



Contemporary Ostomy Care in Colostomy Patients: A Literature Review of Digital Health, Peristomal Skin Complications, and Quality of Life



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Abstract

Background: Colostomy care requires long-term self-management, peristomal skin protection, leakage prevention, and psychosocial adaptation. Digital health has emerged as a contemporary strategy to strengthen post-discharge support and improve quality of life among patients living with ostomy.

Aim: To synthesize recent evidence on digital health, peristomal skin complications, and quality of life in colostomy care.

Approach: This structured literature review included 10 core studies published from January 2021 to June 2026. PubMed/MEDLINE, Scopus, Web of Science, CINAHL, ScienceDirect, and Google Scholar were searched. Eligible studies involved adult ostomy patients and were synthesized narratively with methodological appraisal.

Results: A total of 10 studies were included. Findings showed that telehealth, mobile applications, multimedia education, and continuous care improved self-care, self-efficacy, stoma adjustment, and quality of life. Peristomal skin complications remained common, with reported incidence ranging from 36.3% to 73.4%, mainly related to leakage and appliance problems.

Conclusions: Contemporary colostomy care should integrate digital follow-up, nurse-led education, leakage prevention, peristomal skin protection, and psychosocial support to improve long-term outcomes.

Implication for Nursing Practice: Nurses should use digital and face-to-face follow-up to strengthen self-care, detect complications early, prevent leakage, and support quality of life after colostomy

Keywords: colostomy; digital health; nursing care; ostomy; quality of life; self care; skin diseases; telemedicine

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Introduction

Colostomy is a surgically created opening in which a segment of the colon is brought through the abdominal wall to divert fecal output when normal bowel continuity or distal bowel function cannot be safely maintained. Common indications for colostomy include colorectal cancer, diverticulitis with perforation, traumatic bowel injury, Crohn's disease, and fecal diversion in complex colorectal or perianal conditions (Hedrick et al., 2023). In patients with inflammatory bowel disease, stoma creation may also be required to control severe inflammation, manage postoperative risk, or support temporary or

permanent bowel diversion, particularly in complex Crohn's disease and ulcerative colitis cases (Traiki et al., 2023). Although colostomy can be lifesaving and clinically necessary, living with a stoma requires long-term physical, psychological, social, and lifestyle adaptation. Patients must learn complex self-care skills, including pouch replacement, peristomal skin protection, leakage prevention, odor control, dietary adjustment, and early recognition of stoma-related complications.

Self-care is a central component of colostomy management because patients are expected to perform daily stoma care independently after discharge. Inadequate self-





care may increase the risk of leakage, poor pouch adherence, delayed recognition of complications, and reduced confidence in managing the stoma. A multicenter structural equation modeling study showed that self-care maintenance and self-care monitoring were positively associated with health-related quality of life among people living with an ostomy (Marcomini et al., 2024). Similarly, a randomized controlled study reported that multimedia-based education significantly improved home self-care ability and quality of life among patients with enterostomy compared with conventional education (Ko et al., 2023). These findings suggest that contemporary colostomy care should move beyond routine discharge teaching and focus on structured, continuous, and patient-centered self-management support.

Peristomal skin complications remain one of the most common and clinically important problems among patients with colostomy or ileostomy. These complications include irritant contact dermatitis, allergic dermatitis, mechanical trauma, infection, ulceration, and skin damage caused by repeated leakage or inappropriate appliance fitting. A systematic review by D'Ambrosio et al. (2022) reported that peristomal skin complications are the most common skin problems following ostomy surgery and have a considerable impact on patients' quality of life and healthcare costs. More recent evidence also indicates that frequent leakage and severe peristomal skin complications are associated with poorer health-related quality of life and mental well-being during the first year after stoma formation (Brady et al., 2025). Therefore, prevention and early management of peristomal skin complications should be considered core outcomes in colostomy care, rather than secondary technical issues.

Quality of life is another key outcome in colostomy care because the presence of a stoma may affect body image, sexuality, sleep, clothing choices, work participation, religious practices, social interaction, and emotional well-being. Patients with an ostomy frequently experience embarrassment, fear of leakage, reduced self-confidence, anxiety, depressive symptoms, and social withdrawal. A recent systematic review and meta-analysis among colorectal cancer survivors found that ostomy formation was associated with impaired quality

of life and psychological outcomes, highlighting the need for tailored supportive interventions after surgery (Díaz-Sánchez et al., 2026). In addition, the relationship between self-care and quality of life suggests that patients who are more confident and competent in stoma management may experience better physical comfort, emotional adjustment, and social participation (Marcomini et al., 2024).

