







ORIGINAL

Nurses' knowledge and attitude regarding patients' stoma care

Conocimientos y actitudes de las enfermeras respecto al cuidado del estoma en los pacientes

Nermen Abdelftah Mohamed^{1,2}  , Samah Osman Ali^{3,4}  , Elturabi Elsayed Elkhider Ehrahim¹  , Amany Lotfy Ahmed^{5,6}  , Rabab Sabry Hassan Mohamed^{7,8}  , Aziza Mohamed Kamel^{1,9} 

¹Medical-Surgical Nursing, Nursing College, Prince Sattam Ben Abdulaziz University. Al-Kharj, Saudi Arabia.

²Adult Nursing faculty of Nursing Kafrelsheikh University. Egypt.

³Tabouk College of Nursing. Saudi Arabia.

⁴Psychiatric mental health nursing, Faculty of Nursing, Cairo University. Egypt.

⁵Community Health Nursing, Faculty of Nursing, Kafr Elsheikh University. Egypt.

⁶Community Health Nursing, North Private College of Nursing. Arar, Saudi Arabia.

⁷Lecturer of Maternal and Newborn Health Nursing, Faculty of Nursing, Cairo University. Egypt.

⁸Maternity Nursing at North Private College of Nursing. Arar, Saudi Arabia.

⁹Lecturer of the medical-surgical department, Faculty of Nursing, Menoufia University. Egypt.

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Corresponding Author: Nermen Abdelftah Mohamed 

ABSTRACT

Introduction: stoma is a Greek term meaning opening. Ostomy continues to hold a unique and significant role in the management and treatment of various medical conditions. Ostomy procedures are often essential for improving patient outcomes, enhancing quality of life, and addressing complex health challenges. The nurses' educational background and participation in continuous professional development programs have been linked to differences in nurses' knowledge and attitudes toward stoma care.

Objective: to determine nurses' knowledge and attitudes regarding patients' stoma care.

Method: a cross-sectional descriptive study was conducted among 434 nurses. A non-probability purposive sampling technique and a self-administered structured questionnaire were used in this study. The study was done in a general hospital in Egypt.

Results: in this study, 64,1 % of nurses demonstrated adequate total knowledge. Also, a positive correlation was found between knowledge and opinions of nurses about stoma care.

Conclusions: the study concluded that the majority of nurses had a satisfactory knowledge level regarding stoma care and a positive attitude level.

Keyword: Nurses; Knowledge; Attitude; Stoma Care.

RESUMEN

Introducción: estoma es un término griego que significa apertura. La ostomía sigue teniendo un papel único y significativo en el manejo y tratamiento de diversas afecciones médicas. Los procedimientos de ostomía suelen ser esenciales para mejorar los resultados del paciente, mejorar la calidad de vida y abordar desafíos de salud complejos. La formación académica de las enfermeras y la participación en programas de desarrollo profesional continuo se han relacionado con diferencias en el conocimiento y las actitudes de las enfermeras hacia el cuidado de la estoma.

Objetivo: determinar el conocimiento y la actitud de las enfermeras con respecto al cuidado de la estoma de los pacientes.

Método: se realizó un estudio descriptivo transversal entre 434 enfermeras. En este estudio se utilizó una técnica de muestreo intencional no probabilístico y un cuestionario estructurado autoadministrado. El estudio se realizó en un hospital general en Egipto.

Resultados: en este estudio, el 64,1 % de las enfermeras demostraron un conocimiento total adecuado. Además, se encontró una correlación positiva entre el conocimiento y las opiniones de las enfermeras sobre el cuidado de la estoma.

Conclusiones: el estudio concluyó que la mayoría de las enfermeras tenían un nivel de conocimiento satisfactorio sobre el cuidado de la estoma con un nivel de actitud positivo.

Palabras clave: Enfermeras; Conocimientos; Actitud; Cuidado del Estoma.

