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Ostomy Assessment Systematic Integration of Studies (OASIS): Physical Assessment Scoping Review

ABSTRACT

Background

Individuals living with an ostomy experience multiple physical changes that require ongoing assessment. While physical assessment remains vital for those living with an ostomy, synthesized data identifying assessment practices and outcomes are lacking. This review, part of the OASIS review, which sought to identify the extent of current literature on assessing individuals living with an ostomy, synthesizes what is known about physical assessment in this population.

Methods

This scoping review followed the Joanna Briggs Institute (JBI) and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) methodology. We searched the MEDLINE and CINAHL databases without filters or date restrictions. Data collection occurred in January 2021. We analyzed data using qualitative content analysis and synthesized outcomes using the PAGER Framework to identify patterns, advances, gaps, evidence, and recommendations.

Results

This review included 74 studies published between 1951 and 2021. Most studies were retrospective in design. Themes in the data included demographics, stoma and peristomal assessment, stoma pouching systems, medical conditions and surgical risk, specialist support and knowledge for physical assessment, and diet and output.

Conclusions

Individualized holistic assessment is needed for those individuals living with an ostomy. Assessment should incorporate physical factors beyond the stoma alone, such as nutrition, hydration, and functional considerations. Standardized assessment frameworks and further research on assessment factors and outcomes are needed to enhance evidence-informed practice.

Key Words: Ostomy, nursing, nursing assessment, surgical stomas, physical examination, scoping review

Intégration systématique des études sur l'évaluation des stomies (OASIS) : examen de la portée de l'évaluation physique

RÉSUMÉ

Contexte

Les personnes vivant avec une stomie connaissent de multiples changements physiques qui nécessitent une évaluation continue. Bien que l'évaluation physique demeure essentielle pour les personnes vivant avec une stomie, il existe peu de données synthétisées permettant de déterminer les pratiques d'évaluation et leurs résultats. Le présent examen de la portée, qui s'inscrit dans le cadre de l'étude OASIS visant à déterminer l'étendue de la littérature actuelle sur l'évaluation des personnes vivant avec une stomie fait la synthèse des connaissances disponibles concernant l'évaluation physique au sein de cette population.

Méthodes

Cet examen de la portée a été réalisé conformément aux méthodologies du Joanna Briggs Institute (JBI) et de l'extension des Preferred Reporting Items for Systematic Reviews and Meta-Analyses pour les examens de la portée (PRISMA-ScR). Nous avons effectué une recherche dans les bases de données MEDLINE et CINAHL, sans filtre ni restriction de date. La collecte des données a eu lieu en janvier 2021. Les données ont été analysées au moyen d'une analyse qualitative de contenu, et les résultats ont été synthétisés à l'aide du cadre PAGER afin de cerner les tendances, les avancées, les lacunes, les données probantes et les recommandations.

Résultats

Cet examen comprenait 74 études publiées entre 1951 et 2021. La plupart des études étaient de nature rétrospective. Les thèmes qui se sont dégagés des données comprenaient les caractéristiques démographiques, l'évaluation de la stomie et de la région péristomiale, les systèmes d'appareillage de stomie, les affections médicales et les risques chirurgicaux, le soutien spécialisé et les connaissances nécessaires à l'évaluation physique, ainsi que l'alimentation et les effluents.

Conclusions

Une évaluation holistique et individualisée est nécessaire pour les personnes vivant avec une stomie. L'évaluation devrait tenir compte de facteurs physiques allant au-delà de la stomie elle-même, notamment la nutrition, l'hydratation et les considérations fonctionnelles. Des cadres d'évaluation normalisés ainsi que des recherches supplémentaires sur les facteurs et les résultats liés à l'évaluation sont nécessaires afin de renforcer les pratiques fondées sur des données probantes.

Mots-clés : stomie, soins infirmiers, évaluation infirmière, stomies chirurgicales, examen physique, examen de la portée

Conflicts of Interest

No authors note any competing interests as it relates to this study.

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Availability of Data and Materials

Data supporting the findings of this study are available within the article. A structured dataset is available from the corresponding author upon reasonable request.