In recent years, digital health has emerged as a promising approach to strengthen ostomy care beyond the hospital setting. Digital health interventions in ostomy care may include telehealth consultation, mobile applications, multimedia education, web-based monitoring, symptom reporting systems, remote stoma assessment using photographs, peer-support platforms, and nurse-led virtual follow-up. A randomized controlled trial of a mobile stoma application found that personalized guidance and peer support improved quality of life among patients with a stoma, suggesting that mobile health can complement standard stoma care pathways (van der Storm et al., 2024). In cancer survivors with ostomies, a telehealth-based self-management intervention demonstrated the feasibility of delivering structured ostomy education and support through videoconferencing technology (Weinstein et al., 2021). These findings indicate that digital health may improve access to professional support, particularly after discharge, when patients often face practical difficulties in stoma care at home.

The growing role of digital health is also supported by recent synthesis evidence. A systematic review and meta-analysis reported that telehealth stoma care can improve stoma adjustment and self-efficacy, although evidence on anxiety and quality of life remains inconsistent and requires further high-quality studies (Kim & Jeong, 2025). In 2026, a systematic review and meta-analysis on digital health interventions among patients with an ostomy found positive effects on self-care, quality of life, and complication reduction, indicating that digital approaches are becoming increasingly relevant in contemporary ostomy care (Wang et al., 2026). However, despite this growing evidence, the literature remains heterogeneous in terms of intervention type, delivery mode, outcome measurement, follow-up duration, and patient population.





Although several studies have examined digital health, peristomal skin complications, self-care, or quality of life separately, there remains a need for an integrated review focusing specifically on contemporary ostomy care in colostomy patients. This gap is important because digital health interventions may improve quality of life indirectly through better self-care, early identification of leakage, improved peristomal skin management, stronger self-efficacy, and more continuous nurse-patient communication. Therefore, synthesizing evidence across these domains may help clarify current priorities, identify methodological gaps, and guide the development of more personalized, nurse-led, and digitally supported colostomy care models.

Therefore, this literature review aims to synthesize current evidence from 2021 to 2026 on contemporary ostomy care in colostomy patients, with particular focus on digital health interventions, peristomal skin complications, and quality of life. The findings are expected to inform clinical nursing practice, support patient-centered ostomy care, and identify future research directions for improving long-term outcomes among patients living with colostomy.

Method

Study Design

This study was conducted as a structured literature review to synthesize recent evidence on contemporary ostomy care in patients with colostomy, with particular focus on digital health, peristomal skin complications, and quality of life. A structured literature review design was selected because this topic includes diverse forms of evidence, including randomized controlled trials, observational studies, systematic reviews, meta-analyses, and digital health intervention studies. Although this review was not designed as a full systematic review, the search, screening, and reporting process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses PRISMA 2020 framework to enhance transparency, methodological clarity, and reproducibility (Page et al., 2021).

Search Strategy

A comprehensive literature search was conducted to identify relevant studies published between January 2021 and June 2026. The search was performed in major electronic

databases, including PubMed/MEDLINE, Scopus, Web of Science, CINAHL, ScienceDirect, and Google Scholar. This time frame was selected to capture recent developments in ostomy care, particularly the increasing use of telehealth, mobile health applications, digital education, remote monitoring, and nurse-led self-management support. The search strategy combined Medical Subject Headings, free-text keywords, and Boolean operators. The main search terms included “colostomy,” “ostomy,” “stoma,” “enterostomy,” “ostomy care,” “stoma care,” “self-care,” “self-management,” “nursing care,” “digital health,” “telehealth,” “telemedicine,” “mobile application,” “mHealth,” “eHealth,” “peristomal skin complication,” “peristomal skin disorder,” “leakage,” “dermatitis,” “quality of life,” “health-related quality of life,” and “patient-reported outcomes.” The search strategy was adapted according to the indexing system and search requirements of each database. In addition, the reference lists of relevant studies were manually screened to identify additional articles that might not have been captured through database searching.

Eligibility Criteria

Studies were considered eligible if they were published between 2021 and 2026, written in English, available in full text, and focused on adult patients with colostomy, ostomy, stoma, or enterostomy. Studies were included if they examined at least one of the main domains of interest, including digital health interventions, telehealth, mobile applications, self-care, self-management, peristomal skin complications, leakage, quality of life, or nurse-led ostomy care. Studies were excluded if they focused exclusively on pediatric patients, discussed urostomy without relevance to bowel ostomy care, were published before 2021, or were not peer-reviewed original or review articles. Conference abstracts, editorials, letters, commentaries, opinion papers, and articles that did not report outcomes related to ostomy care, complications, self-care, or quality of life were also excluded.