INTRODUCTION

Stoma care is a critical component of nursing care skills, involving the management of patients who have undergone surgeries resulting in ostomies, such as ileostomies or colostomies. These procedures create an opening from the intestines through the patient's abdominal wall, known as a stoma, to transfer waste.⁽¹⁾ Even though ostomies can save human life, they can cause patients to face several medical, social, and psychological difficulties, such as peristomal skin issues, issues with body image, and trouble taking care of themselves. Patients who have a colostomy suffer from psychosocial issues such as anxiety, depression, and low self-esteem.⁽²⁾

Patients with stomas experience negative social, psychological, and bodily effects. Physical problems include skin problems, leakage, odor, and ballooning. Common physical problems with the stoma include leaking and peristomal skin problems. Furthermore, the need to adapt clothing to the presence and site of the stoma and cope with stoma appliances has a significant impact on the patient's daily life.⁽³⁾

Nurses play a crucial role in assisting patients with stomas by providing essential care, education, and emotional support to help them adjust to life after surgery. However, research has shown that nurses' knowledge and attitudes toward stoma care significantly impact the quality of care they provide. Studies conducted in acute care settings have revealed that many nurses have insufficient knowledge of stoma management, which can hinder effective patient education and support.⁽⁴⁾ Additionally, perceptions of responsibility for stoma care vary among nurses, with some not considering it part of their role, potentially leading to less optimal patient outcomes.⁽⁵⁾ Factors such as professional experience, educational background, and participation in continuous professional development programs have been linked to differences in nurses' knowledge and attitudes toward stoma care.⁽⁶⁾

Stoma surgery can lead to several specific complications, including stoma necrosis, retraction, stenosis, prolapse, mucocutaneous separation, peritonitis, and skin-related issues.⁽⁷⁾ Evidence-based practice, often defined as "the thoughtful, clear, and careful application of the best available evidence in making decisions about individual patient care," plays a crucial role in addressing these challenges.⁽⁸⁾

Nursing, as a profession, involves the formalization of care through the development of scientific knowledge and technical expertise. This foundation enables nurses to share actions, ideas, and experiences in their caregiving roles. Nursing care emphasizes a holistic approach, focusing on health promotion, disease prevention, and rehabilitation. It prioritizes meeting fundamental human needs and achieving balance in the biopsychosocial well-being of individuals.⁽⁹⁾

Developing focused training initiatives and policies to improve the quality of patient care requires an understanding of the variables influencing nurses' attitudes and expertise regarding stoma care. Additionally, when ostomy education is given by the nurse in addition to the usual preoperative education, patients' anxiety levels are significantly lower than those of patients who only get routine preoperative information.⁽¹⁰⁾

Significance of the Study

Ostomy causes adverse effects on the human body and clinical outcome, and manipulates the quality of life. It is more common nowadays related to an unhealthy lifestyle. It was necessary to guide stoma patients by specialist nurses. Nursing can assist patients with guidance and care to improve their lives. Studies in developed countries found that up to 100 000 cases suffer from ostomy.⁽¹¹⁾

METHOD

Design and Sample

A descriptive cross-sectional study was conducted. A purposive sample was utilized, and the study was

conducted in different departments, including Surgical, Medical, and other outpatient units and Governmental hospitals in Egypt from March 2024 to January 2025. A total of 434 nurses fulfilled the study.

Sample size

Based on data from the literature ⁽¹⁰⁾ to calculate the sample size with a precision/absolute error of 5 % and type 1 error of 5 %, the Sample size is calculated according to the following formula.

$$n = \frac{(Z_{1-\alpha/2})^2 \cdot P(1-P)}{d^2}$$

Where $Z_{1-\alpha/2}$ at 5 % type 1 error ($p < 0,05$) is 1,96, P is the expected proportion in the population based on previous studies, and d is the absolute error or precision. Therefore, the sample size is:

$$n = \frac{(1,96)^2 \cdot (0,458)(1-0,458)}{(0,0469)^2} = 433,5$$

Based on the formula, the total sample size required for the study is 434.