Contribution Statement According to CRediT Roles

CH - Conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, supervision, validation, visualization, writing - original draft, writing - review and editing

BB - Conceptualization, data curation, formal analysis, methodology, validation, visualization, writing - review and editing

DF - Formal analysis, writing - original draft

GH - Data curation

EM - Data curation

KM - Data curation, formal analysis, visualization, writing - original draft

AL - Data curation, formal analysis, visualization

MK - Writing - original draft

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INTRODUCTION

For those living with a urinary or fecal diversion, many factors must be considered when monitoring and managing patient health and well-being after a surgery. With as many as 20–30% of patients who have had ileostomy surgery being readmitted to a hospital, consideration of physical assessment factors, such as dehydration, the leading cause of hospital readmission, is of the utmost importance in this population.¹

An ostomy is a surgical procedure intended to divert either stool or urine.² An ostomy is commonly used to treat cancer; however, other diseases that affect the gastrointestinal or urinary tract may also require an ostomy. For instance, inflammatory bowel disease, diverticular disease, and fecal incontinence may also require an ostomy.³

Individuals undergoing ostomy surgery have been shown to have decreased physical and sexual functioning, sleep disturbance, and micturition problems.⁴ A study conducted in Turkey found that 66.2% of ostomy patients have poor sleep quality.⁵ Other studies related to living with an ostomy have shown that physical activity, sleep, and an overall healthy lifestyle can reduce chronic disease and prevent some common difficulties, such as hernias and body pain.^{6,7} A study conducted in the United Kingdom suggests that an increase in physical activity is safe and acceptable for patients living with an ostomy, and findings show promise for improving outcomes.⁸ Individuals living with an ostomy adapt to various restrictions involving diet, dressing, physical exercise, recreation, and intimate behavior.⁹ Repić and Ivanović proposed that the assessment of the physical well-being of ostomy patients is necessary to provide continuous support to patients and to overcome physical issues that affect their quality of life.¹⁰

The OASIS study, an extensive scoping review of ostomy assessment, seeks to provide the current status of knowledge related to ostomy assessment within the peer-reviewed literature. This manuscript, as part of the OASIS study, seeks to better understand the body of knowledge and literature related to ostomies and physical assessment.

Aim

The aim of this article, as part of the OASIS scoping review, is to explore the evidence base related to the physical assessment of individuals living with an ostomy. The OASIS scoping review aims to determine the evidence base related to assessment of individuals living with an ostomy. The OASIS scoping review findings have been presented in 5 articles, including (1) assessment tools, (2) psychosocial assessment, (3) maternal, child, and youth assessment, (4) physical assessment, and (5) complication assessment.

Identification of Research Questions

The primary research question for the OASIS study was: What is the evidence base for assessing individuals living with an ostomy? This question is written in accordance with the PCC Framework, which stands for population, concept, and context,¹¹ where the population is individuals living with an ostomy, the concept is the assessment of individuals living with an ostomy, and the context is the evidence base related to the assessment of individuals living with an ostomy.

METHODS

This review was not preregistered and was conducted in accordance with the Joanna Briggs Institute (JBI) framework and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).^{11,12} We conducted a comprehensive search using MEDLINE and CINAHL databases in January 2021. No limitations or filters were applied during the search. Studies were included if they contributed to knowledge related to assessing individuals living with an ostomy, stoma assessment, peristomal skin assessment, and/or peristomal plane assessment. Secondary literature, position statements, abstracts, editorials, grey literature, and assessment factors related to pre-stoma creation or post-stoma reversal were excluded.

We used Covidence® software, and 7 independent reviewers double-screened and selected articles based on their titles and abstracts, following the inclusion and exclusion criteria outlined in the detailed methodology section of the assessment tools manuscript. A nurse specialized in wound, ostomy and continence (NSWOC) reviewed conflicts in the initial screening, and a second NSWOC aided in a secondary, dual screening of the remaining full texts to make the final selections. As needed, disagreements regarding selection were discussed until consensus was reached.

Data from the articles, including the author and year, country of origin, purpose and aim of the study, research design,

sample and setting, data analysis, results, and any accessory comments (for instance, whether ethics approval was obtained), were extracted and compiled into tables. We used the tables to create a searchable database of the articles' findings, following the Elo and Kyngas content analysis approach.¹³ The findings were condensed and presented in accordance with the PAGER Framework by Bradbury-Jones et al. in Table 1, which outlines the patterns in the data, the advances made to knowledge, gaps identified in the literature, evidence for practice, and recommendations for subsequent research.¹⁴ Detailed methods have been defined in a prior publication of the OASIS study, in the assessment tools manuscript.¹⁵

RESULTS

We located 42,059 articles as part of the OASIS review across 2 research databases. After removing duplicates, we double-screened 30,035 articles by title and abstract for relevance. A full-text review of 741 articles led to 383 studies being included in the overall OASIS study results. Given the number and significance of results, we reported findings across 5 thematic manuscripts: assessment tools; maternal, child, and youth assessment; physical assessment; psychosocial assessment; and complication assessment. In some instances, when an article addressed multiple themes, we included only findings most relevant to the assigned manuscript. This decision was based on alignment with the manuscript theme or practical distribution across manuscripts. Heerschap et al. (2026) published the complete study methodology elsewhere.¹⁵ The following results focus on the physical assessment of individuals living with an ostomy. Figure 1 shows the complete PRISMA diagram for the OASIS study.

