

# Nursing Interventions to Promote Self-Care in a Candidate for a Bowel Elimination Ostomy: Scoping Review

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**Theme:** Chronic care, promotion and prevention.

**Contribution to the discipline:** Self-care competence in a bowel elimination ostomy is a factor commonly associated to facilitating adaptation to life with a stoma, improving quality of life, and reducing stoma and peristomal skin complications. Nurses play a central and often exclusive role in promoting self-care in people with an ostomy. Several nursing interventions and their direct and indirect outcomes were identified to promote self-care for the bowel elimination ostomy.

## Abstract

**Objectives:** To identify nursing interventions, their characteristics, and outcomes for promoting self-care in candidates for a bowel elimination ostomy. **Materials and methods:** A scoping review was carried out based on the Joanna Briggs Institute's recommendations. For this, studies published in Portuguese, English, and Spanish on the Web of Science, CINAHL, and Scopus databases and without a time limit were selected on November 9, 2020. **Results:** Of 2248 articles identified, 41 were included in this review. We identified 20 nursing interventions associated with the self-care of patients with an ostomy; most of them have gaps in their content, method, and frequency or dosing. More than 30 indicators were identified to assess the impact of nursing interventions; however, most of them were indirect assessments. **Conclusion:** There is scarce evidence regarding the different aspects that must be involved in nursing interventions for patients with a stoma. Moreover, there is no standardization in methods, frequency, or dosing of intervention. It is urgent to define the content, method, and frequency of nursing interventions necessary to promote self-care in patients with a bowel elimination ostomy and to use assessment tools that directly measure stoma self-care competence.

### Keywords (Source: DeCS)

Nursing care; evidence-based practice; self-care; ostomy; patient education as topic.

## 4 Intervenciones de enfermería para promover el autocuidado en un candidato a ostomía de eliminación intestinal

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### Resumen

**Objetivos:** identificar las intervenciones de enfermería, sus características y resultados para promover el autocuidado en candidatos a estoma de eliminación intestinal. **Materiales y métodos:** se llevó a cabo una revisión de alcance con base en las recomendaciones del Instituto Joanna Briggs. Para este fin, se seleccionaron estudios publicados en portugués, inglés y español en las bases de datos Web of Science, CINAHL y Scopus al 9 de noviembre de 2020. **Resultados:** de un total de 2248 artículos identificados, se incluyeron 41 en esta revisión. Se identificaron 20 intervenciones de enfermería asociadas al autocuidado de pacientes con ostomía; la mayoría tiene lagunas en su contenido, método y frecuencia o dosis. Se identificaron más de treinta indicadores para evaluar el impacto de las intervenciones de enfermería; sin embargo, la mayoría de ellas fueron evaluaciones indirectas. **Conclusión:** es escasa la evidencia sobre los diferentes aspectos que deben considerarse en las intervenciones de enfermería para pacientes con estoma. Además, no existe una estandarización en los métodos, la frecuencia o la dosis de intervención. Es urgente definir el contenido, el método y la frecuencia de las intervenciones de enfermería necesarias para promover el autocuidado en pacientes con estoma de eliminación intestinal y utilizar herramientas de evaluación que midan directamente ese autocuidado.

#### Palabras clave (Fuente: DeCS)

Atención de enfermería; práctica clínica basada en la evidencia; autocuidado; estomía; educación del paciente como asunto.

# Intervenções de enfermagem para promover o autocuidado num candidato à estomia intestinal de eliminação

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## Resumo

**Objetivos:** identificar as intervenções de enfermagem, suas características e resultados para promover o autocuidado em candidatos à estomia intestinal de eliminação. **Materiais e métodos:** foi realizada uma revisão de escopo com base nas recomendações do Instituto Joanna Briggs. Para isso, foram selecionados estudos publicados em português, inglês e espanhol nas bases de dados Web of Science, CINAHL e Scopus de 9 de novembro de 2020. **Resultados:** de 2 248 artigos identificados, foram incluídos 41 nesta revisão. Foram identificadas 20 intervenções de enfermagem associadas ao autocuidado de pacientes com estomia; a maioria tem lacunas em seu conteúdo, método e frequência ou dose. Foram identificados mais de 30 indicadores para avaliar o impacto das intervenções de enfermagem; contudo, a maioria delas foi avaliação indireta. **Conclusões:** é escassa a evidência sobre os diferentes aspectos que devem ser considerados nas intervenções de enfermagem para pacientes com estomia. Além disso, não há um padrão nos métodos, na frequência ou na dose de intervenção. É urgente definir o conteúdo, o método e a frequência das intervenções de enfermagem necessárias para promover o autocuidado em pacientes com estomia intestinal de eliminação e utilizar ferramentas de avaliação que meçam diretamente esse autocuidado.

### Palavras-chave (Fonte: DeCS)

Cuidados de enfermagem; prática clínica baseada em evidências; autocuidado; estomia; educação de pacientes como assunto.

## Introduction

The word ostomy derives from the Greek “stoma” and means “mouth” or opening, being understood as a surgical communication between an internal organ (intestinal or urinary) and the body surface (1). A bowel elimination ostomy is the exteriorization of a part of the intestine through the abdominal wall as an artificial outlet for feces, constructed from the mucous lining of the intestine (2).

Worldwide, about one million people annually undergo ostomy surgery (3). This number is expected to increase, given that the most likely diagnosis for a bowel elimination ostomy is colorectal cancer (4). Currently, colorectal cancer is the third most common type of cancer worldwide, with more than 1.9 million new cases per year (5), whose incidence is predicted to grow by 60% as of 2040, with more than 3 million new cases per year (6).

A stoma construction is a life-changing event. While this surgery can have several positive effects, such as reducing symptoms and improving health, it can also adversely affect the person (7) physically, psychologically, socially, and spiritually. It may represent a potential threat to all aspects of the lives of people who must not only learn how to manage stoma care but also incorporate it in their daily lives (7–10). How this event is experienced is conditioned by several factors, including stoma care competence (1,3,11).

Considering the various factors associated with the acceptance process and its impact on quality of life, literature was identified (12–14) sustaining that a systematic and complete care approach by a nurse from the preoperative phase to follow-up after hospital discharge significantly impacts these factors. In addition, the entire perioperative approach improves life quality, reduces health costs (7,15), and has a positive effect on the life of the person with an ostomy (13).

The nurse must give the right information to the right person at the right time to reduce some concerns expressed by the person/patient submitted to ostomy construction, being responsible for recognizing and responding to the educational needs of each one (16). Furthermore, the nurse plays an important supporting role for patients facing changes and their impact. These interventions help the person return to their previous life as soon as possible (7).

In an early stage of the educational process, the goal for the person undergoing a stoma surgery is to develop autonomy and self-care, increasing their quality of life and achieving competence in all aspects of their self-care (17). Perioperative education is a key component in approaching a person with a stoma; however, evidence is lacking to support improved outcomes. It is crucial to carry out more in-depth studies using rigorous models to design a viable educational intervention that improves patient care and outcomes (15,18).

Implementing intervention programs for the person with a bowel elimination ostomy, considering the different moments of nurse intervention, enhances the management of stoma care, emphasizing adaptation, problem-solving, self-efficacy, cognitive reformulation, and goal definition (19). The present review aims to know the nursing interventions promoting stoma self-care and their characteristics for candidates for a bowel elimination ostomy, from the preoperative phase to follow-up after hospital discharge. It also intends to explore the outcomes used to assess the impact of those interventions.

## Materials and methods

A scoping review of the scientific literature was carried out following the methodology of Joanna Briggs Institute (20) and the guidelines established by the PRISMA model (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). For the research structuring and execution, a protocol was developed with information regarding the objectives of this review. The topics are the population to be included in the research, the formulation of the research question, the eligibility criteria, the strategy, and databases used to obtain the relevant information, the definition of topics for data extraction, and how the data would be condensed.

The definition of the starting question followed the strategic parameters P (Population), C (Concept), and C (Context), with the research being guided by the following questions:

- What are the nursing interventions for promoting stoma self-care, from the perioperative period to follow-up after hospital discharge, for a candidate to a bowel elimination ostomy?
- What are the outcomes used to assess nursing interventions to promote bowel elimination ostomy self-care?

