

# Nurses' Knowledge About Fecal Intestinal Ostomies's Care: A Cross-Sectional Study

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## Abstract

**Background:** Investigation of various aspects of care in ostomy patients is of clinical importance, as the level of knowledge and skills of nurses directly influences the quality of patient education and satisfaction with received care.

**Objectives:** The purpose of this study was to determine knowledge of nurses in general surgery wards regarding fecal intestinal ostomies.

**Methods:** This cross-sectional study was performed during year 2015 at teaching hospitals (Ghaem, Imam Reza and Omid hospitals) affiliated to Mashhad University of Medical Sciences, Iran. We used census for sampling, and the study population included all nurses, who were working in intestinal ostomy surgery wards. Inclusion criteria were having an undergraduate degree in nursing and at least one-year work experience at the surgical ward. Data collection tools were a demographic information questionnaire and a researcher-made survey of "assessment of knowledge of nurses in ostomy care". Data were analyzed using SPSS software version 11.5.

**Results:** Overall, 83.9% of participants were female and mean work experience at the surgical ward was 4.23 (SD = 3.73). More than half of the nurses gave incorrect answers to questions related to the use of powders and sprays associated with skin itching and sensitivity (64.3%), and how to care for ostomy with a rod (66.1%). Nurses also showed low and very low levels of knowledge on symptoms and control of obstruction (57.1%), change duration in the size of ostomy (66%), sexual intercourse (57.1%), colostomy complications (51.8%) and ileostomy (57.1%) and authorized or unauthorized activities (50%) as well as how to perform bowel irrigation (75%).

**Conclusions:** According to the results of this study, the knowledge of nurses was not enough to provide primary care for ostomy; thus due to the importance of adequate knowledge and because of needs assessments, it is recommended for nursing managers to conduct retraining courses and other educational approaches for nurses.

**Keywords:** Ostomy, Nurses, Knowledge, Colostomy, Ileostomy

## 1. Background

Colorectal cancer (CRC) is a public health burden in most industrialized countries and the most common cause of cancer-related deaths in the world (1, 2). Studies have shown high incidence for diseases associated with intestinal ostomy surgery so that almost a million people in North America have ostomy, and more than 120000 ostomy surgeries are annually performed in the United States and Canada (3, 4). According to the latest statistics of ostomy association (2009), there are about 30000 patients with ostomy in Iran (5). The incidence and mortality rate of CRC is increasing in Iran and it is predicted that the Iranian population may experience an acceleration of its burden in the future (1). Although ostomy operation is known worldwide as an efficient method of life preservation, it may cause various physical, social and mental dis-

orders in patients (6).

Specialized and adequate care during hospitalization is a Patient's right (4) and nurses can help patients reduce problems caused by ostomy. In accordance with nursing duties, ostomy care is one of the nurse's responsibilities. Sufficient knowledge of nurses in dealing with patients with ostomy can affect accountability and proper guidance of patients and reduce the incidence of surgical complications (7). However, clinical experiences and studies in other countries indicated that the majority of nurses, who work with patients with intestinal ostomy do not have enough knowledge about basic ostomy care and nurses have not accepted ostomy care as one of their responsibilities (4, 8). However, nurses play an important role in initial assessment and the provision of educational support to ostomy surgery patients before and after surgery. Knowledge

and skills of nurses affect the quality of patient care and education (9). Since patient education is one of the nurses' duties, they must have sufficient knowledge to educate these patients (9). Nurses, who consider themselves competent and have an interest in education had significantly better academic performance than others (10). Therefore, nurses' perception of their knowledge and skills influence patient education and satisfaction with care (9, 11).

Observations suggest that psychological disorders often cannot be found in patients participating in ostomy care (12). Thus, most patients, who acquired sufficient competence in the management of ostomy, have better compatibility between 4 and 12 months after surgery (13). Recently operated patients should receive training during a comprehensive care program regarding basic skills including preparing, draining and replacing the bag as well as ostomy control such as diet and fluids, important signs of complications, factors regarding drugs and also bloating and odor control (14).

However, the experiences of the researchers in Mashhad indicate that hospitalized patients do not receive these kinds of training and patients sometimes receive incorrect information from nurses and other patients and this could lead to ostomy complications. In addition, nurse aids often replace ostomy bag in surgical wards instead of nurses. The hypothetical measure of stoma size and cutting bag being larger than the real size of stoma are leading factors in skin complications after discharge from the hospital. Currently, there is no formal training program for training nurses in stoma care and there is no evidence that indicates knowledge of nurse in caring of fecal intestinal ostomy.