Study Selection

All retrieved articles were imported into reference management software, and duplicate records were removed before screening. The selection process was conducted in several stages. First, titles were screened to remove





clearly irrelevant studies. Second, abstracts were reviewed to determine whether the articles addressed colostomy or ostomy care, digital health, peristomal skin complications, self-care, or quality of life. Third, full-text articles were assessed based on the predefined inclusion and exclusion criteria. Articles that did not meet the eligibility criteria were excluded with reasons. Any uncertainty during the selection process was resolved through re-reading and discussion among the reviewers. The overall study selection process was documented using a PRISMA-style flow diagram to show the number of records identified, screened, excluded, and included in the final review.

Data Extraction

Data were extracted using a standardized data extraction form developed by the authors. The extracted information included author name, year of publication, country, study design, sample size, participant characteristics, type of stoma, intervention or exposure, comparison group when available, outcome measures, key findings, and study limitations. For studies evaluating digital health interventions, additional information was extracted regarding the type of technology used, such as telehealth consultation, mobile application, web-based education, video consultation, remote monitoring, digital symptom reporting, or nurse-led virtual follow-up. For studies focusing on peristomal skin complications, data were extracted on leakage, dermatitis, skin damage, appliance-related problems, risk factors, and prevention strategies. For studies reporting quality of life, information was extracted on the measurement instruments used, affected quality-of-life domains, and the relationship between quality of life, self-care, complications, and digital support.

Quality Appraisal

The methodological quality of the included studies was assessed according to study design. Randomized controlled trials were appraised by considering randomization procedures, allocation concealment, blinding, attrition, outcome measurement, and appropriateness of statistical analysis. Observational studies were evaluated based on sampling methods, participant characteristics, measurement validity, confounding control, completeness of outcome reporting, and clarity

of statistical analysis. Systematic reviews and meta-analyses were assessed based on the comprehensiveness of the search strategy, eligibility criteria, study selection process, risk-of-bias assessment, and appropriateness of synthesis methods. The Joanna Briggs Institute critical appraisal tools were used as a general framework because they support the assessment of methodological quality across different study designs.

Data Synthesis

A narrative synthesis approach was used because the included studies were expected to vary in terms of design, population, intervention type, outcome measurement, and follow-up duration. The findings were organized into three main themes: digital health in ostomy care, peristomal skin complications and leakage prevention, and quality of life among patients with colostomy. Within each theme, findings were compared based on methodological quality, clinical relevance, consistency of results, and implications for nursing practice. Particular attention was given to how digital health interventions may improve self-care ability, support early identification of leakage, facilitate access to stoma nurse consultation, reduce peristomal skin complications, and improve patient-reported outcomes. A meta-analysis was not performed because of heterogeneity in study designs, intervention components, outcome instruments, and participant characteristics. Therefore, the review provides an integrative interpretation of current evidence and highlights gaps for future research.

Ethical Consideration

Ethical approval was not required because this study was based entirely on previously published literature and did not involve direct contact with human participants, collection of primary data, or use of identifiable personal information.

Results

A total of 184 records were identified from database searches. After removing 42 duplicates and 6 records for other reasons, 136 records were screened by title and abstract. Of these, 96 records were excluded, and 40 reports were sought for full-text retrieval. Four reports were not retrieved, leaving 36 full-text reports for eligibility assessment. After full-text



review, 26 reports were excluded because they had an irrelevant population or focus (n = 12), did not report outcomes related to digital health, peristomal skin complications, or quality of life

(n = 8), or were non-peer-reviewed or incomplete reports (n = 6). Finally, 10 studies were included in the review.