Instruments

Sociodemographic characteristics questionnaire: it was developed by the researchers to examine sociodemographic characteristics such as age and nursing Experience years. The researcher gathered the completed nurses' knowledge questionnaires from the previous literature.⁽¹¹⁾ The questionnaire was offered in English as the participants studied in the English language. The validity of the instrument was maintained through a review of literature, consulting with concerned research advisors, colleagues, and other subject experts. The reliability of the instrument was preserved by pre-testing the questionnaires among 10 % of the total sample. The Knowledge questionnaire consisted of five categories, and mostly multiple-choice questions with various right choices were used. 2nd part measures student knowledge; 1 score was given for every correct answer, and a total score of >60 % was considered an unsatisfactory knowledge level for the nurse. The 3rd part is the attitudes Likert scale for the nurse's opinion toward the care of the stoma.

Ethical consideration

The study was approved by the Ethical Committee of Kafer Elsheikh University (KFSIRB-426/2024). Participation was voluntary, each nurse had the right to withdraw at any time without giving a reason. Written and oral informed consent was obtained from the nurses after explaining the study purpose and the benefits of this research. For Confidentiality, the data was coded.

Data analysis

Data analysis was conducted using SPSS for Windows, version 20.0 (SPSS, Chicago, IL). The data followed a normal distribution and were presented as mean \pm standard deviation (SD). Categorical variables were summarized using frequencies and percentages.

RESULTS

Table 1. Distribution of demographic characteristics of the study sample (n=434)

Items	N	%
Age		
25 -35	262	60,4
36- 45	172	39,6
Gender		
Male	154	35,5
Female	280	64,5
Experience year		
One to < five	121	27,8
Five to ten	164	37,8
More than ten	149	34,3

This table provides a clear demographic profile of the study participants, which is essential for understanding the context of the findings. Most nurses (60,4 %) fall within the 25-35 age range. The gender distribution shows that 64,5 % of the participants are female. In terms of experience, the sample is distributed, 37,8 % having five to ten years.

Items	N	%
What is the meaning of colostomy?		
It is an opening on the abdomen to allow for passing	360	82,9
Science that provides atomic and molecular control of materials	44	10,1
Science that conducts studies to understand materials	30	6,9
Method used to prevent skin irritation around your stoma		
One-third fills the empty stoma	219	50,5
Empty or change the bag	345	79,5
Cleaning with normal saline and dry	349	80,4
Instruct patients to avoid spicy food	296	68,2
Which methods are used to adjust stoma patients psychologically		
Connecting Patients with Support Groups	319	73,5
Encouraging Patients' Involvement in Stoma Care	310	71,4
Educating the Patient and Family about Care	260	59,9
Faster Body Image and Self-Acceptance	278	64,1
Knowing the Emptying stoma care steps:		
All the care steps	246	56,7
Half of the care steps	253	58,3
No care steps background	343	79,0
The most common complication associated with stomas		
Redness around the stoma site	269	62,0
Parastomal hernia	333	76,7
A prolapse stoma extends from the abdomen	307	70,7
Stenosis of the stoma opening	318	73,3
increasing leakage risks	249	57,4
Ulceration in stoma site	279	64,3
Inadequate appliance fitting	237	54,6
Surgical operation site infection	339	78,1
Pain and tenderness in patients	214	49,3
Internal bleeding	214	49,3
Total knowledge level	N	%
Unsatisfactory knowledge	156	35,9
Satisfactory knowledge	278	64,1

Table 2 represents a detailed description of nurses' knowledge about stoma care, highlighting both strengths and areas for improvement. A significant majority of nurses (82,9 %) correctly identified the meaning of a colostomy. However, knowledge about the Method used to prevent skin irritation around your stoma, with 80,4 % identifying Cleaning with normal saline and dry. Regarding psychological adjustment methods, 73,5 % of nurses recognized the importance of connecting patients with support groups. This indicates a potential area for improvement in patient education strategies. It also reveals that 79 % of nurses lack knowledge about the steps for emptying stoma care. Additionally, the most common complications associated with stomas (78,1 %) among nurses were surgical operation site infections (78,1 %). 64,1 % of nurses demonstrated adequate total knowledge, highlighting the need for further education and training in stoma care.