It is important to identify the current knowledge and ability of nurses in training patients, who have recently undergone surgery for determining the mechanism of educational programs (9).

## 2. Objectives

The purpose of this study was to determine knowledge of nurses in general surgery wards regarding fecal intestinal ostomies.

## 3. Methods

This cross-sectional analytical research was performed during year 2015 at intestinal ostomy surgery wards of teaching hospitals affiliated to Mashhad University of Medical Sciences, Mashhad, Iran, (Ghaem, Imam Reza and Omid hospitals). Ghaem and Imam Reza hospitals are general hospitals and Omid hospital is specialized in cancer.

Ghaem hospital has 8 surgery wards with ostomy patient hospitalized in two wards. Emam Reza hospital has one general surgery ward, where ostomy patients are hospitalized. Omid hospital is specialized in cancer and has two surgery (males and females) wards. The study population included all nurses, who were working in intestinal ostomy surgery wards. We used census for sampling because the number of nurses were limited. Inclusion criteria were undergraduate degree in nursing and at least one-year work experience at the surgical ward. Nurses, who had worked less than one year and had management tasks, were excluded from the study.

Data collection tools were two questionnaires. The demographic information questionnaire included age, gender, years of employment at the general ward, and years of employment at the current ward. The researcher-made questionnaire, namely "assessment of nurses' knowledge in ostomy care", had two parts; the aim of first part was to evaluate the performance of nurses with 18 questions on how to replace the ostomy bag and with three answers, including 'true', 'false' and 'I do not know'. Questions 3, 16, 17 and 18 were designed with reverse order. The second part examined the nurses' knowledge in ostomy care with 17 questions, and nurses had to rank their knowledge as very high, high, low and very low; maximum and minimum scores were 68 and 17 in this section, respectively.

At the end, the nurses were asked to rank their knowledge and practice about ostomy care from low (score 1) to very high (score 5) with two questions.

Content validity for the researcher-made questionnaire was determined. Thus, researchers read books and new articles for setting up this form (10), and then presented it to 10 faculty members of Mashhad University of Medical Sciences to incorporate their comments. Test-retest method confirmed the reliability by a correlation coefficient of 76.3%. After Ethics Committee approval, the list of names and numbers of nurses was set up in cooperation with supervisors; then, the researchers referred to wards during the various shifts to complete the questionnaire. Questionnaires were delivered to nurses, who were interested in participating in the study and they were asked to complete it. After 25 minutes, the questionnaires were gathered.

Data were analyzed through SPSS 11.5 using descriptive (mean, standard deviation (SD), frequency) and analytical statistics (Pearson product-moment correlation coefficient).

### 3.1. Ethics

This study was approved by the committee for research ethics (NO: IR.MUMS.REC.1394) at the School of Medicine of MUMS. Written informed consent was obtained from

all of the respondents. Participants in the study were assured that the information obtained from the questionnaires were confidential and reported only in general.

## 4. Results

### 4.1. Baseline Characteristics

From all nurses (68 nurses), who were working in general surgery departments and took care of intestinal ostomy patients, 63 nurses participated in this study; seven participants were excluded from the study due to an incomplete questionnaire. Questions response rate was 88.88%. In total, 47 (83.9%) of the 56 finalists in the study were females and 42 (75%) were married. Average work experience at the surgical ward was  $4.23 \pm 3.73$  and average total work experience was  $10.31 \pm 7.73$ . Table 1 presents demographic characteristics of subjects in the study.

### 4.2. Nurses' Knowledge

More than half of the nurses gave incorrect answers to questions related to the use of powders and sprays associated with skin itching and sensitivity (51.8%), how to replace ostomy bag in walking patients (55.3%) and how to care for ostomy with rod (66.1%), or were unaware of the subject. More details can be found in Table 2.

More than half of the nurses reported their information at high and very high levels in different areas; such as different types of intestinal ostomy (57.1%), ostomy products (50.0%), control of gas and odor of ostomy (0.59%), diet and fluid intake (66.0%), the symptoms of diarrhea and dehydration (67.9%), constipation symptoms and control (73.2%), how to prevent skin sensitivity (73.2%), bathing (60.7%), time to return to previous activities (60.8%) and how to travel with ostomy (53.6%).

Furthermore, they reported their knowledge as low and very low in areas of signs and symptoms of obstruction and its control (57.1%), the change duration in the size of ostomy (66%), sexual intercourse (57.1%), complications of colostomy (51.8%), complications of ileostomy (57.1%) and authorized or unauthorized activities (50%), as well as how to perform bowel irrigation (75%); refer to Table 3.