Characteristics of Sources of Evidence

This scoping review included 74 articles. Of these, most were from the United States (n=28) and the United Kingdom (n=10). Brazil and Japan both contributed 5 articles. Australia, Italy, and Canada each contributed 3 articles. Germany, Spain, Sweden, Switzerland, and Denmark each contributed 2 articles. China, the Czech Republic, Greece, Ireland, Korea, Pakistan, and Turkey each contributed 1 article. The data ranged from 1951 to 2021, with most papers from 2019 (n=9), the remainder from 1951 to 2018 (n=57) and 2020–2021 (n=8). The most common research design among the included articles was retrospective (n=26). This was followed by cross-sectional studies (n=13), case series (n=6), prospective (n=6), case studies (n=4), descriptive (n=4), mixed method (n=3), pilot studies (n=2), quality improvement (n=2), secondary analysis (n=2), Delphi (n=2), randomized controlled trial (n=2), cohort study (n=1), and lab-based study (n=1). Most articles used descriptive analysis techniques (n=26) and inferential approaches (n=26). The remaining articles used a mixed-methods approach (n=22). Most of the articles did not mention whether ethics approval was obtained (n=44). Some articles were found not to require ethics approval based on their study design (n=2), and the remaining included articles obtained ethics approval. Most included studies sought to bet-

Table 1: PAGER Framework

PATTERN	ADVANCES	GAPS	EVIDENCE FOR PRACTICE	RESEARCH RECOMMENDATIONS
Demographics	Associations have been demonstrated between high BMI and increased complications; women have been shown to have increased leakage and sleep disturbances related to their ostomy; older adults have been shown to be at increased risk for gallstone and renal impairment	There remains limited evidence related to demographic variables and long-term outcomes	Individualized assessment considering demographic data, such as BMI, and gender-specific concerns, such as sleep and leakage	Large cohort studies determining long-term influence of demographic factors, including underrepresented populations
Stoma and Peristomal Assessment	Stoma height, time since surgery, and output characteristics were discussed as predictors of peristomal skin complications to assess for	There is a lack of studies describing routine stoma assessment beyond height, and there remains limited evidence regarding frequency of ongoing stoma assessment	Routinely monitor stoma height and monitor for peristomal skin complications	Further studies are needed to determine the most important aspects and frequency of a stoma/peristomal assessment
Pouching Systems and Leakage	Leakage has been discussed as relating to postoperative body contour changes, high-output effluent, frequent pouch changes, and difficulties with flange adhesion	Few studies focus on assessment of abdominal contours, pouching fit, or leakage patterns	Consider assessment of abdominal contour, pouching seal, and history of leakage and frequency of pouching system changes with each patient visit	Further research should focus on assessment of leakage risk and evaluating assessment for pouching system fit
Medical Conditions, Risks, and Surgery	Diabetes, Crohn's disease, cardiovascular issues, emergency surgery, hand-sewn anastomosis, chemotherapy, radiation therapy, and undergoing ileostomy surgery were assessment considerations associated with increased risk for complications	Few studies focused on the systematic assessment of medical and surgical risk factors that may affect care postsurgery	Include a medical and surgical history during physical assessments	Further studies are needed to link medical and surgical risk factors to complication detection
Healthcare Support and Knowledge	Specialized ostomy nurse involvement and patient education have been discussed as leading to fewer physical complications for those living with an ostomy. Literature has discussed benefits to telemedicine for assessment and care plan development with similar outcomes to in-person consultation	There is little research available related to access to assessment by specialized ostomy nurses, and limited data on assessing patient and caregiver knowledge related to physical warning signs of complications.	Assess patient and caregiver knowledge related to physical warning signs of complications and document access to specialized ostomy clinicians. Telemedicine may be considered when in-person assessment is not feasible	Research is needed on how to incorporate knowledge of physical warning signs of complications and access to specialist support into routine physical assessment
Diet, Hydration, and Medication Absorption	High-output stomas have been linked to dehydration, electrolyte imbalances, malnutrition, and readmission. Postoperative dietary changes and changes to how medications are absorbed have also been reported in the literature	There are research gaps related to the systematic assessment of ostomy output volume, hydration status, nutritional markers, and medication absorption in routine care	Stoma volume, signs of dehydration, nutritional status, and medication formulations should be considered when assessing the individual living with an ostomy	Further research is needed focusing on frequency and evaluation methods for ostomy output, hydration, nutrition, and medication absorption