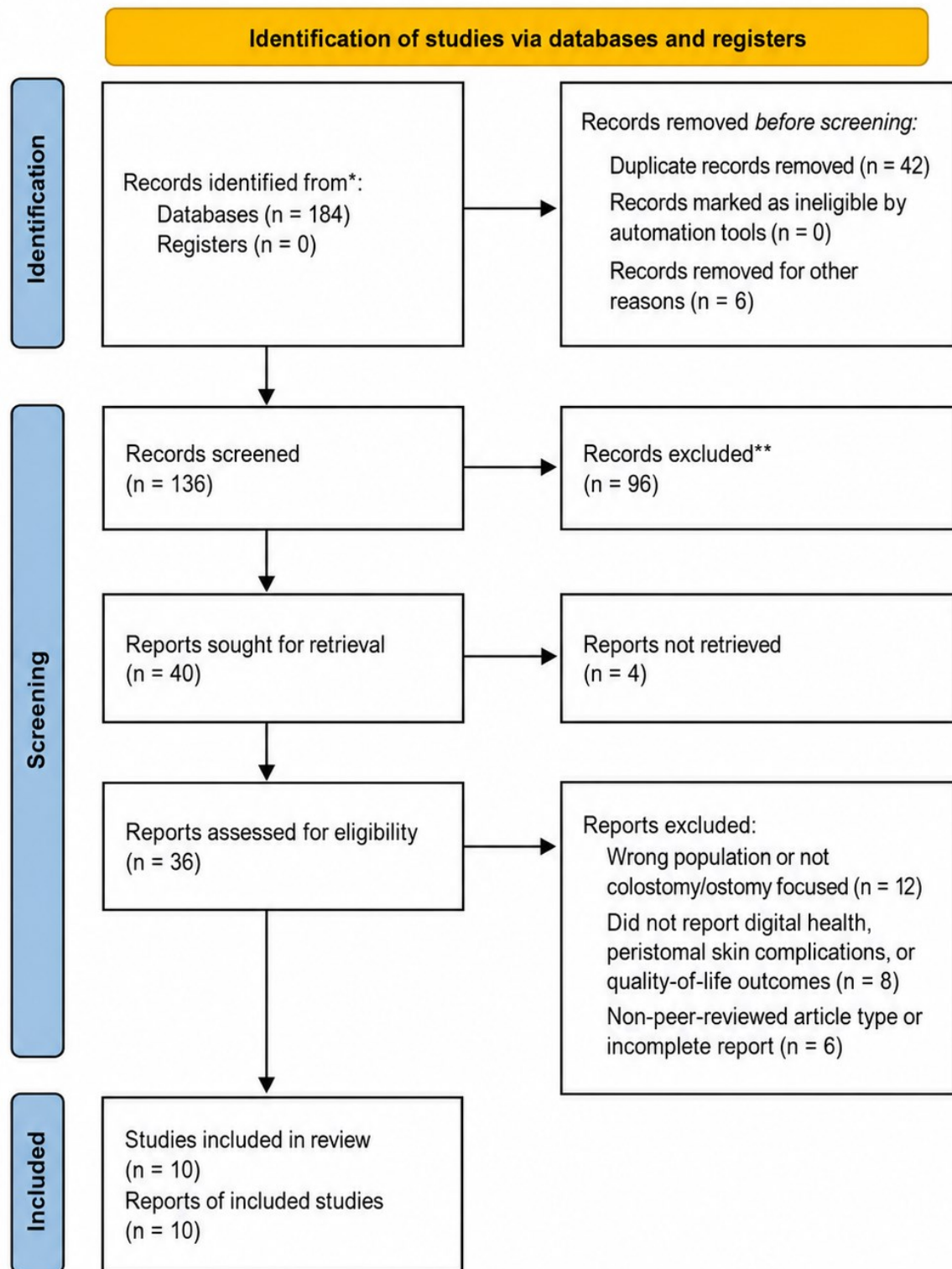


Figure 1. PRISMA Flow Chart

Table 1. Characteristics Study



No.	Author, Year	Country / Setting	Study Design	Population / Sample	Focus of Study	Key Findings	Relevance to This Review
1	Weinstein et al., 2021	United States	Randomized controlled trial / technology-related telehealth report	Cancer survivors living with a permanent ostomy	Ostomy self-management telehealth intervention	Telehealth was feasible for delivering structured ostomy self-management education and support, although technology-related barriers and access issues were identified.	Supports digital and telehealth-based ostomy care after discharge.
2	Goodman et al., 2022	International evidence	Systematic review and meta-analysis	People with a stoma	Self-management interventions	Self-management interventions showed potential benefits for people with stomas, but intervention content and outcome measures varied across studies.	Supports self-management as a core component of contemporary ostomy care.
3	Jin et al., 2022	International evidence	Systematic review and meta-analysis	Patients with stomas after discharge	Continuous care after stoma surgery	Continuous care improved stoma self-efficacy and quality of life and reduced stoma-related complications compared with routine care.	Supports continuity of care and nurse-led follow-up after discharge.
4	D'Ambrosio et al., 2022	International evidence	Systematic review	Adults with ileostomy or colostomy	Peristomal skin complications	Peristomal skin complications were common, with reported incidence ranging from 36.3% to 73.4%, and included erythema, papules, erosions, ulcers, and vesicles.	Directly supports the theme on peristomal skin complications and leakage-related skin damage.
5	Davis et al., 2022	United States	Clinical practice guideline	Patients requiring ostomy surgery	Ostomy surgery and complication management	The guideline addressed ostomy selection, creation, closure, perioperative care, and prevention and management of ostomy-related complications.	Provides clinical context for ostomy-related complications and management principles.
6	Ko et al., 2023	Taiwan	Randomized controlled trial	Patients with enterostomy	Multimedia education	Multimedia education improved home self-care ability and quality of life compared with conventional education.	Supports structured education and digital/multimedia learning for ostomy self-care.
7	Hedrick et al., 2023	United States	Clinical practice update	Patients with ostomies	Management of ostomies	The clinical update provided practical guidance for ostomy indications, complications, and management issues.	Supports clinical background and indication of ostomy/colostomy care.
8	van der Storm et al., 2024	Netherlands	Randomized double-blind clinical trial	Adults undergoing ileostomy or colostomy surgery	Mobile Stoma App	The Stoma App improved quality of life after adjustment for confounders; personalized guidance and peer support were identified as important components.	Directly supports the theme on mobile health and quality of life.
9	Kim & Jeong, 2025	International evidence	Systematic review and meta-analysis of randomized controlled trials	Adult ostomates	Telehealth stoma care	Telehealth improved stoma adjustment and self-efficacy, but effects on anxiety and quality of life were limited or inconsistent.	Supports telehealth evidence while identifying uncertainty in QoL outcomes.
10	Wang et al., 2026	International evidence	Systematic review and meta-analysis	Patients with ostomies	Digital health interventions	Digital health interventions were evaluated for	Provides recent synthesis evidence supporting digital