Ostomy care nurses rated their knowledge as moderate (57.4%), high (22.2%), low (11.1%), very low (7.4%), very high (1.9%). They also assessed their practice in ostomy care as moderate (38.9%), good (27.8%), low (22.2%), very low and very good (5.6%).

Pearson correlation test results showed no significant relationship among the mean score of nurse's knowledge with age, total work experience and work experience at the surgical ward.

## 5. Discussion

The aim of this study was to determine nurses' knowledge about care of patients with fecal intestinal ostomy. The results revealed that 75.9% of nurses assessed their knowledge of ostomy care as moderate to low. Cross et al. also found that knowledge of nurses is not enough for ostomy care (4). Duruk et al. in their study concluded that baseline data of nurses are limited for ostomy care (8). This can be due to the lack of specialized training courses in nursing for ostomy care. Therefore, it is necessary for nurses to receive specialized training on relevant wards. In a study of Gemmil et al., 80% of respondents claimed that they had the ability to take care of ostomy patients, but only 30% of them stated that they performed ostomy care (9). Duruk et al. also identified that 74% of nurses did not consider ostomy care as their task (8). Failure to accept this duty could be one of the reasons for the lack of follow-up on learning, enhancing knowledge, quality of care for ostomy patients and could lead to dissatisfaction of patients. In this regard, Persson et al. concluded that patients were not satisfied with care they had received at the studied hospital (15). Sarabi et al. (2011) reported that the lowest patient satisfaction from nurses was related to the introduction of ostomy support forum, provided ostomy appliances, how to prepare ostomy supplies and allocate enough time to talk with patients (16). Mehraban et al. in their study concluded that patients had distrust towards members of staff due to recurrent referrals to physician, lack of adequate guidance and lack of proper training by a nurse (17). Studies have shown that there is a strong correlation between patient satisfaction with care and two major factors including the existence of a reliable nurse to take care of ostomy patients and the duration of the nurse-patient communication (18).

In the present study, the least level of knowledge was related to the prevention and control of ostomy complications, and the most knowledge was about the types of intestinal ostomy, products of ostomy, gas and odor control, and diet. Nurses also had no correct information on how to replace and connect the ostomy bag. However, the results of Cross et al. (2014) showed that the highest and the lowest scores of nurses were on how to replace the ostomy bag and diet, respectively (4). This difference may be due to differences in the nursing curriculum in these countries. At the assessed hospitals, patient education was the nurse's task, yet changing the ostomy bag was done by nurse assistants. This can be the cause of insufficient nurse's knowledge about changing ostomy bag while ostomy care and changing the bag is known as a nurse's responsibility in the international community. Also, in Iran, this role is defined as a nurse's task, but in some hospitals, unofficial

**Table 1.** Demographic Data of Nurses

Variables		
Age, (Mean $\pm$ SD)	Years	34.10 $\pm$ 7.69
Experience at the surgical ward, (Mean $\pm$ SD)	Months	4.23 $\pm$ 3.73
Clinical experience, (Mean $\pm$ SD)	Months	10.31 $\pm$ 7.73
Gender, number (percent)	Female	47 (83.9)
	Male	9 (16.1)
Marital status, number (percent)	Single	14 (25.0)
	Married	42 (75.0)
Degree of education, number (percent)	Undergraduate	52 (92.9)
	Master's degree	4 (7.1)
Hospitals, number (percent)	Imam Reza	8 (14.3)
	Ghaem	12 (21.4)
	Omid	36 (64.3)