ter understand complications of having an ostomy (n=30). Other studies aimed to identify risk factors and understand their role in the development of complications (n=19). Many of the articles focused on developing better assessment tools (n=10), while some studied the impact an ostomy has on nutrition (n=8). Telemedicine was a common theme (n=4), and some articles focused on demographics as they relate to ostomy care/complications (n=3).

Results of Individual Sources of Evidence

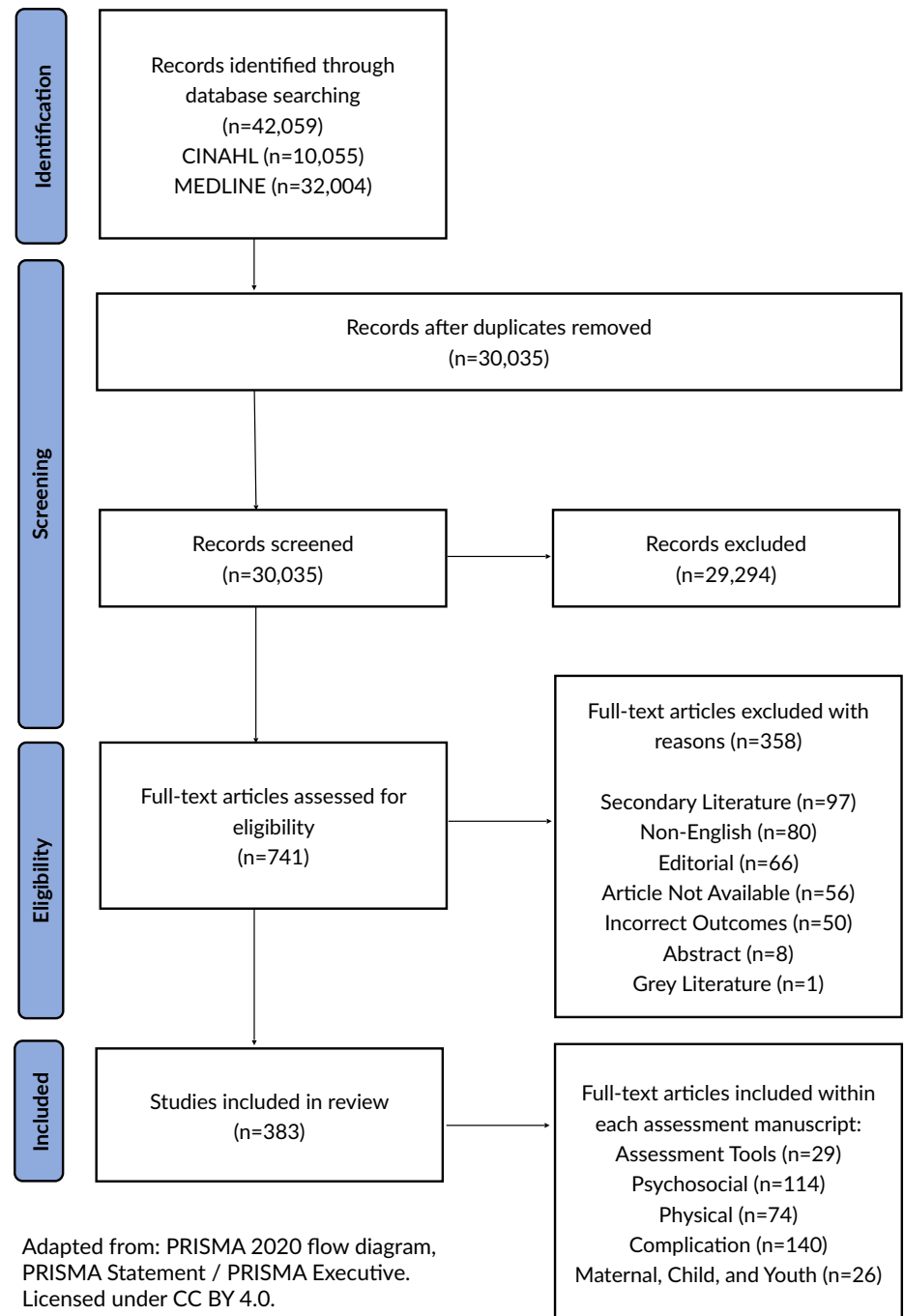
Following our inductive content analysis approach, the findings from this portion of the OASIS review were grouped into 6 categories: (1) demographics; (2) stoma and peristomal assessment; (3) stoma pouching systems; (4) medical conditions, risks, and surgery; (5) specialist support and knowledge for physical assessment; and (6) diet and output. These findings provide an overview of considerations for the physical impacts on individuals living with a stoma that should be considered when conducting an assessment, as they may affect an individual's assessment.