Firstly, a preliminary search for possible similar studies was carried out in the CINAHL database in August 2019. Secondly, we conducted another search on the Web of Science, CINAHL Complete, and Scopus databases on September 4, 2019, using combinations based on MeSH, Cinahl Headings, and natural language, as shown in Table 1. Given the time elapsed from research completion to the conclusion of article analysis, new research was carried out on November 9, 2020.

**Table 1.** Bibliographic research strategies

Web of Science	CINAHL Complete	Scopus
(* stom * NOT tracheostom * NOT cystostom * NOT urostom *) AND ("model of care" OR "care model" OR model * OR "patient * education" OR "centered care" OR discharge *) AND nurs *	(* stom * NOT tracheostom * NOT cistostom * NOT urostom *) AND ("model of care" OR "care model" OR model * OR "patient * education" OR "centered care" OR discharge *) AND nurs *	(* stom * AND NOT tracheostom * AND NOT cystostom * AND NOT urostom *) AND ("model of care" OR "care model" OR model * OR "patient * education" OR "centered care" OR discharge *) AND nurs *

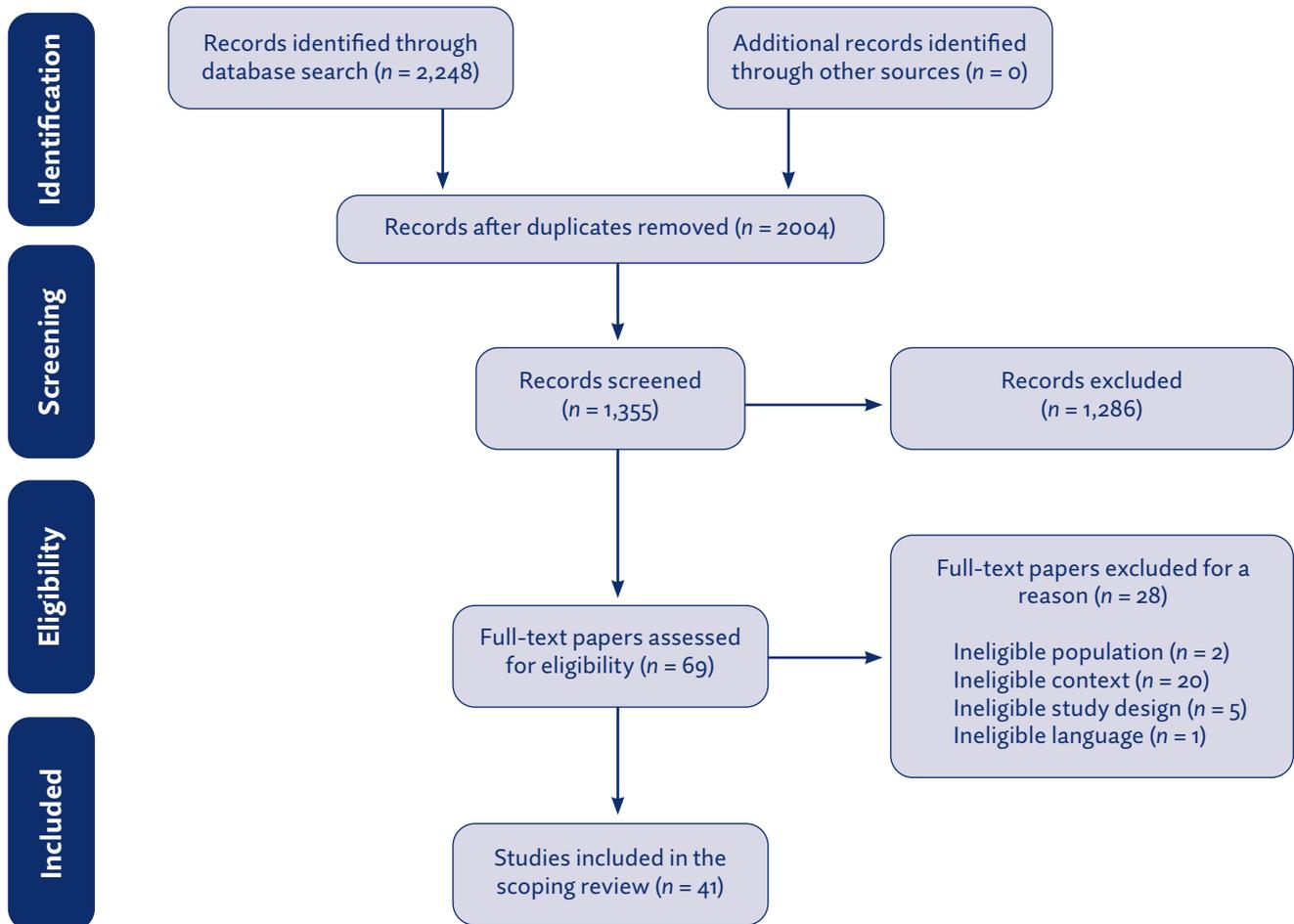
Source: Own elaboration

The selection criteria for the articles were: studies that included people referred to or with a bowel elimination ostomy, either permanent or temporary, aged 18 years or older, and with a potential for regaining autonomy; addressed nursing interventions to promote stoma self-care; in in the preoperative, postoperative, or post-hospital contexts; were primary or secondary studies, qualitative or quantitative, published in Portuguese, English or Spanish, with no time limit.

The research carried out in the databases was loaded and grouped in the ZOTERO 5.0.96.3 software (21), and the duplicates were removed. Two researchers independently conducted the search in databases and the analysis and selection of the articles. In the case of disagreement on the inclusion of any article, a third researcher was consulted.

The title and abstract of the identified studies were evaluated in the first phase based on the pre-established eligibility criteria. Posteriorly, all articles included in the first phase were submitted to the analysis process after full reading. Figure 1 highlights the process of identifying and selecting the articles included in the review.

**Figure 1.** Search and study selection process - PRISMA Diagram flow



Source: Prisma – Flowchart for scoping review (adapted) (22)

Finally, two independent reviewers extracted data using the data extraction tool developed by the authors for this purpose according to the following aspects: year of publication; country where the research was carried out; objective of the research; type of study; methodological approach; nursing interventions, as well as the content, method, and dosing of interventions. Since this review does not collect deeply personal, sensitive, or confidential information from participants and uses documents accessible to the public as evidence, it does not require approval of an ethics committee.

## Results

Of 2248 articles identified, 41 were included in the scoping review, with publication dates from 2004 to 2020: 24% (10) in 2020, 19.5% (8) in 2019, 17% (7) in 2012, and 12.2% (5) in 2018.

Regarding the type of study, the majority are experimental (14) and quasi-experimental studies (6), followed by literature reviews without a defined method (10), systematic literature reviews (3), cohort studies (3), economic analysis (1), and mixed and qualitative studies (4).

The 41 included studies cover a population spread over 13 countries from five different continents: China (5%), Thailand (5%), Taiwan (7%), Singapore (2%), Turkey (2%), Iran (2%), Brazil (2%), United States of America (24%), United Kingdom (22%), Norway (2%), Sweden (2%), Spain (2%), and Australia (2%).

All analyzed articles refer to nursing interventions in promoting self-care in a candidate for or a person with a bowel elimination ostomy. Some articles analyze the impact of nursing interventions on different indicators.

Considering the elements that underlie the design of a nursing intervention (22), and to facilitate the reading and analysis of the references included in this review, Table 2 shows the interventions identified, as well as the content, method of administration, and dosing of each intervention, including amount, frequency, and duration. The syntax of interventions was adjusted to the Classification of Interventions for Nursing Practice (CIPE), version 2019, as it is an international language used to document nursing care.