**Table 2.** Frequency Distribution of Answers to Questions Related to Nursing Practice Regarding Ostomy Care

No.	The Work Steps	True, N (%)	False, N (%)	I Do Not Know, N (%)
1	Prepare appliance, towel or tissue to clean the skin, stoma size template, pen for drawing stoma size, scissors, small plastic bag for trash bin are sufficient to replace the ostomy bag	43 (76.8)	10 (17.9)	3 (5.4)
2	Color and moisture of stoma should be checked at the time of changing bag	51 (91.1)	4 (7.1)	1 (1.8)
3	The skin around the stoma does not need to be examined for redness and irritation.	9 (16.1)	46 (82.1)	1 (1.8)
4	It is better to clean the skin around the stoma with warm water and gauze or cotton.	45 (80.4)	9 (16.1)	2 (3.6)
5	Normal saline solution is suitable for cleaning of stoma and skin	38 (67.9)	9 (16.1)	9 (16.8)
6	The skin around the stoma should be dry with a towel or gauze.	45 (80.4)	3 (5.4)	8 (14.3)
7	If the skin around the stoma is itchy or sensitive, use protective powder and sprays.	27 (48.2)	20 (35.7)	9 (16.1)
8	Stoma size should be determined using the template.	49 (87.5)	2 (3.6)	5 (8.9)
9	If the stoma is not round, the template can be determined using talc.	40 (71.4)	3 (5.4)	13 (23.2)
10	Ostomy bag should be set according to template size or talc.	48 (85.7)	3 (5.4)	5 (8.9)
11	If talc is used, it must be put on the adhesive bag and draw a shape.	44 (78.6)	1 (1.8)	11 (19.6)
12	To cut the adhesive, direct cutting is done to the designated place to cut round	48 (85.7)	0 (0)	8 (14.3)
13	Adhesive cut edges should be flat with a finger.	44 (78.6)	6 (10.7)	6 (10.7)
14	It is better to heat the adhesive before sticking to the skin with hand heat.	31 (55.4)	19 (33.9)	6 (10.7)
15	Rub the adhesive for 30 to 60 seconds around in all directions to ensure good sticking.	49 (87.5)	4 (7.1)	3 (5.4)
16	If the patient is walking, you hang the bag on its side.	27 (48.2)	25 (44.6)	4 (7.1)
17	If the patient is sleeping, you hang the bag straight.	38 (67.9)	14 (25.0)	4 (7.1)
18	If ostomy has "rod", both sides should be out of the stoma.	14 (25.0)	19 (33.9)	23 (41.1)

roles have led to insufficient ostomy care by nurses. Cross et al. (2014) found that nursing care of ostomy patients is closely associated with their ability, knowledge and skills; in addition, nurses are required to take courses for ostomy care (4).

### 5.1. Conclusion

The results of this research indicate that nurses' knowledge about prevention and control of ostomy complications and replacement of ostomy bag was inadequate. Thus nurses are required to receive training in relation to qual-

**Table 3.** Frequency Distribution of Answers to Questions on Knowledge of Nurses Regarding Ostomy Care

No.	Items	Very High, N (%)	High, N (%)	Low, N (%)	Very low, N (%)
1	Different types of intestinal ostomy (colostomy, ileostomy, loop ostomy, etc)	4 (7.1)	28 (50.0)	23 (41.1)	1 (1.8)
2	Ostomy products and their uses, (one-piece, two-piece, open bottom and closed bottom bags, ostomy belts, protective paste, etc.)	3 (5.4)	25 (44.6)	27 (48.2)	1 (1.8)
3	Control of gas and odor of ostomy	3 (5.4)	30 (53.6)	23 (41.1)	0 (0)
4	Diet and fluid intake	4 (7.1)	33 (58.9)	18 (32.1)	1 (1.8)
5	Symptoms of obstruction and its control	2 (3.6)	22 (39.3)	28 (50.0)	4 (7.1)
6	Symptoms of diarrhea and dehydration	3 (5.4)	35 (62.5)	18 (32.1)	0 (0)
7	Constipation symptoms and control	4 (7.1)	37 (66.1)	15 (26.8)	0 (0.0)
8	Change duration in the size of ostomy (about 6 weeks after surgery)	2 (3.6)	17 (30.4)	32 (57.1)	5 (8.9)
9	How to prevent skin sensitivity	4 (7.1)	35 (62.5)	16 (28.6)	1 (1.8)
10	Bathing	5 (8.9)	29 (51.8)	21 (37.5)	1 (1.8)
11	Time to return to previous activities	3 (5.4)	31 (55.4)	19 (33.9)	3 (5.4)
12	How to travel with ostomy	3 (5.4)	27 (48.2)	21 (37.5)	5 (8.9)
13	Sexual intercourse	3 (5.4)	21 (37.5)	28 (50.0)	4 (7.1)
14	Complications of colostomy	3 (5.4)	24 (42.9)	24 (42.9)	5 (8.9)
15	Complications of ileostomy	2 (3.6)	22 (39.3)	28 (50.0)	4 (7.1)
16	Authorized or unauthorized activities	2 (3.6)	26 (46.4)	26 (46.6)	2 (3.6)
17	Perform bowel irrigation	1 (1.8)	13 (23.2)	30 (53.6)	12 (21.4)

ity of care for ostomy care. It is suggested to pay special attention in planning ostomy care courses by nursing managers.

In use of this study's findings, it should be noted that these findings were collected as a self-report. Thus, different characteristics could have influenced responses. Since the number of nurses, who worked at the surgical ward was limited, using randomized sampling was impossible.

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