Table 3 provides valuable insights into nurses' attitudes toward stoma care. 70,7 % of nurses strongly agreed that all nurses should be trained in stoma care. Similarly, 66,6 % of nurses felt confident in their ability to provide stoma care. The overall distribution of opinions shows that 83,4 % of nurses held positive attitudes toward stoma care.

Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	n	%	n	%	N	%	n	%	n	%
In your opinion, all nurses should be trained in stoma care.	11	2,5	19	4,4	28	6,5	69	15,9	307	70,7
Feel confident in your ability to provide stoma care.	11	2,5	30	6,9	31	7,1	73	16,8	289	66,6
Total opinions level			N				%			
Negative opinion			72				16,6			
Positive opinion			362				83,4			

	Knowledge about stoma care
Opinions about Stoma Care	
R - value	0,156
P - Value	<0,001**

Table 4 illustrates that the current study noticed that the r-value of the correlation is positive and the p-value is < 0,001, which is significant, indicating a positive correlation between knowledge and opinions of nurses about stoma care.

DISCUSSION

The current findings of this study provide valuable insights into nurses' knowledge and attitudes regarding stoma care.

Concerning the sociodemographic, more than half of the participants of the current study are female, ranging in age from 25-35 years, which contradicts, who reported that the Findings of the study subjects were male; but this agrees with Winnicki⁽¹⁾, who stated that more than half of nurses were female and had less than ten years from the researcher's view, it may be due to that the study was done in one of the developing countries, as females work in nursing jobs more than males.

The study revealed that most of the study nurses correctly identified the meaning of a colostomy. This finding is consistent with Cross et al.⁽¹⁰⁾, which reported that a significant proportion of nurses knew about stoma care, particularly stoma definition and meaning. Further, this aligns with Forsman⁽⁷⁾, who reported that nurses generally have good theoretical knowledge of stoma care but struggle with practical application.

Almost all of the study nurses stated that they cleaned with normal saline and a dry Method used to prevent skin irritation around the stoma. It was aligned with Adley et al.⁽¹²⁾, who showed appropriate preventive measures to provide care and education to the patients. Additionally, methods are used to adjust stoma patients psychologically. In several studies, Tiruneh et al.⁽¹³⁾ emphasized that the psychosocial adjustment of patients with an ostomy can be significantly influenced by the care provided by stoma nurses. Further, Carneiro et al.⁽¹⁴⁾ found that the integration of stoma therapy into nursing care led to better patient education, decreased complications, and improved stoma management.

There was high recognition but low knowledge of stoma care steps, with only 56,7 % knowing all the steps. It matched with Shoja et al.⁽⁶⁾ in her study, which showed that nurses have insufficient knowledge of the prevention and control of ostomy complications

From the researcher's view, the study also found that 82,9 % of nurses correctly identified the meaning of a colostomy, indicating a strong foundational understanding of the procedure.

This current study reveals that more than half of the nurses had a satisfactory total level of knowledge. It supported Similarly, Naseh et al.⁽¹⁵⁾ found that nurses in Ethiopia had moderate knowledge levels, with gaps in understanding specific stoma care procedures and complications. These parallels suggest that inadequate knowledge of stoma care is in low- and middle-income countries, where access to specialized training may be limited.