**Table 2.** Nursing interventions to promote stoma self-care in a candidate for a bowel elimination ostomy

Intervention	Time	Content	Method	Dosing (quantity / frequency / duration) and moment
Performing the stoma location site (9,16,23–28)	Preoperative	Justifying and explaining to the user the choice of the stoma site (16,26)	Face to face (26,27)	One session (26) On the day of admission to the hospital (23,28)
Encouraging the manipulation of ostomy devices (25)	Preoperative	----	----	----
Promoting interaction with people with a bowel elimination ostomy (25)	Preoperative	----	----	----

Intervention	Time	Content	Method	Dosing (quantity / frequency / duration) and moment
Assessing the potential for stoma self-care (29)	Postoperative - hospitalization	Assessing the presence of co-morbidities or psychomotor deficits that condition the capacity for self-care (arthritis, paralysis, fatigue, visual problems) (29)	-----	-----
Informing about resources (9,25,25,27-34)	Preoperative	Information about nurses who follow up from the preoperative period until after hospital discharge (16,27) Information on national associations of people with an ostomy (28) Support groups (9) Stomatherapist nurse contact (16)	Face to face (27)	Two sessions (28) A session on the day of admission (28) ----- 45 to 60 minutes (28)
	Postoperative - hospitalization	Providing support contacts (30,31,35) Informing about available resources (35): - Groups of ostomized users (31) - Smartphone application (31) - Purchase of devices (25,29) - Support to manage problems / complications (25,29,34) - Follow-up after discharge by a stoma nurse (16)	Face to face (30)	At discharge (31)
	After hospital discharge	Informing about available resources (25,32): - Support groups (25) - Programs developed by the industry (25) - Telephone contact (32-34) - 24-hour support (34) - Stomatherapy consultation (32) - Stoma clinic (32) - Contact with people with an ostomy (32) - Association of people with an ostomy (32) - Mobile applications (33) - Internet pages (16,33) - Tailored clothing companies (16)	Telephone contact (34)  Home visits (34)	-----
Teaching about bowel elimination ostomy (16,23-28,30,31,31,36-41)	Preoperative	Teaching about the stoma formation process (10,23,25,28,30,31): - Anatomy - Stoma physiology Teaching about ostomy (16): - Location of the stoma (25,26,36) - Clinical indications (23-25) - Duration (temporary / definitive condition) (30,36) - Type of stoma and its function (10,23,25,26,30,36-38) - Type of effluent and frequency of operation (16,25,36,37) - Production of gases and odor (36)	Face to face - home (23) Face to face - hospital (23,30,31) Face to face (25) Expository method (31) Use of digital media (videos or animated images) (25) Imagery (28) Use of written material (10,23,25,26,28,31,38) Information leaflet (10,30) Use of a model (23,36) or the candidate to a stoma (36) Use of ostomy devices (30)	Two sessions (23,28), which can be at home (23)  A session on the day of admission to the hospital (23,28) ----- 30 to 90 minutes (23,26,28,36,38)
	Postoperative - hospitalization	Teaching about the stoma formation process (10,24,25,40): - Anatomy (24,25,40) - Physiology (24,25,40) - Instructions for training (24,25,40) Teaching about recording the ileostomy outputs and calculating the input and output balance (39)	Face to face (40)  Use of written material (39-41) - Information leaflet (10,40) with illustrated instructions (40) Expository and demonstrative method (39)  Use of material in digital support - 2D animations, films, photos (40) Additional educational resources - written instructions or links to websites (42)	One session (27) Two sessions (40) ----- 30 to 40 minutes (40)

Intervention	Time	Content	Method	Dosing (quantity / frequency / duration) and moment
Teaching bowel elimination ostomy self-care (7,16,23,25,27-29,31-33,35,40-51)	Preoperative	<p>Showing ostomy devices indicated for the stoma (16,23,28)</p> <p>Teaching / showing how to put plate and bag, how to change / empty ostomy bag (10,16,23,25,26,28,30,31,33,36-38,41)</p> <p>Stoma cleaning (41)</p> <p>Impact / Adaptation to previous lifestyle (16):</p> <ul style="list-style-type: none"> <li>- Possible impact of a stoma on relationships (16,28)</li> <li>- Impact on sexuality (16,28)</li> <li>- Impact on daily life activities (28)</li> <li>- Job (16)</li> <li>- Clothing changes (26)</li> <li>- Changes in hygiene (26,28)</li> <li>- Changes in recreational activities (26)</li> <li>- Exercise and sports (16)</li> <li>- Travel (16)</li> <li>- Diet (16,51)</li> </ul>	<p>Face to face (24, 41):</p> <ul style="list-style-type: none"> <li>- Home (23)</li> <li>- Hospital (23)</li> </ul> <p>Use of digital media - videos (33, 51) or animated images (25)</p> <p>Use of written material (10, 16, 23, 25, 26, 28, 30, 31, 33, 38, 51)</p> <p>Use of a model (23,36) or of the candidate to a stoma (36)</p> <p>Recourse to ostomy devices (26, 28, 30)</p>	<p>Two sessions (23)</p> <p>One session on the day of hospital admission (23, 28, 52)</p> <p>24 h before hospital admission (33)</p> <p>-----</p> <p>30 to 90 minutes (23, 28, 36, 38)</p>
Teaching bowel elimination ostomy self-care (7,16,23,25,27-29,31-33,35,40-51)	Postoperative - hospitalization	<p>Defining goals to be achieved with the user (16)</p> <ul style="list-style-type: none"> <li>- Selection of the ostomy device (16,31)</li> <li>- Organizational advice and strategies to facilitate self-care (29,30,35,42)</li> <li>- Device removal and application procedure (10,16,24,27-29,35,40-42,44-50)</li> <li>- Useful accessories for stoma self-care (24,31,42,46)</li> </ul> <p>Possible implications / need for adaptation(24,25):</p> <ul style="list-style-type: none"> <li>- Hygiene (26) / Taking a bath (29,42)</li> <li>- Clothing (24,26,27)</li> <li>- Daily life activities (24,27,29,31,33,42,45)</li> <li>- Recreational activities (26,27,29,42)</li> <li>- Sexuality (24,27,29)</li> <li>- Job (27)</li> <li>- Travel (27)</li> <li>- Dietary regime (33,35,42,45,46)</li> <li>- Exercise regime (29,42)</li> <li>- Medication regime (24,27,42)</li> <li>- Intestinal irrigation procedure (42)</li> </ul> <p>Monitoring of intestinal elimination (35,51)</p>	<p>Face to face (27, 31, 40, 42, 44, 47)</p> <p>Use of written material (10, 16, 37, 39-41, 45, 47, 51)</p> <ul style="list-style-type: none"> <li>- information leaflet with illustrated instructions (40)</li> </ul> <p>Use of digital media (40, 45)</p> <ul style="list-style-type: none"> <li>- 2D animations, movies and photos (40, 49), DVD / video (45, 49)</li> </ul> <p>Additional educational resources</p> <ul style="list-style-type: none"> <li>- written instructions or links to websites (42)</li> </ul> <p>Use of an ostomy simulator (50)</p>	<p>Starting as soon as possible after surgery (23, 37, 42), even on the day of surgery (37) or the first postoperative day (16, 28, 40, 47)</p> <p>At least one (27), two (38,40), or four sessions (50)</p> <p>Daily sessions (16, 28, 51)</p> <p>Two days before discharge (41)</p> <p>At discharge (31, 45)</p> <p>-----</p> <p>30, 40, 45 or 50 minutes (38, 40, 47, 49)</p> <p>Maximum one hour (45)</p>