Demographics

Several studies highlighted gender differences associated with having a stoma. Women more frequently reported leakage from their collection device and experienced sleep disruptions more often than men.^{16,17} Men were found to report fewer stoma complications than women but exhibited fear avoidance of physical activity, which could have a potentially negative impact on rehabilitation.^{18–20} It was also noted that older women could benefit from gallbladder screening, as cholelithiasis is more common in this population.²¹ Although gender differences were noted in several studies, Selau et al. found that changes to daily living should be assessed at the individual level, regardless of gender.²²

Stomal complications and risks were observed to follow a trend with age. Older adults were seen to face more complications, such as hypertension, renal impairment, and gallstones.^{21,23–25} Some studies, however, found an in-

Figure 1: PRISMA Flow Diagram



verse relationship. Cottam et al. and Whiteley and Sinclair found that the rate of stomal complications decreases with age.^{26,27} Regarding hospital readmission, Fish et al. found that those over 65 had predictable courses of treatment if readmitted to a hospital, compared with younger individuals.²⁸ Finally, Pittman discussed the average age of those living with different types of ostomies, noting that those with a colostomy have

an average age higher than those with an ileostomy and those with an ileostomy greater than those with a urostomy.²⁹ Pittman further noted that while approaching significance, age was not found to be a predictor associated with ostomy complications.²⁹

A patient's body mass index (BMI) was found to be a significant predictor of complications related to having a sto-

ma.^{19,26,30–33} Several studies also highlighted that when a patient is more competent in caring for their stoma, complication rates decrease.^{34–37}

Individuals living with a stoma may change their pouching system frequently for personal and/or cultural reasons.³⁸ Burch noted an association between frequent changing of a collection device and skin irritation.³⁸ It has been recommended that individuals who change their pouching systems frequently should be counseled on techniques to avoid irritation while also respecting personal/cultural practices.³⁸

Stoma and Peristomal Assessment

Many studies included in this review found that stoma properties were significant indicators of complication development. A common property studied was stoma height. Stoma height was found to predict the likelihood of complications, such as skin irritation, significantly.^{26,29,32} The assessment of a patient's stoma height was also found to be beneficial in determining the best collection device to use to prevent complications.^{38–40} If stoma color changes are present, a test tube test in which a blood collection tube is placed in the stoma and a video bronchoscope is used within the tube to assess the tissues has been discussed.⁴¹ This method of assessment was found to be safe and practical and allowed for enhanced visualization at the bedside.⁴¹

The type of stoma should also be considered during assessment. Ihnat et al. noted that those individuals with a diverting loop ileostomy had higher 30-day morbidity rates than those with an anastomosis alone. However, those with an anastomosis alone were at higher risk for an anastomotic leak.⁴² Those with a diverting loop ileostomy were also at risk for longer hospital stays, and small bowel obstruction was found to be the most common complication with this ostomy type.⁴²

Additionally, as surgical techniques change, assessing how a stoma was formed may help determine complication formation and risk. Miller et al., for example, described a technique for ileal conduit formation that does not evert the stoma when eversion is difficult.⁴³ This type of stoma should protrude well from the peristomal skin without tension on the bowel and mesentery.⁴³

A positive correlation was also found between the likelihood of developing a peristomal skin complication and the length of time that an individual has a stoma.^{44,45} For example, Toh et al. studied peristomal pyoderma gangrenosum (PPG) and found that the median duration between stoma formation and PPG diagnosis was 101.5 days.⁴⁶

The literature has also discussed the importance of the patient's abdominal contours, peristomal plane, and stoma location. Warren et al. discussed how stoma location can affect proper function.⁴⁷ The distance from surface structures such as the umbilical region or bony protrusions may increase the risk of leakage if it affects the seal of the pouching system.⁴⁷

Ostomy output should also be considered. Casey and Francescon observed an interesting complication in a patient with a urostomy, whereby a persistent urinary tract infection presented as purple effluent.⁴⁸ This has been termed Purple Bag Syndrome (PUBS).⁴⁸

