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

ABSTRACT

Background

Individuals living with an ostomy require a comprehensive assessment to address multiple physical and psychosocial challenges and needs. Despite the importance of a comprehensive ostomy assessment in guiding care, the tools available to support such an assessment vary in availability, scope, and validation. This scoping review, part of the overall Ostomy Assessment Systematic Integration of Studies (OASIS) study, a large scoping review focused on the assessment of individuals living with an ostomy, aims to identify and map the current evidence related to ostomy assessment tools.

Methods

Using the Joanna Briggs Institute (JBI) framework and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR), this scoping review searched the MEDLINE and CINAHL databases in January 2021. Studies were included if they were peer-reviewed, written in English, and addressed the assessment of individuals living with an ostomy.

Results

Of 42,059 records identified through the search, 383 were included within the overall synthesis of the OASIS study, 29 of which were grouped in the "Assessment Tools" theme. Twelve ostomy-specific tools were identified, covering variables, such as peristomal skin assessment (i.e., Skin Assessment and Care Strategies [SACS], Peristomal Skin Assessment Tool [PSAT], Ostomy Skin Tool [OST]/Discolouration, Erosion, Tissue Overgrowth [DET] Tool OST/DET], and the Peristomal Lesion Scale [PLS]), self-efficacy and self-care (i.e., Ostomy Self-Care Index [OSCI] and the Caregiver Companion Care Index [CCOSCI]), dehydration risk (i.e., Dehydration Readmission After Ileostomy Prediction [DRIP]), quality of life (i.e., Chinese City of Hope–Quality of Life Ostomy Questionnaire [C-COH] and Colostomy Impact Score [CIS]), and psychosocial adjustment (i.e., Ostomy Adjustment Inventory [OAI-23] and Ostomy Adjustment Scale [OAS]). Findings demonstrate the benefits and limitations of current tools and the need for holistic assessments of those living with an ostomy.

Conclusions

Validated assessment tools for use in those living with an ostomy may provide valuable resources for enhancing patient care. Despite the development of new tools, gaps remain in the development of multimodal assessment tools and in understanding how to implement them. Continued development and validation of new assessment tools hold great promise for assisting clinicians, especially non-specialized clinicians, in enhancing the care they provide.

Key Words: Ostomy, nursing, nursing assessment, surgical stomas, patient outcome assessment, scoping review

Intégration systématique des études sur l'évaluation des stomies (OASIS) : revue de portée des outils d'évaluation

RÉSUMÉ

Contexte

Les personnes vivant avec une stomie nécessitent une évaluation globale afin de répondre à de multiples défis et besoins physiques et psychosociaux. Malgré l'importance d'une évaluation complète des stomies pour orienter les soins, les outils dis

ponibles pour soutenir cette évaluation varient quant à leur disponibilité, leur portée et leur validation. Cette revue de portée, qui fait partie de l'étude globale Intégration systématique des études sur l'évaluation des stomies (OASIS), une vaste revue de portée portant sur l'évaluation des personnes vivant avec une stomie, vise à recenser et à cartographier les données probantes actuelles relatives aux outils d'évaluation des stomies.

Méthodes

En utilisant le cadre du Joanna Briggs Institute (JBI) et l'extension Preferred Reporting Items for Systematic Reviews and Meta-Analyses pour les revues de portée (PRISMA-ScR), cette revue de portée a effectué une recherche dans les bases de données MEDLINE et CINAHL en janvier 2021. Les études ont été incluses si elles avaient été évaluées par les pairs, rédigées en anglais et portaient sur l'évaluation des personnes vivant avec une stomie.

Résultats

Parmi les 42 059 enregistrements identifiés lors de la recherche, 383 ont été inclus dans la synthèse globale de l'étude OASIS, dont 29 ont été regroupés sous le thème « outils d'évaluation ». Douze outils spécifiques aux stomies ont été identifiés, couvrant des variables telles que l'évaluation de la peau péristomiale (c.-à-d. Skin Assessment and Care Strategies [SACS], Peristomal Skin Assessment Tool [PSAT], Ostomy Skin Tool [OST]/Discolouration, Erosion, Tissue Overgrowth [DET] Tool OST/DET et Peristomal Lesion Scale [PLS]), l'auto-efficacité et l'autosoins (c.-à-d. Ostomy Self-Care Index [OSCI] et Caregiver Companion Care Index [CCOSCI]), le risque de déshydratation (c.-à-d. Dehydration Readmission After Ileostomy Prediction [DRIP]), la qualité de vie (c.-à-d. Chinese City of Hope–Quality of Life Ostomy Questionnaire [C-COH] et Colostomy Impact Score [CIS]) et l'adaptation psychosociale (c.-à-d. Ostomy Adjustment Inventory [OAI-23] et Ostomy Adjustment Scale [OAS]). Les résultats démontrent les avantages et les limites des outils actuels ainsi que la nécessité d'évaluation globale des personnes vivant avec une stomie.