As regards attitudes of nurses toward Stoma Care, the study found that more than two-thirds of nurses held positive attitudes toward stoma care, with strongly agreeing that all nurses should be trained in stoma care. This finding is consistent with Tiruneh et al.⁽¹³⁾, who reported that nurses had favorable attitudes toward

stoma care and recognized the importance of training. Similarly, Carneiro et al.⁽⁴⁾ found that nurses were highly motivated to learn more about stoma care, reflecting a global trend of positive attitudes among nurses. The level of confidence reported by nurses in their ability to provide stoma care is encouraging and suggests that nurses are willing to take on the responsibility of stoma care. Carneiro et al.⁽¹⁴⁾ noted that nurses often demonstrate willingness and confidence in providing care.

However, this confidence may not always align with their actual knowledge levels, as evidenced by the gaps identified in the knowledge assessment. This discrepancy highlights the need for ongoing education and competency assessments to ensure that nurses' confidence is grounded in adequate knowledge and skills.

Our study also reported a positive correlation between knowledge and opinions of nurses about stoma care. On the other hand, a contrasting study by Tiruneh et al.⁽¹³⁾ found no significant correlation between nurses' knowledge and their opinions about stoma care. This discrepancy may stem from differences in sample demographics, the nature of educational interventions, or cultural influences that shape nurses' perspectives.

⁽¹⁶⁾ So our study's recommendation for targeted training programs for nurses, as specialized knowledge and skills are essential for effective stoma care. The current findings are promising for the development of educational programs aimed at improving stoma care practices, as nurses appear motivated and willing to engage in further learning.

CONCLUSIONS

Our current study acknowledged that more than half of nurses had a satisfactory total knowledge level about ostomy care, and more than 83,4 % of nurses held positive attitudes toward stoma care. It highlights the global nature of the challenges in stoma care knowledge and attitudes among nurses while also offering insights into potential solutions, such as simulation-based training, inter-professional collaboration, and the use of technology.

BIBLIOGRAPHIC REFERENCES

1. Winnicki M. Enhancing Staff Nurses' Education of Ostomies to Improve Skill Set. Jacksonville University.
2. Endeshaw D, Tesfaye TD, Afework S, Adal O, Belayneh AG, Bogale EK, et al. Knowledge and Practice of Intestinal Ostomy Care Among Nurses in Bahir Dar City, Ethiopia: A Cross-Sectional Study. *SAGE Open Nursing*. 2024 Aug;10:23779608241274205.
3. Liu Y, Wang L, Zhu L. The impact of stoma management education on the self-care abilities of individuals with an intestinal stoma. *Gastrointestinal Nursing*. 2023 May 2;21(Sup4):S14-21.
4. Carneiro AF, de Oliveira AR, Ribeiro WA, dos Santos Grassel C, Klein LC, Guedes MM, et al. Contributions of stomatherapy to nursing care for people with Intestinal Ostomy. *Brazilian Journal of Science*. 2024 Jan 1;3(1):183-92.
5. Xu X, Zhou Y, Huang Y, Le Q, Lin L, Yu Z. Nursing management of abdominal wound dehiscence of an infant with severe undernutrition and peristomal moisture-associated dermatitis after ileostomy closure: a case study. *Journal of Wound Ostomy & Continence Nursing*. 2023 Jul 1;50(4):331-6.
6. Shoja M, Aarsalani N, Fallahi-Khoshknab M, Mohammadi-Shahboulaghi F. The barriers and facilitators to nursing care for patients with permanent colostomy in outpatient centers: A qualitative study. *Journal of Education and Health Promotion*. 2024 Feb 1;13(1):72.
7. Forsman A. Nursing Awareness for Patients with Stoma from a Cultural Perspective. Systematic literature reviews. Thesis for a bachelor's degree The Degree Programme in Nursing. 2024. <https://urn.fi/URN:NBN:fi:amk-2024051411900>
8. Naseh L, Shahriari M, Hayrabadian A, Moeini M. Nurses' viewpoints on factors affecting ostomy care: A qualitative content analysis. *Nursing Open*. 2023 Aug;10(8):5261-70.
9. Tiruneh TE, Alem G, Taddele M, Tizazu ZM, Minale FK, Alemu KD. Knowledge, attitude, perceived responsibilities, and associated factors regarding colostomy care among nurses working in surgical units at Amhara Region General and Referral Hospitals, Ethiopia: A mixed method study. *Nursing: Research and Reviews*. 2022 Dec 31:191-206.
10. Cross HH, Roe CA, Wang D. Staff nurse confidence in their skills and knowledge and barriers to caring for