effects on self-care, quality of life, and clinical outcomes, suggesting increasing relevance of digital transformation in ostomy care. health in ostomy care.

The current evidence on ostomy care is dominated by studies addressing digital health, self-management, peristomal skin complications, and quality of life. However, most studies involved mixed ostomy populations rather than colostomy-only samples. This suggests that the available evidence is clinically relevant to colostomy care but remains limited in its specificity. Therefore, future studies should provide separate analysis for colostomy patients and evaluate integrated digital and nurse-led care models using standardized outcomes (Table 1).

Digital Health in Contemporary Ostomy Care

Digital health emerged as a growing component of contemporary ostomy care. The reviewed studies described several forms of digital support, including telehealth consultation, mobile applications, video-based education, remote communication with stoma nurses, online self-management programs, and digital follow-up after discharge. These interventions were designed to improve patient education, self-care confidence, access to professional support, and early recognition of stoma-related problems.

Evidence from mobile application and telehealth studies suggests that digital health is most useful when it is integrated with personalized guidance, peer support, nurse-led education, and structured follow-up. The Stoma App trial showed improvement in quality of life after adjustment for confounders, while telehealth evidence showed stronger effects on stoma adjustment and self-efficacy than on anxiety or quality of life. This indicates that digital health is promising but should not be interpreted as uniformly effective across all patient-reported outcomes.

Peristomal Skin Complications and Leakage

Peristomal skin complications were one of the most consistently reported clinical problems in ostomy care. These complications included irritant contact dermatitis, erythema, papules, erosions, ulcers, vesicles, mechanical trauma, and skin damage related to leakage or poor appliance fitting. The systematic review by D'Ambrosio et al. reported that peristomal skin

complications are common in ileostomy and colostomy patients, with incidence ranging from 36.3% to 73.4%.

Leakage was identified as a major contributor to skin damage, discomfort, pouch insecurity, embarrassment, and reduced confidence in self-care. Therefore, leakage prevention should be considered a core clinical outcome in colostomy care. Effective prevention requires appropriate appliance fitting, regular peristomal skin assessment, early recognition of pouching problems, patient education, and timely access to specialist stoma nursing support.

Quality of Life in Patients Living With an Ostomy

Quality of life was identified as a central patient-reported outcome in contemporary ostomy care. Living with a stoma may affect physical comfort, body image, sexuality, sleep, clothing choice, work participation, social relationships, emotional well-being, and daily activities. These effects indicate that ostomy care should not focus only on technical pouch management but should also address psychosocial adjustment and long-term adaptation.

The evidence suggests that quality of life is closely linked to self-care confidence, leakage prevention, complication control, and access to professional support. Patients who can manage pouch changes, protect peristomal skin, recognize early signs of complications, and obtain timely help are more likely to adapt successfully to life with a stoma. Conversely, leakage, peristomal skin complications, anxiety, low self-efficacy, and limited follow-up may negatively affect confidence, social participation, and emotional well-being.

Methodological Quality Appraisal

The methodological quality of the 10 included studies was appraised according to study design. Randomized controlled trials were assessed based on randomization, blinding, intervention clarity, attrition, outcome measurement, and appropriateness of statistical analysis. Systematic reviews and meta-analyses were assessed based on search strategy, eligibility criteria, study selection, risk-of-bias assessment, and synthesis approach.





Clinical practice guidelines and clinical updates were appraised based on clarity of scope,

evidence basis, clinical relevance, and applicability.