Intervention	Time	Content	Method	Dosing (quantity / frequency / duration) and moment
Teaching bowel elimination ostomy self-care (7, 16, 23, 25, 27-29, 31-33, 35, 40-51)	After hospital discharge	Addressing device removal and application procedure (32,33,46) Addressing device selection (32) Where to buy devices (16) Ostomy accessories (7) Possible implications / need for adaptation: - Sexuality (16,27) - Job (16) - Exercise (16) - Diet (16) - Travel (16) - Clothing (16) Impact / Adaptation to lifestyle (7)	Face to face (27,46) Home visits (7,48) Using the mobile app (WeChat) (46) Use of written material (7,33)	Once a month (7,46) for six months (7) Once a week (7,48) for six months (7)
Teaching about bowel elimination ostomy complications (7,25,29,31,32,35,41,42,45,46,51)	Preoperative	Teaching about complications: - Dehydration (25,51), intestinal occlusion (25), changes in stoma and peristomal skin (25), peristomal hernia (25) - Recognizing changes that require examination by a health professional (51)	Face to face (25): Face-to-face at home (23) Use of digital media - videos (25,51) or animated images (25) Use of written material (23,25,26,38,51) Using a model (23,36) or the candidate for a stoma (36)	30 to 90 minutes (23,36,38)
	Postoperative - hospitalization	- Stoma and skin assessment (10,42) - What to do when complications occur and how to avoid them (42) - Recognize changes that require examination by a health professional (29,42) - Skin erythema, mucocutaneous dehiscence, change in stoma color from red to dark brown or black, changes in stoma height such as prolapse or hernia (29,42), persistent leaks and ulcers (29) - In ileostomy, the volume production of more than 1,000 (42) or 1,200 ml (35) in 24 hours is considered high, and less than 500 ml in 24 hours too low (35) - Dehydration (35)	Face to face (42) Use of digital media - DVD / video (45) Use of written material - leaflet (10)	Starting as early as possible after surgery (42) More than one session (42) Three sessions (45) Two days before discharge (41) ----- One hour (45)
	After hospital discharge	- Risk of dehydration (25) - Identifying if the wear time of the device is shorter than expected (25) Stoma complications (7): - Signs and symptoms of obstruction (25) - Change in stoma size (32) - Stoma bleeding (32) - Diarrhea (32) - Constipation (32) Peristomal skin complications (25): - Peristomal hernia (25) - Dermatitis of peristomal skin (32) Prevention of complications (7,46)	Face to face (25) Home visit (7) Use of mobile application (WeChat) (46) Use of written material (7)	Once a month for six months after discharge (7)

Intervention	Time	Content	Method	Dosing (quantity / frequency / duration) and moment
Instructing on bowel elimination ostomy self-care (24–26,28–31,36,40,41,45,50,53)	Preoperative	Demonstration of application, emptying, and how to change the effluent collection device, one or two pieces according to the type of stoma (23–26,28,36)	Face to face (23–26,36) Face to face at home (23) Use of a model (23) Recourse to ostomy devices (28)	Two sessions (28) at home (23) One session on the day of hospital admission (23) ----- 45 to 60 minute sessions (23,28)
	Postoperative - hospitalization	Procedure for removal, hygiene, and application of the device (50) Goals defined for each postoperative day, centered on the ostomy device exchange procedure: - On first day after the op, the user observes the stoma (25) and stoma care (23–25,37–40) (29) and participates in dumping the bag and cutting out the plate for the following exchange (23,25,37,45). - On the 2nd post-op day, the user must autonomously change the ostomy bag (23,25,37), remove the device with help, clean stoma and skin, and cut the plate (23,37) - The user's involvement progressively increases until the device is removed, the stoma and skin are cleaned and dried, and a new device is inserted, ending the procedure with cutting the plate for the next exchange (23–25,37)	Face to face (30,42) Expository and demonstration method (45) Use of digital media - DVD / video (45) Use of an ostomy simulator (50)	Starting as early as possible after surgery (42), e.g., first postoperative day (30) More than one session (42) or program based on user needs (30) Two days before discharge (41) Three sessions (45) or four sessions (50) ----- One hour (45)
	After hospital discharge		Face to face (53) Home visits (53) Use of smartphone application (31) Video call feature (53)	The first month after discharge - four times a week (31) Twice a week until autonomy in self-care (53)
Assessing stoma self-care competence (7,25,27,33,44,46,51,53–55)	Preoperative	Changing the ostomy device (23)	Use of a model (23)	In the second session of two, at home (23) On the day of admission to the hospital (23) ----- 45 minutes to one hour (23)
	Postoperative - hospitalization	Eighteen topics considered minimal aspects for discharge, centered on knowledge and performance of stoma self-care, stoma and skin self-surveillance, and resource management (55)	-----	At discharge (55)
	After hospital discharge	Parameters of the self-care agency scale (ESCA) (44) Ability to properly perform stoma self-care (7,25,33,51) How ostomy products/accessories are used (7) to evaluate: - Peristomal skincare (25) - Adaptation of lifestyles to the presence of the stoma (25) - Ability of the user or family caregiver to identify and make decisions regarding possible complications: dehydration, intestinal occlusion, stoma or skin complications, peristomal skin, development of peristomal hernia (25) - Normal wear time of the effluent collecting device, always ensuring that the user is autonomous in stoma self-care or that the family caregiver can replace it (25) - Discussion of ostomy device exchange routines (27) - Nurse observing the patient remove and apply the device (27) - Skin cleansing ability (25) - Monitoring of intestinal elimination (51)	Telephone contact (7,44,51,53,54,56,57) Face to face (27,44,46) Home visits (7,23,53,58) Hospital consultation (38,58) Use of mobile application (51)	Sessions according to the needs of the user or family (25) First contact - within seven days of hospital discharge (25,54,58), can vary between the first 48h and the first two weeks (25,27,38,54,58) Once a week (7,44) for six months (7) The 2nd contact must occur between 14 to 20 days (54), the maximum interval being two, four, and six weeks after hospital discharge (25,27) If the level of autonomy in self-care is low on the 2nd contact, the 3rd contact should be made 23 to 27 days after discharge (54) Evaluating twice a week until autonomy in self-care (53) In the first six months - at least once a month (58) or with home visits every two weeks (53) or three months, six months, and one year after discharge (27) After six months - annual follow-up (58)

Intervention	Time	Content	Method	Dosing (quantity / frequency / duration) and moment
Training bowel elimination ostomy self-care (25,27,30,41-43,45,47,59)	Postoperative - hospitalization	Removal, hygiene, and cleaning procedure (50) Regularly training the cutout and, if possible, using pre-cutout devices (30) Practicing emptying the bag and changing the device (42) - Third post-op day: The patient, with supervision, removes the device, washes and dries the skin and stoma, and puts the new device on (23,37) - Fourth post-op day: The patient, without supervision, removes the device, washes, and dries the skin and stoma, and places the new device. Nurse validates at the end (23,37) - The plate exchange must be carried out by the patient autonomously on the 3rd or fourth post-op day (25) - Fifth and subsequent days: Training switching devices until autonomy (23,37)	Face to face (23) Use of an ostomy simulator (50)	Starting on the 1st postoperative day and scheduling remaining training based on the user's needs (30) All possible opportunities (42) In the 2nd and third training sessions (45) Four sessions (50) ----- 40 minutes (47)
	After hospital discharge	Focused on problem-solving: - Peristomal skin problems - Selection of ostomy devices People with an ostomy who experience problems or difficulties share what actions they took to resolve them Focused on demonstrating problem-solving strategies (59)	Face to face Group sessions managed by a nurse (59)	Five sessions (59) ----- One hour (59)
Planning follow-up consultation after hospital discharge (7,23,27,31,34,41,43,44,46,52,58)	Postoperative - hospitalization + After hospital discharge	Informing about follow-up contacts: - First contact: First seven days after hospital discharge (23,25,54,58), can vary between the first 48h to 72h and the first two weeks (25,27,38,46,52,54,58) - Second contact must occur between 14 to 20 days (54), the maximum interval, after the first contact being two, four, and six weeks after hospital discharge (25,27) or the first month after discharge - four times (31) or once a week (7,43,44,46) in the first six months (7) Second and third contact between three and six weeks after discharge (23) - Second and third month after discharge - 15 in 15 days (31) - One, three (41) and 6 months after discharge (31,52) Home visit ten weeks after surgery (58) Home visits once a month for the first six months (7,31,58) After six months - annual contacts (52,58) For problem-solving / when requested by the user or health professional (34,43,52) Informing about the methodology of follow-up contacts: - Face to face (23,25,31) - Telephone contact (7,34,41,43,44,46) - Home visit (7,34,58) - Use of mobile application (31) - WeChat (43)	Face to face (23,25,31) Telephone contact (7,34,41,43,44,46)	One hour (41)
Encouraging community interaction (25,31,54,59)	After hospital discharge	Focused on problem solving: - Peristomal skin problems - Selection of ostomy devices People with an ostomy who experience problems or difficulties share what actions they took to resolve them Focused on demonstrating problem-solving strategies (59)	Face to face Group sessions managed by a nurse (59)	One-hour sessions (59)
Assessing for signs of stoma and peristomal skin complications (7,16,25,27,31,44,46)	Postoperative - hospitalization	Skin evaluation with Ostomy Skin Tool (16)	---	---
	After hospital discharge	Hemorrhage, stenosis, allergic dermatitis, edema, and mucocutaneous dehiscence (44)	Face to face (44) Telephone contact (7,44,46) Use of mobile application (WeChat) (46)	Once a week for four to five months (44,46) or six months (7)