Conclusions

Les outils d'évaluation validés pour les personnes vivant avec une stomie peuvent constituer des ressources précieuses pour améliorer les soins aux patients. Malgré le développement de nouveaux outils, des lacunes persistent dans la conception d'outils d'évaluation multimodaux et dans la compréhension de leur mise en œuvre. Le développement et la validation continus de nouveaux outils d'évaluation offrent des perspectives prometteuses pour soutenir les cliniciens, en particulier les cliniciens non spécialisés, dans l'amélioration des soins qu'ils prodiguent.

Mots-clés : stomie, soins infirmiers, évaluation en soins infirmiers, stomies chirurgicales, évaluation des résultats chez les patients, revue de 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
SW: Data curation
RK: Data curation
FH: Data curation

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INTRODUCTION

Fecal or bladder urinary diversion, also known as an ostomy, is a vital surgical procedure used to treat various conditions, including but not limited to cancer, trauma, inflammatory bowel disease, and obstruction.[1] Although the procedure offers multiple benefits, it does not come without challenges, significantly impacting the physical and psychosocial aspects of a patient's life.[1] Ostomy surgery is a widespread procedure, with approximately 750,000 individuals living with an ostomy in North America.[2] In Canada, approximately 13,000 new ostomy surgeries are performed each year, leading to an increasing population of individuals living with an ostomy.[2]

The Ostomy Assessment Systematic Integration of Studies (OASIS) study is an extensive scoping review of ostomy assessment and its broad topics. The purpose of the OASIS study is to provide the current status of knowledge related to ostomy assessment in the peer-reviewed literature. Due to the scope of the OASIS study, it will be separated into multiple manuscripts. The following manuscript provides an overview of the OASIS study, focusing on assessment tools for those living with an ostomy.

This portion of the OASIS study reviews the current accessible ostomy assessment tools, illustrating their strengths, limitations, and clinical implications to ultimately enhance the overall well-being and quality of life for individuals living with an ostomy.

The creation of an ostomy presents its own set of challenges, demanding meticulous management to prevent complications accompanied by psychosocial struggles. Accurate ostomy assessment is recommended to ensure appropriate care for those living with an ostomy.[2] Several assessment tools have been developed to address the complexities of ostomy assessment. These tools vary in focus, with some emphasizing physical assessment techniques, a wide array of complications, and important psychosocial aspects, including how the patient is adjusting to life with a stoma, how the patient can manage independently, and the patient's overall quality of life.

Aim

This initial publication of the OASIS scoping review findings aims to explore the evidence base for ostomy assessment tools for individuals living with an ostomy.

Identification of Research Questions

The primary research question for this study was: What is the evidence base related to the assessment of individuals living with an ostomy? This question is written in accordance with the PCC Framework, which stands for population, concept, and context,[3] where the population is individuals living with an ostomy, the concept is the assessment of the individual living with an ostomy, and the context is the evidence base related to the assessment of individuals living with an ostomy.

METHODS

This review followed the Joanna Briggs Institute (JBI) framework for scoping reviews and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) for the report.[3,4] The review was not preregistered.

Identification of Relevant Studies

The search was conducted on the MEDLINE and CINAHL databases. The search strategy was broad, attempting to collect as much data as possible regarding the research topic. No search limitations or filters were applied during the search. Databases were searched using the following terms: "Ostomy Assessment", "Stoma Assessment", "Peristomal Assessment", "Ostomy Management", "Stoma Management", "Peristomal Management", "Ostomy Complications", "Stoma Complications", "Peristomal Complications", "Ostomy AND Assessment", "Ostomy AND Management", and "Ostomy AND Complications". The database search was conducted in January 2021.

Study Selection

Criteria for inclusion in this scoping review included that the study was written in English and peer-reviewed. The study must also contribute to knowledge related to the assessment of the individual with an ostomy, stoma assessment, peristomal skin assessment, and/or peristomal plane assessment. Criteria for exclusion in this scoping review included secondary literature, position statements, abstracts, editorials, grey literature, and assessment factors related to pre- and post-stoma reversal.

Using Covidence® software for systematic reviews, 7 independent reviewers completed the screening. Each article was double-screened by title and abstract according to the set inclusion and exclusion criteria. Any conflicts were reviewed and a determination made by a Nurse Specialized in Wound, Ostomy and Continence (NSWOC). A full-text dual screening of the remaining articles followed this initial screening. Two NSWOCs screened these full-text articles for inclusion in the study findings. Any selection disagreements were discussed, and a consensus was reached between the 2 NSWOC reviewers.