Stoma Pouching Systems

Nichols found that individuals living with an ostomy report more limitations on their physical activity than the general population.⁴⁹ A fear of pouching system leakage is a common experience among those living with an ostomy. Those with a high-output fecal stoma often have higher concentrations of digestive enzymes in their effluent, which dissolve hydrocolloid coatings and erode skin, leading to leakage and skin irritation.⁵⁰ Walls suggested postoperative assessment for changes in body contours, which may lead to leakage.⁵¹ Colwell et al. noted that in addition to prevention of leakage, selection of an appropriate pouching system can also impact physical comfort, such as prevention of itching under the flange.⁵²

Medical Conditions, Risks, and Surgery

Several pre-existing conditions, such as diabetes, Crohn's disease, and cardiovascular disease, were found to be significantly correlated with complications related to having a stoma.^{36,53–55} The creation of an ostomy was found to be an independent risk factor for abdominal infections.⁵⁶ Diverting loop ileostomies were found to have significantly higher complication rates when compared to other ostomy types.^{57,58} Renal impairment is a risk factor for those living with a loop ileostomy.⁵⁹ The formation of a permanent stoma was found to be significantly associated with postoperative systemic inflammatory responses.⁶⁰

Common readmission risk factors for postoperative complications included hand-sewn anastomosis that was found to be a risk factor for anastomotic leak.⁶¹ Sultan et al. also noted that despite a protective stoma, anastomotic leaks can be a postoperative complication and therefore should be considered during assessment.⁶² Another risk factor for postoperative complications is whether the surgery to create the stoma was performed in an emergency or an elective manner. Emergency surgeries were found to be a significant predictor of postoperative peristomal skin complications.⁶³ Both chemotherapy and radiation therapy were also found to be predictors of complications.^{57,64} A study by Oliphant et al. found that at 3 months postoperatively, loop ileostomy patients undergoing chemotherapy had lower stoma function scores than those not undergoing chemotherapy.⁶⁵ Tsukada et al. found that another complication among those living with a urostomy was the formation of alkaline crystals in the mucosa of the stoma openings.⁶⁶ This was seen to cause stenosis and severe pain.⁶⁶

Pain was frequently discussed throughout the literature, primarily regarding ostomy complications. Burch noted that the cause of sore peristomal skin can be difficult to determine at times and emphasizes the importance of a compre-

hensive assessment to identify the cause of discomfort before treatment.³⁸ Pittman discussed how stoma and abdominal characteristics are statistically correlated to pain, with those with flatter stomas and problematic skin folds, for example, demonstrating increased levels of pain.²⁹ It was also found that activity of daily living scores and gender were associated with more pain, with females living with an ostomy having higher mean complication scores.²⁹

Pittman also found that activity of daily living scores correlated with less bleeding and increased stomal necrosis in a univariate analysis.²⁹ When considered in a multivariate analysis of predictors of ostomy complications, while close to statistical significance, activity of daily living scores were not found to be a significant predictor of ostomy complications.²⁹ In a literature review on risk factors related to ostomy complications, Pittman noted a lack of literature examining the impact of activity of daily living function on the development of ostomy complications.²⁹

Specialist Support and Knowledge for Physical Assessment

The clinician's expertise and knowledge, as well as access to specialized ostomy clinicians, influence the physical assessment of individuals living with an ostomy. Several studies highlighted that involvement of a nurse specialized in ostomy care was associated with improved physical outcomes for those individuals living with an ostomy.^{27,67} Nordström et al. reported that stoma care routines can significantly affect physical outcomes for individuals living with an ostomy and should be a focus of training for a specialized ostomy nurse.⁶⁷ Whiteley and Sinclair also emphasized that specialized nurse input reduced physical complications.²⁷

Studies identified links between inadequate knowledge of stoma self-care and increased peristomal skin complications.^{35,37,68} This demonstrates the importance of clinicians assessing an individual's ability to recognize and report physical complications. Clinician education on physical assessment was also important; Foa et al. found that after a professional training session, the incidence of ostomy-related infections decreased.⁶⁹ Stoma education was also found to improve nurses' confidence in performing physical assessment using an ostomy algorithm to guide plans of care.⁷⁰

Televideo conferencing is emerging as an alternative to in-person visits for clinician physical assessment. Compared with in-person visits, 95% of care plans made during a televideo session were identical to plans made during in-person appointments.⁷¹ Multiple studies found that individuals living with a stoma were satisfied with televideo conferencing.^{72,73} Xu et al. found that using a 4G wireless network ensured that televideo sessions were free from limitations associated with a wired network system.⁷⁴ These findings demonstrate that examination of items such as the stoma, peristomal skin, pouch fit, and abdominal contour, may be performed via telemedicine, increasing access to expert physical assessment for patients not otherwise able to be assessed in person.