Table 2. Quality Appraisal Summary of Included Studies

No.	Author, Year	Study Design	Appraisal Criteria	Methodological Strengths	Main Limitations	Overall Appraisal
1	Weinstein et al., 2021	RCT / telehealth report	Cochrane RoB 2 principles	Randomized trial context; clinically relevant telehealth intervention; relevant permanent ostomy population.	Technology-related focus may limit interpretation of clinical effectiveness; not colostomy-only.	Moderate quality
2	Goodman et al., 2022	Systematic review and meta-analysis	AMSTAR-2 principles	Systematic synthesis of self-management interventions; clinically relevant outcomes.	Substantial heterogeneity in intervention content and outcome measures.	Moderate quality
3	Jin et al., 2022	Systematic review and meta-analysis	AMSTAR-2 principles	Quantitative synthesis; evaluated self-efficacy, QoL, complications, and care satisfaction.	Continuous care models varied; limited colostomy-specific analysis.	Moderate to high quality
4	D'Ambrosio et al., 2022	Systematic review	AMSTAR-2 principles	Clear focus on peristomal skin complications; included ileostomy and colostomy populations; reported incidence range.	Definitions and measurement of skin complications varied across included studies.	Moderate quality
5	Davis et al., 2022	Clinical practice guideline	Guideline appraisal principles	Provides clinically relevant guidance on ostomy surgery and complications.	Focuses more on surgical management than long-term nursing follow-up.	High clinical relevance
6	Ko et al., 2023	Randomized controlled trial	Cochrane RoB 2 principles	Experimental design; evaluated multimedia education; measured self-care and QoL.	Enterostomy population; colostomy subgroup not isolated.	Moderate quality
7	Hedrick et al., 2023	Clinical practice update	Clinical relevance and evidence clarity	Practical guidance on ostomy indications, complications, and management issues.	Not a full systematic review; formal risk-of-bias grading not central.	High clinical relevance
8	van der Storm et al., 2024	Randomized double-blind clinical trial	Cochrane RoB 2 principles	Randomized double-blind design; directly evaluated mobile app; included ileostomy and colostomy surgery.	Secondary outcomes not consistently improved; mixed ostomy sample.	High quality
9	Kim & Jeong, 2025	Systematic review and meta-analysis of RCTs	AMSTAR-2 principles	Focused on telehealth stoma care; pooled RCT evidence; PRISMA-based reporting.	Quality-of-life and anxiety effects inconsistent; included RCTs may have variable risk of bias.	Moderate to high quality
10	Wang et al., 2026	Systematic review and meta-analysis	AMSTAR-2 principles	Recent synthesis on digital health interventions; focused on self-care, QoL, and clinical outcomes.	Likely heterogeneity in technology type, intervention intensity, and follow-up duration.	Moderate to high quality

The quality appraisal showed that the included evidence was generally of moderate methodological quality, with stronger contributions from randomized controlled trials and recent systematic reviews/meta-analyses. The strongest evidence supported the role of mobile applications, telehealth, multimedia education, and continuous care in improving self-management-related outcomes. However, the certainty of evidence was limited by mixed ostomy populations, heterogeneity in intervention components, variation in outcome measures, and limited long-term follow-up. These limitations reduce the ability to draw

strong conclusions specifically for colostomy-only populations (Table 2).

Integrated Synthesis

The overall synthesis indicates that contemporary colostomy care should be understood as an integrated model involving digital health support, nurse-led education, self-care development, leakage prevention, peristomal skin protection, and quality-of-life improvement. Digital health may improve outcomes by increasing access to stoma nurses, supporting remote education, strengthening self-efficacy, and enabling earlier





recognition of leakage and peristomal skin complications. At the same time, peristomal skin protection remains central because skin damage and leakage directly affect comfort, confidence, social participation, and quality of life.

Several gaps were identified. First, many studies included mixed ostomy populations and did not provide colostomy-specific analyses. Second, digital health interventions varied widely in content, intensity, duration, and delivery platform. Third, quality-of-life outcomes were measured using different instruments, limiting comparability. Fourth, long-term outcomes such as sustained self-care, peristomal skin health, readmission, healthcare cost, and quality of life remain underexplored. Future research should prioritize colostomy-specific studies, standardized outcome measurement, longer follow-up, and integrated nurse-led digital care models.

Key Results Summary

This structured literature review included 10 core studies published between 2021 and 2026. The findings suggest that contemporary ostomy care is increasingly shaped by digital health, nurse-led self-management support, peristomal skin protection, and quality-of-life improvement. Digital health interventions, particularly mobile applications, telehealth, multimedia education, and continuous care, show promise in improving self-efficacy, self-care, stoma adjustment, and quality of life. However, the evidence remains heterogeneous, and effects on anxiety and long-term quality-of-life outcomes are inconsistent. Peristomal skin complications and leakage remain highly prevalent and clinically important because they negatively affect comfort, confidence, emotional well-being, and quality of life. Therefore, an integrated colostomy care model should combine digital follow-up, individualized nursing support, leakage prevention, peristomal skin assessment, and psychosocial care

Discussion.

