced himself to the studied units during the study and received the letter of satisfaction from them after giving sufficient explanations on the study objectives and methodology, ensuring the confidentiality of the information, and promising that the study results would be given to them if needed.

Kolmogorov-Smirnov, Mann-Whitney U, and Kruskal-Wallis tests as well as Pearson Correlation, Spearman Correlation, and Partial Correlation coefficients were used to determine the correlation between

the two quantitative variables by eliminating the confounding variable effect. SPSS 23.0 was also used and the significance level was determined to be 0.05.

## Results

Among the 100 respondents, 98 (98%) had a permanent ostomy, while the remaining 2 (2%) had a temporal ostomy. 68% of them were under 65 years of age. 55% were male, 87% were married, and 85% had income levels of medium to high. 72% of the respondents had their ostomies for 10 to 19 years. 50% had ostomies in their descending colons (Table 1).

**Table 1.** Individual information of ostomy patients referring to Iran Ostomy Association

Demographic characteristics	N	%
<b>Gender</b>	Female	45
	Male	55
<b>Age</b>	≤65	68
	> 65	32
<b>Education</b>	Non-educated or elementary school	12
	Middle or high school	42
	Diploma or higher educated	46
<b>Residence</b>	City	89
	Village	11
<b>Marital status</b>	Married	87
	Other	13
<b>Occupancy</b>	Clerk	32
	Worker	16
	Housewife or retired	38
	Free	14
<b>Income</b>	Low	15
	Medium or high	85
<b>Had ostomy for (year)</b>	<10	13
	10-19	72
	≥ 20	15
<b>Ostomy location</b>	Ileostomy	38
	Descending colon	50
	Other	12

The mean±standard deviation of life satisfaction was 16.8±4.4 (of 35) (Table 2) and the mean±standard deviation of adaptation was 53.1±23.7. A positive and

significant correlation was observed between the two variables using the Pearson correlation coefficient ( $r=0.602$ ,  $p<0.001$ ). Eliminating the literacy effect, the correlation between life satisfaction and adaptability was obtained to be ( $r=0.597$ ,  $p<0.001$ ). Using the Spearman Correlation Coefficient, a positive and significant correlation was observed between ostomy time and adaptability ( $r=0.206$ ,  $p=0.04$ ). Moreover, Kruskal–Wallis test revealed a significant difference between adaptability and different locations ( $p=0.017$ ), such that life satisfaction increased as adaptability increased (Table 3). The mean ± standard deviation of each of the different levels of adaptability in men and women are presented in Table 4.

Furthermore, positive and significant correlations were observed between different adaptability dimensions and life satisfaction ( $p<0.001$  for all the cases) (Table 5).

## Discussion

The current study was conducted to investigate the relationship between life satisfaction and adaptability among 100 ostomy patients who referred to Iran Ostomy Association. The results indicated that the ostomy adaptability and life satisfaction were low among the ostomy patients. There were positive and significant correlations between different adaptability dimensions and life satisfaction. The results were consistent with Hu et al (2014) in China. They reported the patients' adaptability low, medium, and high for 33.3%, 63.6%, and 3.1% of their respondents (17).

Ostomy patients have adaptability problems with workplace, social and family situations, free time, sex, nutrition, and physical activities (30).

**Table 2.** Life satisfaction values of ostomy patients

Characteristics	Life satisfaction					Correlation coefficient	P value	
	Mean	SD	Median	Qurtile 1	Quartile 3			
Gender	Male	16.3	3.6	15.0	15.0	19.0	-	0.823
	Female	17.4	5.3	15.0	14.0	20.0		
Age	≤65	17.0	4.4	15.0	15.0	19.0	-0.014	0.887
	>65	16.4	4.5	15.0	15.0	17.0		
Education	Non-educated or elementary school	17.7	5.1	15.0	15.0	22.5	-0.077	0.449
	Middle or High school	17.1	5.2	15.0	15.0	20.0		
	Diploma or higher educated	16.3	3.6	15.0	15.0	19.0		
Residence	City	16.6	4.3	15.0	15.0	19.0	-	0.392
	Village	18.3	5.2	15.0	15.0	23.0		
Marital Status	Married	16.6	4.4	15.0	15.0	19.0	-	0.207
	Other	18.1	4.5	15.0	15.0	22.5		
Occupation	Clerk	15.8	3.7	15.0	14.2	17.0	-	0.579
	Worker	16.7	3.7	15.0	15.0	20.0		
	Housewife or retired	17.7	5.6	15.0	14.7	21.0		
	Free	16.8	3.1	15.0	15.0	20.0		
Income	Low	17.9	4.1	15.0	15.0	20.0	-0.222	0.027
	Medium or high	16.6	4.5	15.0	15.0	19.0		
Had ostomy for (years)	<10	16.1	4.9	15.0	14.0	15.0	0.107	0.291
	10 to 19	16.8	4.4	15.0	15.0	19.5		
	≥20	17.5	4.4	16.0	15.0	19.0		
Ostomy location	Ileostomy	17.2	4.6	15.0	15.0	20.0	-	0.519
	Descending colon	16.5	4.6	15.0	15.0	19.0		
	Other	16.8	3.4	15.0	15.0	19.5		