Diet and Output

Diet was observed to be an important metric to manage for those living with an ostomy, as many patients who undergo ostomy creation are at risk for malnutrition.^{75,76} Obtaining a baseline nutritional status is beneficial for clinical management to identify changes in nutrition status.⁷⁷ Selau et al. observed changes in eating habits during the postoperative period that affected nutritional status.²² Zoeller found that using the Nutrition Quality of Life tool and a hand dynamometer can accurately determine a patient's nutritional status.⁷⁸ Some nutritional metrics measured included iron, vitamins A and C, and dietary fiber.^{79,80} Bulman found that encouraging fruit and vegetable intake can help meet dietary needs.⁸¹

Another important factor monitored was a patient's ability to absorb medication following ostomy surgery. Moore found that factors that impact medication absorption include the type of stoma and the form in which the medication is prescribed.⁸² Enteric-coated medications were observed not to be absorbed fully when compared to non-coated medications.⁸²

Dehydration was a common cause of hospital readmission.^{83,84} An effective way to determine whether a patient is at risk of dehydration is to measure the volume of output from their stoma. Patients with high-output stomas remained in the hospital longer and were observed to be at higher risk of electrolyte and acid-base imbalances.⁸⁵⁻⁸⁷ Complications of dehydration studied include lethargy and muscle cramps, as well as urinary stones.^{88,89}

DISCUSSION

Summary of Evidence

Within this section of the OASIS scoping review focusing on physical assessment, we identified 74 studies. Of these 74 studies, 23 focused on demographic characteristics, 11 on stoma and peristomal assessment, 4 on stoma pouching systems, and 14 on medical conditions, risks, and surgery. Furthermore, 11 studies focused on health care, support, and knowledge, while 11 focused on diet and output.

The results of this study demonstrate that physical assessment of individuals living with an ostomy goes beyond assessment of the stoma and peristomal region and should incorporate a holistic understanding of the patient. A comprehensive assessment should include factors, such as pain, nutrition, hydration, comorbidities, mobility, and the functional impact of stoma management on daily life. Standardizing assessment processes is an important future direction to improve outcomes and reduce complications.

Studies included in this review discussed demographic and physical factors in individuals living with an ostomy, including age, gender, and BMI. These factors were discussed as associated with an elevated risk of complications. For example, Baldwin et al. discussed sleep disturbances as a more common complication in women living with an ostomy.¹⁶ Martin-Gil et

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al. also found gender differences as they relate to having a stoma.⁹⁰ It was noted that women tended to experience more fatigue, anxiety regarding leakage, and social difficulties (avoiding physical contact, social withdrawal).⁹⁰ Age was discussed throughout the literature in relation to ostomy complications with varying results. Study results varied and included positive and negative correlations, as well as no statistical significance, warranting further research to clarify this variable.

Body mass index was another factor discussed in the literature as being related to increased risk of complications, indicating a need for consideration during the assessment of individuals living with an ostomy. A recent systematic review and meta-analysis by Sadiq et al. found that an elevated BMI can increase risk for peristomal hernia formation and for stoma and peristomal complications.⁹¹ Given that obesity can alter abdominal contours, BMI should be considered when selecting a pouching system that will appropriately contour to the abdominal plane of an individual living with an ostomy.

In addition to BMI and considerations regarding peristomal and abdominal contours, stoma height is another important factor to consider during assessment, as it affects both complication risk and stoma pouching selection. Zelga et al., in a scoping review on patient-related factors associated with stoma and peristomal complications, noted that lower stoma height can significantly increase the risk of developing ostomy-related complications.⁹² The literature also examined how women, having a higher likelihood of emergency stoma formation and body image preferences leading to lower stoma height, may be at higher risk for ostomy-related complications.⁹²

Several pre-existing medical conditions are linked to ostomy complications and readmission rates. Conditions, such as diabetes, Crohn's disease, and cardiovascular disease, were found to be significantly correlated with the development of complications related to having a stoma. Surgical variables, such as having a hand-sewn anastomosis, were linked to a higher risk of an anastomotic leak, as was undergoing emergency ostomy surgery. Chemotherapy was also a predictor of complications. Studies found that loop ileostomy patients undergoing chemotherapy treatment had lower stoma function scores than those in the control group. These considerations underscore the importance of a detailed medical and surgical history. Findings are consistent with recent literature. For example, a study by James et al. examined patient readmissions following ostomy surgery, noting that readmitted patients exhibited significantly higher rates of diabetes, Crohn's disease, hypertension, and cardiovascular disease, among other factors.⁹³