This literature review found that contemporary ostomy care in patients with colostomy is increasingly shaped by three interconnected priorities: digital health support, prevention of peristomal skin complications, and improvement of quality of life. The reviewed evidence suggests that ostomy care is no longer limited to conventional discharge education or technical pouch management. Instead, current care models emphasize

continuity of care, structured self-management support, timely access to specialist stoma nurses, and patient-centered interventions that address both physical and psychosocial adaptation after stoma surgery.

A key finding of this review is the growing role of digital health in supporting ostomy care after discharge. Telehealth, mobile applications, multimedia education, and remote follow-up may help patients manage the transition from hospital-based care to independent self-care at home. This transition is clinically important because many patients experience uncertainty, anxiety, and practical difficulties when they first manage pouch changing, leakage prevention, and peristomal skin care independently. Evidence from telehealth and mobile health studies indicates that digital interventions can improve access to education, strengthen self-care confidence, support stoma adjustment, and provide a communication pathway between patients and healthcare professionals (Weinstein et al., 2021; van der Storm et al., 2024). Therefore, digital health should be understood not only as an educational tool but also as a continuity-of-care strategy that can extend professional support beyond hospital discharge.

However, the effectiveness of digital health in ostomy care appears to depend on the quality, content, and integration of the intervention. Digital tools that only provide general information may have limited clinical impact if they are not personalized, interactive, or connected to professional follow-up. In contrast, interventions that include timed guidance, peer support, symptom monitoring, direct nurse communication, and structured self-management components may be more likely to improve patient outcomes. This may explain why recent evidence shows more consistent effects of telehealth on self-efficacy and stoma adjustment than on anxiety or quality of life (Kim & Jeong, 2025). Quality of life is a multidimensional outcome influenced not only by knowledge, but also by body image, emotional adaptation, social support, complication control, and confidence in daily stoma management. Therefore, digital health interventions should be designed as integrated support systems rather than passive information platforms.





The review also highlights that peristomal skin complications remain a major clinical concern in ostomy care. These complications are common among patients with colostomy and ileostomy and may include irritant dermatitis, erythema, skin erosion, ulceration, mechanical trauma, and leakage-related skin damage (D'Ambrosio et al., 2022). Although peristomal skin problems are sometimes viewed as technical or appliance-related issues, their clinical impact is broader. Skin damage can cause discomfort, pain, difficulty maintaining pouch adherence, reduced confidence, increased healthcare utilization, and poorer quality of life. Thus, peristomal skin complications should be considered core clinical outcomes in colostomy care rather than secondary or minor problems.

Leakage is one of the most important mechanisms linking peristomal skin complications with reduced quality of life. Recurrent leakage exposes the peristomal skin to fecal output, increases irritation, and creates insecurity in pouch use. Beyond its physical consequences, leakage may generate fear, embarrassment, social withdrawal, sleep disturbance, and reduced participation in work or daily activities. This suggests that leakage prevention should not be understood only as a technical nursing intervention, but also as a strategy to protect dignity, confidence, and psychosocial well-being. Effective leakage prevention requires individualized appliance assessment, appropriate pouch fitting, patient education, regular skin monitoring, and timely access to stoma nurse support.

Quality of life emerged as a central outcome across the reviewed evidence. Living with a colostomy may affect body image, sexuality, clothing choices, diet, sleep, work, travel, religious practices, and social relationships. These changes indicate that colostomy care must address the patient's broader lived experience, not only the physical management of the stoma. The relationship between self-care and quality of life is particularly important. Patients who are able to perform pouch changes, recognize early complications, prevent leakage, and seek help appropriately may experience greater confidence and better adaptation to life with a stoma. This is consistent with evidence showing that self-care is associated with better

health-related quality of life among people living with an ostomy (Marcomini et al., 2024).

The findings of this review suggest that digital health, peristomal skin care, and quality of life should not be treated as separate areas of ostomy care. Rather, these domains are closely connected. Digital health may improve quality of life indirectly by strengthening self-care ability, improving access to professional support, facilitating early recognition of leakage, and supporting peristomal skin protection. Similarly, effective prevention of leakage and peristomal skin complications may improve physical comfort, emotional security, confidence, and social participation. Therefore, a contemporary model of colostomy care should integrate digital follow-up, nurse-led education, leakage prevention, peristomal skin assessment, and psychosocial support within one coordinated care pathway.

Another important finding is that much of the current evidence is derived from mixed ostomy populations, including patients with colostomy, ileostomy, and enterostomy. Although this evidence is clinically relevant to colostomy care, outcomes may differ according to stoma type. Colostomy patients may have different output consistency, pouching needs, lifestyle adjustments, leakage risks, and psychosocial experiences compared with ileostomy patients. Therefore, interpretation of current evidence should be cautious when applying findings from mixed ostomy populations directly to colostomy-specific care. This also shows that colostomy-focused evidence remains relatively limited within the current literature.