Intervention	Time	Content	Method	Dosing (quantity / frequency / duration) and moment
Encouraging stoma self-care (23,25,31,32,37)	After hospital discharge	Persuasion for stoma self-care (32) - Verbal persuasion - Dependence on care Positive reinforcement (32) - Confidence building - Appropriate behavior	----	----
Assessing knowledge of stoma and peristomal skin complications (25,27)	After hospital discharge	----	----	----
Assessing the diet (46,56)	After hospital discharge	----	Telephone contact (46)	----
Evaluating intestinal elimination (31,39,56)	After hospital discharge	----	----	----
Evaluating the use of health resources (56)	After hospital discharge	----	----	----
Informing about health resources (31)	After hospital discharge	----	----	----
Teaching about self-surveillance (33)	After hospital discharge	Verifying changes and solutions used for troubleshooting (33)	Face to face (33)	

Source: Own elaboration

We could identify 20 nursing interventions associated with the self-care of the patient with an ostomy. Those interventions are described at various times (pre- and immediate postoperative period, during hospitalization, and even after hospital discharge). We also found adequate interventions only at one point in the hospitalization period (pre- and post-hospitalization or discharge) or interventions performed at various times, with the following distribution: four interventions during the preoperative period, five interventions during postoperative inpatient, and 16 interventions after hospital discharge.

As for the implementation methods used, most contact is face-to-face (77%), in the hospital (67%), or at home (33%). Other options are contact by telephone (10%) or through a smartphone application (13%).

The used resources in most interventions are in writing, with the most referenced information being in a leaflet format. Digital support is also employed, namely videos, photographs, or 2D animations. For teaching, instructing, and training interventions, simulators or models are a common approach.

In the analysis of the included articles, we identified indicators to assess the impact of one or more interventions. Table 3 shows the outcomes and the method used for their assessment—answering the second research question—the outcomes of the nursing interventions for the promotion of stoma self-care, and the instruments used to assess these results.

Outcomes	Assessment method
Length of hospital stay (23,28,39)	-----
Hospital readmission rates (28,39,51)	General readmission rate; readmission rate for dehydration (28,51) or kidney failure (51); readmission rate for complications associated with the ostomy (39); readmission rate up to 30 days after discharge (51)
Number of consultations / contacts with health professionals (23,53), including unplanned ones (48)	-----
Time of contact with a nurse (7)	
Use of hospital consumables (7)	
Estimated direct costs (51)	30 days after surgery (51)
Incidence of early complications (28)	-----
Incidence of complications (7,31,33,43,44,46,54)	Form to assess Ostomy Complication (43,44) or Ostomy Complication Severity Index (OCSI) (7)
Health-related quality of life (28)	HRQoL - Generic 15D instrument (28)
Quality of life (7,33,43,44,46,47)	Sleep quality, activity, mental state, and appetite (43) Quality of life questionnaire-core 30 (QLQ-C30) (44) 36-Item Short Form Quality of Life Scale (SF-36 QoLS) (46,47) Stoma quality of life scale (stoma-QOL) (7,33)
Quality of life associated with adaptation to an ostomy (27)	Questionnaire to assess physical, psychological, and social adaptation to an ostomy (27)
Major and minor morbidities (28)	
Negative psychological emotions (43,46)	Self-rating Anxiety Scale (SAS) (43,46) Self-rating Depression Scale (SDS) (43,46)
Anxiety (23,33)	State-Trait Anxiety Inventory (STAI) (33)
Depression (23)	-----
Knowledge of the disease (46,47)	The self-designed disease knowledge questionnaire (includes complication management, knowledge of drug use, device change) (46)
Knowledge of the ostomy (43)	-----
Knowledge of, attitude, and behavior towards ostomy self-care (40)	Behavior Assessment Form (Behavior Skills) (47)
Knowledge of and capacity for ostomy self-care (38,45)	-----
Psychological adaptation (31)	
Adaptation to an ostomy (7,50,54)	Ostomy Adjustment Scale (54), Ostomy Adjustment Inventory (OAI) (7), Ostomy Adjustment Inventory-23 (OAI-23) (50)
Self-efficacy (31,33,41,50,54)	Self-efficacy scale (31), Stoma Self-efficacy Scale (33,50,54)
Confidence for self-care (45)	Visual Analog Scale (EVA) (45)
Capacity for self-care (44,46)	Exercise of self-care agency scale (ESCA) (44,46)
Ostomy self-management (41)	Questionnaire Form for Self-management of Ostomy (41)
Number of days / weeks until autonomy in self-care (23,48,53)	
Degree of user satisfaction (23,33,44,46,49,51,53,54)	
Satisfaction with nursing care / intervention (38,43)	Questionnaire on areas of intervention and level of satisfaction (very satisfied, satisfied, dissatisfied) (43)
User perception regarding the usefulness of the nurse's intervention (56)	
Intervention effectiveness rate (26)	
Evaluation of the quality of multimedia resources (49)	

Source: Own elaboration

We established a relationship between interventions and indicators since this information is not expressed objectively in the literature. In addition, the same indicator can respond to a single or all interventions.

## Discussion

This paper is the first literature review to map nursing interventions centered on promoting the self-care of a candidate for or a person with a bowel elimination ostomy. The review showed that research is conducted within the scope of the definition of nursing interventions prescribed to the candidate or person with a bowel elimination ostomy, noting that most are experimental studies. However, those are more directed towards assessing methods for implementing nursing interventions, namely simulators (50), telephone contact (43,54), mobile apps (31), and multimedia resources (40).

Methods to improve the educational process of patients through information and communication technologies, such as computer-aided education models, are evolving rapidly, and nurses play a central and privileged role in using these technologies to enhance and optimize their interventions for patients (49). The technology most referred to in the literature is a communication-only mobile phone application. However, technology, especially mobile technology, is being used by community nurses for various purposes, including knowledge sharing, reporting, and caseload planning (60). Advances in information technologies, such as smartphones and mobile applications, have created more opportunities for people to have information related to their health status available at any time or place according to their needs and preference.

As health professionals with exclusive intervention in promoting stoma self-care, nurses must develop content that integrates into different implementation methods, whether using mobile phone applications, videos, or interactive images. This content is the disciplinary knowledge of nursing.

For the challenges faced by health professionals and people with an ostomy regarding reduced hospitalization time and increased complex therapy, whether surgical or pharmacological, it is pertinent to develop instruments that facilitate and enhance the acquisition of stoma self-care competence. The literature maintains that self-care competence positively influences the adaptation process to the stoma (54) and life quality (28,43), reduces the incidence of stoma and peristomal skin complications (43,44), and increases self-efficacy (44) and confidence in self-care (45). It is also evident that the most significant difficulties experienced after discharge are related to insufficient knowledge and the capacity for self-care and pre- and postoperative care (10). The results promote the importance of the nurse's intervention in the three perioperative moments to develop the stoma self-care competence.

The designed nursing interventions presume the definition of the content, the method of administering it, and the dosing, which includes the intervention's frequency, duration, and intensity (22,61). However, no studies addressing these characteristics systematically and completely were identified. From the identified literature, specific interventions are mentioned without any reference to content, method, and dosing, namely "Encouraging the manipulation of ostomy devices," "Promoting interaction with people with a bowel elimination ostomy," "Assessing knowledge of stoma and peristomal skin complications," "Assessing the diet," "Assessing intestinal elimination," "Assessing the use of health resources" and "Informing about health resources."

The content is the most described component in the remaining interventions and where there is the most significant consensus. Meanwhile, the administration method and dosing are referenced but is incomplete in most articles, with the dosing being the component of interventions with major discrepancies and less information available.

Within each intervention, we identified that they are repeated throughout the different administration moments (preoperative phase, postoperative hospitalization, or after hospital discharge). However, there are differences in the content and dosing of interventions at each moment.