**Table 3.** Adaptability values of ostomy patients

Specification	Life Satisfaction					Correlation coefficient	P value	
	Mean	SD	Median	Quadrant 1	Quadrant 3			
Gender	Male	51.6	21.5	48.0	43.5	54.5	-	0.868
	Female	54.9	26.3	48.0	42.0	60.0		
Age	≤65	52.8	22.8	48.0	43.2	57.5	0.058	0.568
	>65	53.7	25.9	48.0	36.5	61.5		
Education	Non-educated or elementary school	55.7	30.3	46.5	31.2	89.7	-0.034	0.736
	Middle or High school	57.1	26.3	49.0	43.0	65.2		
	Diploma or higher educated	48.7	18.7	48.0	40.5	56.0		
Residence	City	52.7	23.7	48.0	42.0	58.5	-	0.624
	Village	56.0	25.0	49.0	46.0	52.0		
Marital Status	Married	52.4	23.1	48.0	42.0	58.0	-	0.445
	Other	57.7	28.5	50.0	46.5	76.0		
Occupation	Clerk	47.8	18.9	47.5	31.5	55.0	-	0.828
	Worker	55.6	21.4	48.5	45.2	61.0		
	Housewife or retired	56.3	28.4	48.5	33.2	72.2		
	Free	53.6	22.6	46.5	44.0	53.0		
Income	Low	55.5	27.2	49.0	41.0	64.0	-0.085	0.402
	Medium or high	52.7	23.2	48.0	43.0	57.5		
Had ostomy for [years]	<10	48.4	18.9	47.0	43.5	49.0	0.206	0.040
	10 to 19	52.6	25.2	48.0	37.2	56.0		
	≥20	59.3	19.7	54.0	49.0	61.0		
Ostomy location	Ileostomy	57.8	24.3	49.5	46.0	60.0	-	0.017
	Descending colon	52.6	24.1	48.0	30.0	60.0		
	Other	40.3	11.4	44.0	33.0	45.5		

**Table 4.** Mean±SD of adaptability dimensions

Gender	Adaptability dimensions					Overall adaptability
	Home	Health	Social	Emotional	Occupational	
Male	9.4±4.6	10.8±5.8	10.6±4.3	12.8±6.5	8.0±3.1	51.6±21.5
Female	9.8±5.8	10.8±7.5	11.1±4.6	14.2±7.9	9.0±3.3	54.9±26.3
Total	9.6±5.2	10.8±6.6	10.8±4.5	13.4±7.1	8.4±3.2	53.1±23.7

**Table 5.** Life satisfaction and adaptability dimensions correlations

Adaptability dimensions	Life Satisfaction	
	Partial correlation	P value
Home	0.585	<0.001
Health	0.611	<0.001
Social	0.460	<0.001
Emotional	0.538	<0.001
Occupational	0.380	<0.001
Overall	0.597	<0.001

Self-management programs for ostomy can help improve ostomy patient’s adaptability (31). Moreover, patients with higher knowledge will have easy adaptability process. Thus, nurses have to teach those who look after ostomy patients while emphasizing the patients’ self-care independence (32). Encouraging the patients to increase the support network and helping them to adapt their new life situation is an important responsibility of nurses. Thus, it is necessary for nurses to provide evidence-based care strategies and help improve the patients’ adaptability (33).

At the same time, more studies on ostomy patients’ adaptability can help formulate comprehensive self-care programs for them (32). Sun et al. (2013) believed that ostomy adaptability is an individual process and support can help improve coping behaviors and adaptability (33).

Ostomy adaptability is related to self-care success, the positive mental image of the body, and social support (6). Thus, ostomy patients need time and support of their caretakers, family, and friends to adapt to having an ostomy (32).