The literature shows that education for individuals living with an ostomy and the inclusion of specialized nurses in ostomy care decrease complication rates. This emphasizes the need to assess the knowledge level of an individual living with an ostomy regarding their surgery and care needs, as well as

where the inclusion of a specialized ostomy nurse may benefit their care. Heerschap and Duff, in a systematic review on the value of nurses specialized in wound, ostomy, and continence, found that the literature shows ostomy-specialized nurses can improve quality of life and provide education for those living with an ostomy and their caregivers.⁹⁴

Telemedicine is emerging as an alternative to in-person visits discussed in the literature. Most care plans developed during a teleconferencing session were equivalent to those developed during in-person appointments. These findings are similar to other studies examining differences in care plan development between telemedicine and in-person care plan development. Demaerschalk et al. examined the efficacy of telemedicine visits.⁹⁵ In this study, participants underwent a televideo conference and then an in-person visit. The study found that the diagnosis established via a televideo visit matched the in-person diagnosis in 86.9% of cases.⁹⁵

Finally, hydration, nutrition, and medication absorption emerged in the literature as key assessment considerations for those living with an ostomy. High-output stomas were associated with dehydration, electrolyte imbalance, and extended hospital stays. The literature noted that nutritional assessment is important, given postoperative dietary changes. The literature also discussed monitoring nutritional metrics. In addition, changes to absorption postoperatively in certain ostomy types were noted to affect medication absorption, such as enteric-coated medications. Recent evidence by Berger et al. also highlighted the need for medication absorption given changes in malabsorption of vitamins and nutrients, especially in those with short bowel syndrome.⁹⁶

Strengths and Limitations

The findings of this scoping review cover data from over 74 studies published over 70 years. This provided a deep, comprehensive understanding of what is known about the physical assessment of individuals living with an ostomy up to the year of data collection. The study used JBI methodology, PRISMA-ScR guidelines, and the PAGER Framework for reporting findings to strengthen reporting. However, several study limitations must be recognized. Because of the number of findings in the OASIS study, as described in the primary methods publication by Heerschap et al.,¹⁵ articles addressing multiple themes across multiple manuscripts were allocated to a single manuscript. As a result, some secondary findings may have been excluded. Additionally, the data collection for this study occurred in January 2021 and was limited to the MEDLINE and CINAHL databases. These limitations further underscore the need for future studies to update this article's findings.

CONCLUSION

This review identified 74 studies focusing on the physical assessment of individuals living with an ostomy. The findings demonstrated varied assessment approaches. Study findings

demonstrate that physical assessment includes not only the stoma but the whole individual, including nutritional status, hydration, health history, and pouching system fit. Variables, such as gender, age, and BMI, can affect complication risk, while care from a nurse specialized in ostomy management and patient education may improve outcomes.

Although many studies examined physical assessment, much of the evidence was descriptive, highlighting the need for longitudinal studies to evaluate assessment outcomes. Integrating a comprehensive physical assessment into care, supported by an interdisciplinary team including a specialized ostomy nurse, may help enhance quality of life, reduce readmissions, and promote recovery. Further research is needed to enhance evidence-informed physical assessment for those individuals living with an ostomy.

Implications of the Findings for Research

Despite the large number of studies on physical assessment of individuals living with an ostomy, the overall strength of the evidence is limited because many are retrospective and use descriptive methods. Literature on activity of daily living function and individual physical factors, such

as dexterity and their impact on living with an ostomy, was found to be lacking in the studies included in this review and would benefit from future research. The review included few prospective studies and even fewer randomized controlled trials. Further research should focus on longitudinal studies to determine the benefits and outcomes of physical assessment variables. Furthermore, additional research should determine the benefits of assessing for improved patient outcomes after specialized nurse education, as well as the importance and outcomes of dietary and hydration assessment in the postoperative period.

Implications of the Findings for Practice

The findings of this study support the need for individualized holistic assessment of those individuals living with an ostomy. Assessment should include evaluation of hydration, nutrition, pouching system fit, stomal protrusion, and peristomal skin. Additionally, demographic variables that may affect ostomy management and link to psychosocial outcomes should be considered. The psychosocial effects of physical outcomes when living with an ostomy demonstrate the importance of a holistic assessment rather than consideration of physical or psychosocial factors alone. •

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