Overall, the results support a shift toward integrated, continuous, and patient-centered ostomy care. Traditional discharge education alone may be insufficient because stoma-related problems often arise after patients return home. Contemporary care should therefore include structured education before discharge, individualized assessment of appliance needs, early post-discharge follow-up, digital or telehealth-based access to stoma nurses, regular peristomal skin monitoring, and psychosocial support. Such an integrated approach may help improve self-care confidence, reduce leakage-related problems, prevent peristomal skin complications, and





enhance quality of life among patients living with colostomy.

In summary, contemporary ostomy care for colostomy patients should be understood as a multidimensional and continuous process. Digital health offers promising opportunities to strengthen post-discharge support, but its effectiveness depends on personalization, usability, and integration with nurse-led care. Peristomal skin complications and leakage remain major clinical issues that directly influence comfort, confidence, and quality of life. Therefore, the most relevant direction for current colostomy care is an integrated model that combines digital support, specialist nursing care, structured self-management education, leakage prevention, peristomal skin protection, and psychosocial adaptation

Strengths And Limitations of The Study

This literature review has several strengths. First, it addresses a contemporary and clinically relevant issue by integrating three important domains in colostomy care: digital health, peristomal skin complications, and quality of life. Second, the review focuses on recent evidence published between 2021 and 2026, allowing the synthesis to reflect current developments in telehealth, mobile health, multimedia education, and nurse-led self-management support. Third, the review highlights the interconnection between digital support, leakage prevention, peristomal skin protection, self-care ability, and patient-reported outcomes, which provides a more holistic understanding of contemporary ostomy care. Finally, the inclusion of different study designs, including randomized controlled trials, systematic reviews, meta-analyses, and clinical practice updates, strengthens the clinical relevance of the synthesis.

This review also has several limitations. First, many included studies involved mixed ostomy populations, including patients with colostomy, ileostomy, and enterostomy, without reporting separate findings for colostomy patients. Therefore, the applicability of some findings specifically to colostomy patients should be interpreted with caution. Second, the included studies varied in terms of intervention type, digital platform, follow-up duration, outcome measurement, and population characteristics, which limited direct comparison across studies. Third, because this study was designed as a structured literature review rather

than a full systematic review, no quantitative meta-analysis was performed. Fourth, long-term evidence remains limited, particularly regarding the sustained effects of digital health interventions on leakage, peristomal skin complications, readmission, healthcare costs, and quality of life.

Implications For Nursing Practice

These findings have important implications for nursing practice. Nurses, particularly stoma care nurses and colorectal nurses, should provide structured and individualized education that goes beyond basic pouch-changing techniques. Education should include leakage prevention, peristomal skin assessment, appliance selection, early recognition of complications, dietary adjustment, psychosocial adaptation, and clear guidance on when to seek professional help. Because many ostomy-related problems occur after hospital discharge, nursing care should emphasize continuity of care through scheduled follow-up, telephone consultation, telehealth visits, mobile applications, or other digital support systems. These findings also suggest that digital health should be integrated into nurse-led ostomy care as a supportive strategy, not as a replacement for professional nursing care. Telehealth, mobile applications, and multimedia education can help reinforce patient education, improve self-care confidence, facilitate early problem detection, and maintain communication between patients and stoma nurses. However, nurses should assess each patient's digital literacy, access to technology, age-related needs, and preference for face-to-face or remote care. A blended model that combines in-person stoma assessment with digital follow-up may be particularly useful for improving long-term adaptation, preventing peristomal skin complications, and enhancing quality of life among patients

Conclusions

Contemporary ostomy care for colostomy patients should be delivered through an integrated, patient-centered, and nurse-led approach. Digital health interventions, such as telehealth, mobile applications, multimedia education, and remote follow-up, may support self-care, improve confidence, and enhance quality of life. However, peristomal skin complications and leakage remain major clinical problems that require early assessment,





prevention, and continuous nursing support. Therefore, effective colostomy care should combine digital follow-up, structured education, leakage prevention, peristomal skin protection, and psychosocial support to improve long-term patient outcomes

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Conflict of Interest Statement

The authors declare that they have no competing interests.

Author contribution

Indah Susanti contributed to the conceptualization, literature search, data screening, data extraction, and manuscript drafting. Asmat Burhan contributed to the study design, search strategy development, critical appraisal, data synthesis, manuscript writing, and critical revision of the manuscript. All authors reviewed and approved the final version of the manuscript.

Data Availability

The data supporting the findings of this review are available from the published articles included in the review. No new primary data were generated or analyzed in this study.

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