The results of the current study revealed that ostomy patients had low life satisfaction. In agreement with this study, Bazalinski et al. (2014) studied ostomy patients in the Netherlands and demonstrated that 59.5% of the patients were unhappy with their lives, while 29.5% of them were very unhappy (3). The results of the current study did not represent a significant correlation between the ostomy patients’ life satisfaction and demographic information. Moreover, the results of other studies did not show a significant correlation between life satisfaction level and demographic factors such as age, gender, marital status, ostomy type, and ostomy surgery time length (3, 34).

The findings of the current study indicated that there was a negative and significant correlation between income level and life satisfaction.

Rogowska et al. (2013) suggested that there are significant relationships between education level, home place, and life situation and life satisfaction (35). Living with an ostomy requires access to daily care tools, lifestyle change, emotion

management, and adaptability to the social role (5). Nurses play an important role in improving ostomy patients' life satisfaction (20). The findings of this study were obtained from the investigation of life satisfaction and adaptability of the patients referring to Iran Ostomy Association in Tehran. It is recommended to conduct more studies in other cities to investigate ostomy patients' life satisfaction and adaptability.

According to the results, it can be said that adaptability to different life aspects among ostomy patients leads to improved life satisfaction. Therefore, given the different adaptability dimensions, it seems to be necessary to design and execute proper educational, supportive, and care interventions for ostomy patients.

### **Acknowledgment**

This study was a research scheme No. 861 approved at Semnan University of Medical Sciences with the ethics code of IR.SEMUMS.REC.1394.55. The author would like to thank the research and technology deputy of Semnan University of Medical Sciences for supporting the execution and costs of the research. We also thank all ostomy patients at Iran Ostomy Association and all those who helped and laid the ground for this study.

### **Conflicts of Interest**

The authors declare that there are no conflicts of interest regarding the publication of this paper.

### **References**

1. Krouse R, Grant M, Ferrell B, Dean G, Nelson R, Chu D. Quality of life outcomes in 599 cancer and non-cancer patients with colostomies. *Journal of Surgical Research*. 2007 Mar 1;138(1):79-87.

2. Boraii S. A Descriptive Study to Assess Quality of Life in Egyptian Patients With a Stoma. *Ostomy/wound management*. 2017 Jul;63(7):28-33.
3. Bazaliński D, Sałacińska I, Więch P, Kózka M. Life satisfaction and self-efficacy in patients with stoma. *Progress in Health Sciences*. 2014;4(2):22-30.
4. Xu S, Zhang Z, Wang A, Zhu J, Tang H, Zhu X. Effect of self-efficacy intervention on quality of life of patients with intestinal stoma. *Gastroenterology Nursing*. 2018 Jul;41(4):341.
5. Ercolano E, Grant M, McCorkle R, Tallman NJ, Cobb MD, Wendel C, Krouse R. Applying the chronic care model to support ostomy self-management: Implications for oncology nursing practice. *Clinical journal of oncology nursing*. 2016 Jun 1;20(3):269.
6. Yau T, Watkins D, Cunningham D, Barbachano Y, Chau I, Chong G. Longitudinal assessment of quality of life in rectal cancer patients with or without stomas following primary resection. *Diseases of the Colon & Rectum*. 2009 Apr 1;52(4):669-77.
7. Ramirez M, McMullen C, Grant M, Altschuler A, Hornbrook MC, Krouse RS. Figuring out sex in a reconfigured body: experiences of female colorectal cancer survivors with ostomies. *Women & health*. 2010 Feb 19;49(8):608-24.
8. Popek S, Grant M, Gemmill R, Wendel CS, Mohler MJ, Rawl SM, Baldwin CM, Ko CY, Schmidt CM, Krouse RS. Overcoming challenges: life with an ostomy. *The American Journal of Surgery*. 2010 Nov 1;200(5):640-5.
9. Cheng F, Meng AF, Yang LF, Zhang YN. The correlation between ostomy knowledge and self-care ability with psychosocial adjustment in Chinese patients with a permanent colostomy: a descriptive study. *Ostomy Wound Manage*. 2013 Jul 1;59(7):35-8.
10. Pouresmail Z, Heshmati Nabavi F, Sadeghi T, Shafiee Jafarabadi MN, Voshani B, Reza H. Correlation between adjustment and self-efficacy in patients with intestinal ostomy. *Journal of hayat*. 2017 Jan 15;22(4):300-11.
11. Naderiravesh N, Abed Saeedi J, Besharat M, Pourkhaki A, Alavi Majd H. A review of the



models and theories of adjustment to illness and disability. *Payesh* 2014;13(6):677-86.