In the preoperative period, concerning the method for the different interventions, these can be in person, via telephone, or both, the most common being only one face-to-face session on the eve of the surgery (24,26,36–39). Regardless of the interventions, method, and dosing, it is agreed that when performed preoperatively, they significantly impact the well-being of the person with a stoma, the reduction of complications, and the use of health resources (62,63). In addition, there seems to be a consensus among all authors on performing stoma site and the positive impact it has (62). In this context, "teaching about intestinal elimination ostomy" and "teaching about bowel elimination ostomy self-care" appear to be the most referenced preoperative interventions in the literature.

Concerning the interventions implemented in the postoperative period, during hospitalization, we found comparative studies between the use of the face-to-face expository method, face-to-face intervention combined with multimedia resources, or the exclusive use of multimedia methods. The results suggest that the use of multimedia tools can be used to implement the intervention. Nevertheless, it is enhanced when combined with the face-to-face intervention by the nurse (40,45). One aspect to be considered before the execution of any nursing intervention to promote self-care is to ensure that the patient is prepared and available without any discomfort or pain (42). The use of the internet has emerged as an intervention method with excellent cost-effectiveness in the following cases: "Teaching about bowel elimination ostomy," and "Teaching about bowel elimination ostomy self-care," (31,64).

Considering the approach after hospital discharge, the methods of implementing the interventions are telephone or face-to-face contact in the context of a consultation in a hospital or through home visits. Telephone contact emerges as an effective strategy in specific interventions such as “Assessing stoma self-care competence” and “Watching for signs of stoma and peristomal skin complications.” These interventions have benefits regarding associated costs and health gains, scope of customer satisfaction, improved adaptation to the stoma, perception of self-efficacy, and reduced incidence of stoma or peristomal skin complications (54,56).

Consensus among the authors was identified regarding follow-up by a stoma nurse and early start of follow-up, namely in the first week after hospital discharge, being the non-face-to-face contact via telephone call one of the most mentioned methods (54,56,65).

The intervention “Planning a follow-up appointment after hospital discharge” is the one with more variable dosing options after discharge. However, the first six weeks are defined as the most vulnerable phase and require a closer intervention (25,27,44).

Some studies evaluated the impact that interventions, or a set of them, could have on specific indicators. From the analysis of Table 2, not all authors express how they evaluate the indicator in question, which emerges as a limitation to research rigor and replication. In the review context, the indicators most sensitive to nursing interventions are highlighted, which we group into five categories: safety, economic, psychological well-being, functional status and, symptom experience (22).

In the sensitive results to nursing interventions and safety categories, the incidence of stoma and peristomal skin complications was considered, which stands out as the most common in the articles, followed by economic results as length of stay, the rate of hospital readmission, and the number of consultations.

For the psychological well-being category, indicators such as anxiety, depression, and negative emotions are used. The functional status category groups indicators such as adaptation and the capacity for self-care and indirect indicators such as user satisfaction. For the symptom experience category, no indicator is shown.

Considering the direct and autonomous intervention of nurses in promoting stoma self-care, they would be expected to use reliable and rigorous instruments to assess the level of stoma self-care competence (66). However, only three authors use direct indicators to assess the impact of nursing interventions on self-care competence (41,44,46), while the remaining indicators evaluate it indirectly. For assessing the impact of interventions, their contents, methods, and dosing on self-care competence, it is imperative to use direct indicators, that is, stoma self-care competence of and the dimensions comprising it (66).

Regarding the analyzed literature, the interventions and the contents to be included in the different moments of the perioperative period are defined; nevertheless, they are still poorly consolidated. It should be noted that the period after hospital discharge is the one that lacks the most evidence regarding the definition of nursing interventions, contents, and dosing, also emerging as the period of greatest vulnerability for the person with a new ostomy (67).

This review highlights evidence that can facilitate the intervention of nurses in providing care to the person proposed for stoma construction or after its construction. The results of this review must be examined in light of several limitations. The broad nature of our Boolean research phrase was intended to include the most significant number of studies, but did not cover all the databases and gray literature, certainly excluding some references.

## Conclusion

Stoma self-care is enhanced by an appropriate nursing intervention from the preoperative moment, to the immediate postoperative period, to adjusted follow-up after hospital discharge. The promotion of self-care is a critical component in the recovery of people with an ostomy, with a significant impact on several indicators sensitive to the intervention of nurses, namely functional status, safety, and psychological and economic impact. The knowledge and use of these indicators are of crucial importance for, on the one hand, highlighting the condition of patients, and on the other hand, demonstrating the relevance of nursing care to the person.

While there is available literature that supports the nurse's intervention in elimination ostomy self-care, more research is needed on the definition of content, methods, and dosing of interventions, especially after hospital discharge where a more significant lack of information and vulnerability of the person with a new ostomy are detected.

There is no evidence to support the improvement in clinical results, suggesting that further studies should be carried out through rigorous programs to develop a viable educational intervention that improves the care provided to patients.

The use of multiple and indirect outcomes in assessing nursing interventions is beneficial to understand their impact on different areas; however, a direct indicator of the objective of the intervention should always be used. Thus, when evaluating interventions or intervention programs aimed at promoting stoma self-care, it is crucial to employ tools that directly assess self-care competence.