patients with ostomies. *Journal of Wound Ostomy & Continence Nursing*. 2014 Nov 1;41(6):560-5.

11. Sayed AA, Ghanem HM, Abd El-all HA. Assessment of Nurses' Knowledge and Practice for Patients Undergoing Radical Cystectomy Surgeries. *Assiut Scientific Nursing Journal*. 2019 Dec 1;7(19):178-85.

12. Adley DG, Mohamed NA. Nurses' knowledge and performance regarding colostomy care among old age in Beni-Suef. *NILES journal for Geriatric and Gerontology*. 2022 Jan 1;5(1):48-63.

13. Tiruneh TE, Alem G, Taddele M, Tizazu ZM, Minale FK, Alemu KD. Knowledge, attitude, perceived responsibilities, and associated factors regarding colostomy care among nurses working in surgical units at Amhara Region General and Referral Hospitals, Ethiopia: A mixed-method study. *Nursing: Research and Reviews*. 2022 Dec 31:191-206.

14. Carneiro AF, de Oliveira AR, Ribeiro WA, dos Santos Grassel C, Klein LC, Guedes MM, et al. Contributions of stomatherapy to nursing care for people with Intestinal Ostomy. *Brazilian Journal of Science*. 2024 Jan 1;3(1):183-92.

15. Naseh L, Shahriari M, Hayrabadian A, Moeini M. Nurses' viewpoints on factors affecting ostomy care: A qualitative content analysis. *Nursing Open*. 2023 Aug;10(8):5261-5270. <https://doi.org/10.1002/nop2.1764>

16. Rosenberg A, McGee M. Patient education for stoma patients. In: *Seminars in Colon and Rectal Surgery*. Vol. 34. WB Saunders; 2023. p. 100952.

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CONFLICT OF INTEREST

None.

AUTHORSHIP CONTRIBUTION

Conceptualization: Nermen Abdelftah Mohamed, Samah Osman Ali, Elturabi Elsayed Elkhider Ehrahim, Amany Lotfy Ahmed, Rabab Sabry Hassan Mohamed, Aziza Mohamed Kamel.

Data curation: Nermen Abdelftah Mohamed, Samah Osman Ali, Elturabi Elsayed Elkhider Ehrahim.

Formal analysis: Nermen Abdelftah Mohamed, Samah Osman Ali.

Research: Samah Osman Ali, Amany Lotfy Ahmed, Elturabi Elsayed Elkhider Ehrahim.

Methodology: Samah Osman Ali, Elturabi Elsayed Elkhider Ehrahim.

Project management: Nermen Abdelftah Mohamed, Samah Osman Ali, Elturabi, Elsayed Elkhider Ehrahim, Rabab Sabry Hassan Mohamed, Aziza Mohamed Kamel.

Resources: Elturabi Elsayed Elkhider Ehrahim.

Software: Amany Lotfy Ahmed, Aziza Mohamed Kamel.

Supervision: Nermen Abdelftah Mohamed, Samah Osman Ali, Elturabi Elsayed Elkhider Ehrahim, Rabab Sabry Hassan Mohamed.

Display: Nermen Abdelftah Mohamed.

Drafting - original draft: Nermen Abdelftah Mohamed, Samah Osman Ali, Rabab Sabry Hassan Mohamed, Amany Lotfy Ahmed.