12. Roy S, Andrews H. The Roy adaptation model. : Stamford, CT: Appleton & Lange.; 1999.

13. Lazarus R, Folkman S. Stress, appraisal, and coping New York ,NY: Springer Publishing Company. 1984.

14. Martín Muñoz B, Panduro Jiménez RM, Crespillo Díaz Y, Rojas Suárez L, González Navarro S. El proceso de afrontamiento en personas recientemente ostomizadas. *Index de Enfermería*. 2010;19(2-3):115-9.

15. Bonill-de-las-Nieves C, Celdrán-Mañas M, Hueso-Montoro C, Morales-Asencio JM, Rivas-Marín C, Fernández-Gallego MC. Living with digestive stomas: strategies to cope with the new bodily reality. *Revista latino-americana de enfermagem*. 2014;22(3):394-400.

16. Goldberg M, Aukett LK, Carmel J, Fellows J, Pittman J. Management of the patient with a fecal ostomy: best practice guideline for clinicians. *Journal of Wound Ostomy & Continence Nursing*. 2010;37(6):596-8.

17. Hu A, Pan Y, Zhang M, Zhang J, Zheng M, Huang M, et al. Factors influencing adjustment to a colostomy in chinese patients: a cross-sectional study. *Journal of Wound Ostomy & Continence Nursing*. 2014;41(5):455-9.

18. Martín Muñoz B, Panduro Jiménez R, Crespillo Díaz Y, Rojas Suárez L, González Navarro S. The coping process in people who have a recently ostomy surgery. *Index de Enfermería*. 2010;19(2-3):115-9.

19. Diener E, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. *Journal of personality assessment*. 1985;49(1):71-5.

20. Taha NF, Moustafa MM. Hope Level and Life Satisfaction among Patients with Colostomy and their Family caregivers. *Journal of Biology, Agriculture, and Healthcare*. 2013;3(13):60-72.

21. Bell HM. The adjustment inventory (adult form). 1961.

22. Aarabi S. The effectiveness of teaching life skills on social adjustment of female teenagers participating in leisure time programs

of Isfahan Welfare Organization (MSc Thesis). Isfahan, Iran: Khorasgan Branch, Islamic Azad University. 2001.

23. Alipour Birgandi S, Sahaghi H, Jelodari A. The relationship between perceived social support and Academic self-efficacy with social adjustment. *Development Strategies in Medical Education*. 2015;2(1):26-37.

24. Ghasemi M. Validity and reliability of Bell Inventory (thesis of MSc): Tehran Azad University, Research Science Branch. 1998.

25. Diener ED, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. *Journal of personality assessment*. 1985;49(1):71-5.

26. Shin DC, Johnson DM. Avowed happiness as an overall assessment of the quality of life. *Social indicators research*. 1978;5(1-4):475-92.

27. Simmons KL, Smith JA, Bobb KA, Liles LL. Adjustment to colostomy: stoma acceptance, stoma care self-efficacy and interpersonal relationships. *J Adv Nurs*. 2007;60(6):627-35.

28. Pavot W, Diener E. The satisfaction with life scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology*. 2008;3(2):137-52.

29. Bayani AA, Kouchaki AM, Goudarzi H. The reliability and validity of the satisfaction with life scale. *Jornal of iranian psychologists*. 2007;3(11):259-65.

30. Simmons KL, Maekawa A, Smith JA. Culture and psychosocial function in British and Japanese people with an ostomy. *Journal of Wound Ostomy & Continence Nursing*. 2011;38(4):421-7.

31. Krouse RS, Grant M, McCorkle R, Wendel CS, Cobb MD, Tallman NJ, et al. A chronic care ostomy self-management program for cancer survivors. *Psycho-oncology*. 2016;25(5):574-81.

32. Lopes A, Decesaro M. Adjustments experience by persons with an ostomy: a integrative review of the literature. *Ostomy Wound Manage (Internet)*. 2014:34-42.

33. Sun V, Grant M, McMullen CK, Altschuler A, Mohler MJ, Hornbrook MC, et al. Surviving colorectal cancer: long-term,

persistent ostomy-specific concerns and adaptations. *Journal of wound, ostomy, and continence nursing: official publication of The Wound, Ostomy and Continence Nurses Society/WOCN.* 2013;40(1):61.

34. Basińska M, Marzec A. Satysfakcja z życia wśród osób przewlekle chorych. *Ann Acad Med Siles.* 2007;61(5):401-7.

35. Rogowska J, Krajewska-Kulak E, Kondzior D. Przystosowanie się do życia pacjentów po wyłonieniu stomii. *Pielęg Chir Angiol.* 2013;2:44-54.