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# References

1. Giordano V, Nicolotti M, Corvese F, Vellone E, Alvaro R, Villa G. Describing self-care and its associated variables in ostomy patients. *J Adv Nurs* [Internet]. 2020 [cited 2020 Nov 29];76(11):2982–2992. DOI: <https://doi.org/10.1111/jan.14499>
2. Di Gesaro A. Self-care and patient empowerment in stoma management. *Gastrointest Nurs* [Internet]. 2012;10(2):19–23. DOI: <https://doi.org/10.12968/gasn.2012.10.2.19>
3. Simmons KL, Smith JA, Bobb K-A, Liles LLM. Adjustment to colostomy: Stoma acceptance, stoma care self-efficacy and interpersonal relationships. *J Adv Nurs* [Internet]. 2007;60(6):627–635. DOI: <https://doi.org/10.4314/ejhs.v26i2.5>
4. Engida A, Ayelign T, Mahteme B, Aida T, Abreham B. Types and Indications of Colostomy and Determinants of Outcomes of Patients After Surgery. *Ethiop J Health Sci* [Internet]. 2016 [cited 2020 Mar 10];26(2):117–120. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4864340/>
5. International agency for research on cancer. Cancer today [Internet]; 2021 [cited 2021 Sep 29]. Available from: <http://gco.iarc.fr/today/home>
6. International agency for research on cancer. Cancer Tomorrow [Internet]; 2021 [cited 2021 Sep 29]. Available from: [https://gco.iarc.fr/tomorrow/en/dataviz/bars?mode=cancer&populations=900&cancers=9\\_8&group\\_cancers=1&multiple\\_cancers=1&multiple\\_populations=0](https://gco.iarc.fr/tomorrow/en/dataviz/bars?mode=cancer&populations=900&cancers=9_8&group_cancers=1&multiple_cancers=1&multiple_populations=0)
7. Cengiz B, Bahar Z, Canda AE. The Effects of Patient Care Results of Applied Nursing Intervention to Individuals With Stoma According to the Health Belief Model. *Cancer Nurs* [Internet]. 2020;43(2):E87–E96. DOI: <https://doi.org/10.1097/NCC.0000000000000678>
8. Sousa CF, Santos C, Graça LCC. Construção e validação de uma escala de adaptação a ostomia de eliminação. *Rev Enfermagem Referência* [Internet]. 2015;serIV(4):21–30. DOI: <https://doi.org/10.12707/RIV14021>
9. Byfield D. The Lived Experiences of Persons With Ostomies Attending a Support Group A Qualitative Study. *J Wound Ostomy Continence Nurs* [Internet]. 2020;47(5):489–495. DOI: <https://doi.org/10.1097/WON.0000000000000696>
10. de Sena JF, da Silva IP, Lucena SKP, Oliveira ACS, Costa IKF. Validation of educational material for the care of people with intestinal stoma. *Rev Lat Am Enfermagem* [Internet]. 2020;28:1–9. DOI: <https://doi.org/10.1590/1518-8345.3179.3269>
11. Elshatarat RA, Ebeid IA, Elhenawy KA, Saleh ZT, Raddaha AHA, Aljohani MS. Jordanian ostomates' health problems and self-care ability to manage their intestinal ostomy: a cross-sectional study. *J Res Nurs* [Internet]. 2020 [2020 Nov 29];1744987120941568. DOI: <https://doi.org/10.1177/1744987120941568>
12. Colwell JC, Gray M. Does preoperative teaching and stoma site marking affect surgical outcomes in patients undergoing ostomy surgery? *J Wound Ostomy Continence Nurs* [Internet]. 2007;34(5):492–496. DOI: <https://doi.org/10.1097/01.WON.0000290726.08323.a6>
13. Millan M, Tegido M, Biondo S, García-Granero E. Preoperative stoma siting and education by stomatherapists of colorectal cancer patients: a descriptive study in twelve Spanish colorectal surgical units. *Colorectal Dis* [Internet]. 2010;12(7):e88–e92. DOI: <https://doi.org/10.1111/j.1463-1318.2009.01942.x>
14. Person B, Ifargan R, Lachter J, Duek SD, Kluger Y, Assalia A. The impact of preoperative stoma site marking on the incidence of complications, quality of life, and patient's independence. *Dis Colon Rectum* [Internet]. 2012;55(7):783–787. DOI: <https://doi.org/10.1097/DCR.0b013e31825763fo>
15. Danielsen AK, Burcharth J, Rosenberg J. Patient education has a positive effect in patients with a stoma: a systematic review. *Colorectal Dis* [Internet]. 2013;15(6):e276–283. DOI: <https://doi.org/10.1111/codi.12197>
16. Bird A, Wilson K, Bertinara A, Amos L. Educating patients in stoma care. *Br J Nurs* [Internet]. 2019;28(5):S4–S5. DOI: <https://doi.org/10.12968/bjon.2019.28.5.S4>
17. 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* [Internet]. 2016;25(5):574–581. DOI: <https://doi.org/10.1002/pon.4078>
18. Phatak UR, Li LT, Karanjawala B, Chang GJ, Kao LS. Systematic review of educational interventions for ostomates. *Dis Colon Rectum* [Internet]. 2014;57(4):529–537. DOI: <https://doi.org/10.1097/DCR.0000000000000044>
19. Ercolano E, Grant M, McCorkle R, Tallman NJ, Cobb MD, Wendel C, et al. Applying the chronic care model to support ostomy self-management: Implications for oncology nursing practice. *Clin J Oncol Nurs* [Internet]. 2016;20(3):269–274. DOI: <https://doi.org/10.1188/16.CJON.20-03AP>
20. Peters M, Godfrey C, McInerney P, Soares C, Hanan K, Parker D. The Joanna Briggs Institute Reviewers' Manual 2015: Methodology for JBI Scoping Reviews; 2015 [2017 Jan 4]. Available from: <http://espace.library.uq.edu.au/view/UQ:371443>
21. Corporation for Digital Scholarship. Zotero [Internet]; 2020 [cited 2021 Sep 29]. Available from: <https://www.zotero.org/>
22. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med* [Internet]. 2018 [2021 Aug 14];169(7):467–473. DOI: <https://doi.org/10.7326/M18-0850>
23. Aranda S. Designing nursing interventions. *Collegian* (Royal College of Nursing, Australia). 2008;15(1):19–25. DOI: <https://doi.org/10.1016/j.colegn.2007.11.002>
24. Chaudhri S, Brown L, Hassan I, Horgan AF. Preoperative intensive, community-based vs. traditional stoma education: a randomized, controlled trial. *Dis Colon Rectum* [Internet]. 2005;48(3):504–509. DOI: <https://doi.org/10.1007/s10350-004-0897-0>
25. Goldberg M, Aukett LK, Carmel J, Fellows J, Folkedahl B, Pittman J. Management of the patient with a fecal ostomy: Best practice guideline for clinicians. *J Wound Ostomy Continence Nurs* [Internet]. 2010;37(6):596–598. DOI: <https://doi.org/10.1097/WON.0b013e3181f97e37>
26. Miller D, Pearsall E, Johnston D, Frecea M, McKenzie M. Executive Summary: Enhanced Recovery After Surgery: Best Practice Guideline for Care of Patients with a Fecal Diversion. *J Wound Ostomy Continence Nurs* [Internet]. 2017;44(1):74–77. DOI: <https://doi.org/10.1097/WON.0000000000000297>
27. Zimnicki KM. Preoperative teaching and stoma marking in an inpatient population: A quality improvement process using a FOCUS-plan-do-check-act model. *J Wound Ostomy Continence Nurs* [Internet]. 2015;42(2):165–169. DOI: <https://doi.org/10.1097/WON.0000000000000111>
28. Fingren J, Lindholm E, Petersén C, Hallén A-M, Carlsson E. A Prospective, Explorative Study to Assess Adjustment 1 Year After Ostomy Surgery Among Swedish Patients. *Ostomy Wound Manage* [Internet]. 2018;64(6):12–22. DOI: <https://doi.org/10.25270/owm.2018.6.1222>
29. Forsmo HM, Pfeffer F, Rasdal A, Sintonen H, Körner H, Erichsen C. Pre- and postoperative stoma education and guidance within an enhanced recovery after surgery (ERAS) programme reduces length of hospital stay in colorectal surgery. *Int J Surg* [Internet]. 2016 [cited 2019 Sep 22];36:121–126. DOI: <https://doi.org/10.1016/j.ijsu.2016.10.031>

30. Linda B-H, Elliott B. COLOSTOMY CARE A Guide for Home Care Clinicians. *Home Healthc Now* [Internet]. 2019;37(2):68–78. DOI: <https://doi.org/10.1097/NHH.0000000000000735>
31. Adams K. Helping older patients to adapt to stomas using an enhanced recovery programme. *Br J Community Nurs* [Internet]. 2019;24(5):224–228. DOI: <https://doi.org/10.12968/bjcn.2019.24.5.224>
32. Wang Q, Wang J, Zhao J, Huo X, Wu L, Yang L, et al. Effects of a home care mobile app on the outcomes of discharged patients with a stoma: A randomised controlled trial. *J Clin Nurs* [Internet]. 2018;27(19/20):3592–3602. DOI: <https://doi.org/10.1111/jocn.14515>
33. Zhang J-E, Wong FKY, You LM, Zheng MC. A qualitative study exploring the nurse telephone follow-up of patients returning home with a colostomy. *J Clin Nurs* [Internet]. 2012;21(9–10):1407–1415. DOI: <https://doi.org/10.1111/j.1365-2702.2011.03824.x>
34. Xia L. The Effects of Continuous Care Model of Information-Based Hospital-Family Integration on Colostomy Patients: A Randomized Controlled Trial. *J Cancer Educ* [Internet]. 2020;35(2):301–311. DOI: <https://doi.org/10.1007/s13187-018-1465-y>
35. Schluter JE, Sinasac PA. Community stoma therapy services: a needs analysis and development of an evidence based model of care. *J Stomal Ther Aust* [Internet]. 2020 [2020 Nov 9];40(1):8–13. DOI: <https://doi.org/10.33235/jsta.40.1.8-13>
36. Berti-Hearn L, Elliott B. Ileostomy Care: A Guide for Home Care Clinicians. *Home Healthc Now* [Internet]. 2019;37(3):136–144. DOI: <https://doi.org/10.1097/NHH.0000000000000776>
37. Cronin E. What the patient needs to know before stoma siting: an overview. *Br J Nurs*. 2012;21(22):1304–1308. DOI: <https://doi.org/10.12968/bjon.2012.21.22.1234>
38. Burch J, Slater R. Enhanced recovery after surgery: benefits for the stoma care patient. *Br J Nurs* [Internet]. 2012;21(6):S16–21. DOI: <https://doi.org/10.12968/bjon.2012.21.Sup6.S16>
39. Kittinouvarat S, Charoenlar S, Aeksiwaranon W. Development of a self-care empowerment model for patients with faecal diversion. *WCET J*. 2011;31(2):9–14.
40. Nagle D, Pare T, Keenan E, Marcet K, Tizio S, Poylin V. Ileostomy pathway virtually eliminates readmissions for dehydration in new ostomates. *Dis Colon Rectum* [Internet]. 2012;55(12):1266–1272. DOI: <https://doi.org/10.1097/DCR.0b013e31827080c1>
41. Lo S-F, Wang Y-T, Wu L-Y, Hsu M-T, Chang SC, Hayter M. Multimedia education programme for patients with a stoma: Effectiveness evaluation. *J Adv Nurs* [Internet]. 2011;67(1):68–76. DOI: <https://doi.org/10.1111/j.1365-2648.2010.05455.x>
42. Wen S-L, Li J, Wang A-N, Lv M-M, Li H-Y, Lu Y-F, et al. Effects of transtheoretical model-based intervention on the self-management of patients with an ostomy: A randomised controlled trial. *J Clin Nurs* [Internet]. 2019;28(9–10):1936–1951. DOI: <https://doi.org/10.1111/jocn.14731>
43. Kirkland-Kyhn H, Martin S, Zaratkiewicz S, Whitmore M, Young HM. Ostomy Care at Home. *Am J Nurs* [Internet]. 2018;118(4):63–68. DOI: <https://doi.org/10.1097/01.NAJ.0000532079.49501.ce>
44. Geng W, Tao N, Wang T, Zhang Y, Wang Y. Continuous nursing reduces postoperative complications and improves quality of life of patients after enterostomies. *Int J Clin Exp Med*. 2019;12(5):5895–5901.
45. Huang L, Yu H, Sun A, Xu F, Xia C, Gao D, et al. Effects of continuing nursing on stoma complications, self-care ability and life quality after Miles' operation for colorectal carcinoma. *Int J Clin Exp Med*. 2018;11(2):1021–1026.
46. Crawford D, Texter T, Hurt K, Van Aelst R, Glaza L, Vander Laan KJ. Traditional nurse instruction versus 2 session nurse instruction plus DVD for teaching ostomy care: a multisite randomized controlled trial. *J Wound Ostomy Continence Nurs* [Internet]. 2012;39(5):529–537. DOI: <https://doi.org/10.1097/WON.0b013e3182659ca3>
47. Hu H, Zheng J, Gao L. The effect of continuing nursing services on colostomy patients. *Int J Clin Exp Med* [Internet]. 2020;13(8):5876–5884. Available from: <http://ijcem.com/files/ijcem0114204.pdf>
48. Yilmazer T, Tuzer H, Akyüz S. Effect of Information-Motivation-Behavioral Skills Model-Based Intervention on Quality of Life of Ostomy Patients. *Turk Klin Hemsire Bilim* [Internet]. 2020 [cited 2020 Nov 9];12(2):182–189. DOI: <https://doi.org/10.5336/nurses.2019-72070>
49. Millard R, Cooper D, Boyle MJ. Improving Self-Care Outcomes in Ostomy Patients via Education and Standardized Discharge Criteria. *Home Healthc Now* [Internet]. 2020;38(1):16–23. DOI: <https://doi.org/10.1097/NHH.0000000000000816>
50. Farahani MA, Dorri S, Yousefi F. Design and Validation of Education Multimedia Program for Patients with Fecal Diversions A Quality Improvement Project to Enhance Self-Care. *J Wound Ostomy Continence Nurs* [Internet]. 2020;47(1):39–44. DOI: <https://doi.org/10.1097/WON.0000000000000603>
51. Pouresmail Z, Nabavi FH, Abdollahi A, Shakeri MT, Saki A. Effect of using a simulation device for ostomy self-care teaching in Iran: A pilot, randomized clinical trial. *Wound Manag Prev* [Internet]. 2019;65(6):30–39. DOI: <https://doi.org/10.25270/wmp.2019.6.3039>
52. Grahm SW, Lowry AC, Osborne MC, Melton GB, Gaertner WB, Vogler SA, et al. System-Wide Improvement for Transitions After Ileostomy Surgery: Can Intensive Monitoring of Protocol Compliance Decrease Readmissions? A Randomized Trial. *Dis Colon Rectum* [Internet]. 2019;62(3):363–370. DOI: <https://doi.org/10.1097/DCR.0000000000001286>
53. Marsden J. Enhanced recovery after surgery (ERAS): A literature review of implications for ostomates and stoma care nurses. *Gastrointest Nurs* [Internet]. 2020;18(1):32–37. DOI: <https://doi.org/10.12968/gasn.2020.18.1.32>
54. Bohnenkamp SK, McDonald P, Lopez AM, Krupinski E, Blackett A. Traditional versus telenursing outpatient management of patients with cancer with new ostomies. *Oncol Nurs Forum* [Internet]. 2004;31(5):1005–1010. DOI: <https://doi.org/10.1188/04.ONF.1005-1010>
55. Zhang J-E, Wong FKY, You L-M, Zheng M-C, Li Q, Zhang B-Y, et al. Effects of enterostomal nurse telephone follow-up on postoperative adjustment of discharged colostomy patients. *Cancer Nurs* [Internet]. 2013;36(6):419–428. DOI: <https://doi.org/10.1097/NCC.0b013e31826fc8eb>
56. Colwell JC, Kupsick PT, McNichol LL. Outcome criteria for discharging the patient with a new ostomy from home health care a WOCN society consensus conference. *J Wound Ostomy Continence Nurs* [Internet]. 2016;43(3):269–273. DOI: <https://doi.org/10.1097/WON.0000000000000230>
57. Burch J. Enhanced recovery and nurse-led telephone follow-up post surgery. *Br J Nurs* [Internet]. 2012;21(16):S24–29. DOI: <https://doi.org/10.12968/bjon.2012.21.Sup16.S24>
58. Quintana J, Catalina Pastor Juan, Prados Herrero I, Pérez López C, González Fuentes M, de Mena Casaseca C, et al. A prospective, longitudinal, multicenter, cohort quality-of-life evaluation of an intensive follow-up program for patients with a stoma. *Ostomy/Wound Manag*. 2010;56(5):44–52.
59. Johnson T. Follow-up care of stoma patients: a systematic literature review. *Gastrointest Nurs* [Internet]. 2012;10(9):30–36. DOI: <https://doi.org/10.12968/gasn.2012.10.9.30>

60. Hornbrook MC, Cobb MD, Tallman NJ, Colwell J, McCorkle R, Ercolano E, et al. Costs of an ostomy self-management training program for cancer survivors. *Psycho-Oncology* [Internet]. 2018;27(3):879–885. DOI: <https://doi.org/10.1002/pon.4584>
61. Dewsbury G. Use of information and communication technology in nursing services. *Br J Community Nurs* [Internet]. 2019;24(12):604–607. DOI: <https://doi.org/10.12968/bjcn.2019.24.12.604>
62. Conn VS, Rantz MJ, Wipke-Tevis DD, Maas ML. Designing effective nursing interventions. *Res Nurs Health*. 2001;24(5):433–442. DOI: <https://doi.org/10.1002/nur.1043>
63. Salvadalena G, Hendren S, McKenna L, Muldoon R, Netsch D, Paquette I, et al. WOCN Society and ASCRS Position Statement on Preoperative Stoma Site Marking for Patients Undergoing Colostomy or Ileostomy Surgery. *J Wound Ostomy Continence Nurs* [Internet]. 2015;42(3): 249–252. DOI: <https://doi.org/10.1097/WON.000000000000119>
64. Wasserman MA, McGee MF. Preoperative Considerations for the Ostomate. *Clin Colon Rectal Surg* [Internet]. 2017;30(3):157–161. DOI: <https://doi.org/10.1055/s-0037-1598155>
65. Pittman J, Nichols T, Rawl SM. Evaluation of web-based ostomy patient support resources. *J Wound Ostomy Continence Nurs* [Internet]. 2017;44(6):550–556. DOI: <https://doi.org/10.1097/WON.0000000000000371>
66. Lim SH, Chan, SW-C, Lai, JH, He. A randomized controlled trial examining the effectiveness of a STOMA psychosocial intervention programme on the outcomes of colorectal patients with a stoma: study protocol. *J Adv Nurs* [Internet]. 2015;71(6):1310–1323. DOI: <https://doi.org/10.1111/jan.12595>
67. Pinto IES, Santos CSV de B, Brito MAC de, Queirós SMM. Propriedades Psicométricas do Formulário Desenvolvimento da Competência de Autocuidado da Pessoa com Ostomia de Eliminação Intestinal. *Rev Enfermagem Referência* [Internet]. 2016;serIV(8):75–84. DOI: <https://doi.org/10.12707/RIV15044>