Charting the Data

To extract the data from the articles included in the study, a chart was made following the principles of data extraction for scoping reviews outlined by Peters et al.[3] The chart developed included author and year, country of origin, purpose and aim of the study, research design, sample and setting, data analysis, results, and comments, such as whether ethical review was undertaken. Two co-authors and 3 assistant student nurses extracted the data, which 2 NSWOCs reviewed.

Collating, Summarising, and Reporting Results

After the tabulation of extracted data was complete, Microsoft Excel was used to develop a searchable database of the included articles and their findings. Using a content analysis approach as outlined by Elo and Kyngas,[5] a coding structure was developed based on the article's findings, followed by the grouping and categorization of themes. Once this was completed, the themes were divided into 5 subjects for publication as separate manuscripts due to the high number of included articles. Manuscript findings have been summarized and presented using the PAGER Framework, as outlined by Bradbury-Jones et al.,[6] which are presented in Table 1. This framework includes patterns found within the data, advances to current knowledge, gaps noted in the literature, evidence for practice, and recommendations for research.[6]

RESULTS

A total of 42,059 articles were located across the 2 databases. Of these results, 12,024 were removed as duplicates, leaving 30,035 articles for title and abstract screening. A total of 29,294 records were excluded during title and abstract screening because they did not meet the inclusion and exclusion criteria. This left 741 articles for full-text screening by 2 NSWOCs, of which 358 were excluded. Of those excluded, 97 were secondary literature, 80 were not in English, 66 were editorials, 56 could not be located, 50 had incorrect outcomes unrelated to the topic of interest, 8 were abstracts, and 1 was grey literature. This led to 383 studies being included in the evidence synthesis. A PRISMA flow diagram outlining this process is shown in Figure 1.

Table 1: *PAGER Framework*

PATTERN	ADVANCES	GAPS	EVIDENCE FOR PRACTICE	RESEARCH RECOMMENDATIONS
1. Validated tools are available for stoma and peristomal assessment	Tools, such as the SACS, PSAT, OST/DET, OCSI, and ORFI, have been validated	There are limited validated tools that combine both physical and psychosocial/quality-of-life factors	Assists with developing evidence-based care plans, especially for nonspecialized clinicians	Tools are needed that combine both physical and psychosocial metrics
2. The importance of self-efficacy and self-care have been identified	The OSCI and CCOSCI tools have demonstrated strong internal consistency	There are few tools available that consider variations by ostomy type	Supports education and independence of the individual living with an ostomy	Refine validated tools across ostomy types and consider changes to self-care over time.
3. Dehydration must be considered as a risk in the post-operative period	The DRIP tool and hydration protocols may assist with reducing readmissions related to dehydration	There remain limited tools related to outpatient care and hydration status	Assists with reduction of readmission risk related to dehydration	Continue to develop and validate tools for individuals to monitor their hydration status and dehydration risk
4. Quality of life is multidimensional with various considerations affecting the individual	Both the C-COH and CIS tools consider multiple domains affecting an individual quality of life	There remain few tools that focus on social factors and lived experience when assessing quality of life in those living with an ostomy	Tools, such as the C-COH and CIS, may assist with conducting holistic assessments considering quality of life	Ongoing development and validation across multiple settings is needed to continue forming tools that consider lived experience and quality of life
5. Some adjustment to living with an ostomy may occur over time	The OAS and OAI-23 appear to function well in assessing adjustment over time since surgery	There remain minimal validated tools assessing adjustment to living with an ostomy for longer periods of time	Adjustment tools can assist with monitoring changes over time and may assist with identifying needs for greater resources	Longitudinal studies are needed to determine adjustment to living with an ostomy over a longer period of time
6. New tools are being developed to support those caring for individuals living with an ostomy	Tools are being developed related to parastomal hernia risk and tools related to pouch leakage	Tools remain in the early stages with some requiring further validation	Novel tools have the opportunity to address under- recognized complications or factors affecting patient well-being	Further validation is needed for many novel tools and further utilization and understanding of integration into clinical practice is needed

Content analysis was then undertaken of the 383 studies included in the evidence synthesis, identifying 5 major themes of findings. These themes included: (1) assessment tools (n=29); (2) maternal, child, and youth assessment (n=26); (3) physical assessment (n=74); (4) psychosocial assessment (n=114); and (5) complication assessment (n=140). Several articles had findings across multiple themes, such as both psychosocial and physical. To ensure thematic coherence and a manageable distribution of articles across manuscripts, only findings for the assigned manuscript were extracted. Articles were assigned according to both the relevance of the findings and pragmatic considerations, such as the distribution of articles across thematic manuscripts. Findings that did not align with the manuscript assigned were excluded from the analysis. While this may have led to the exclusion of some secondary findings, it will assist with clarity and reduce redundancy across the multiple OASIS articles. The following results will focus on the 29 articles included in the assessment tools theme.

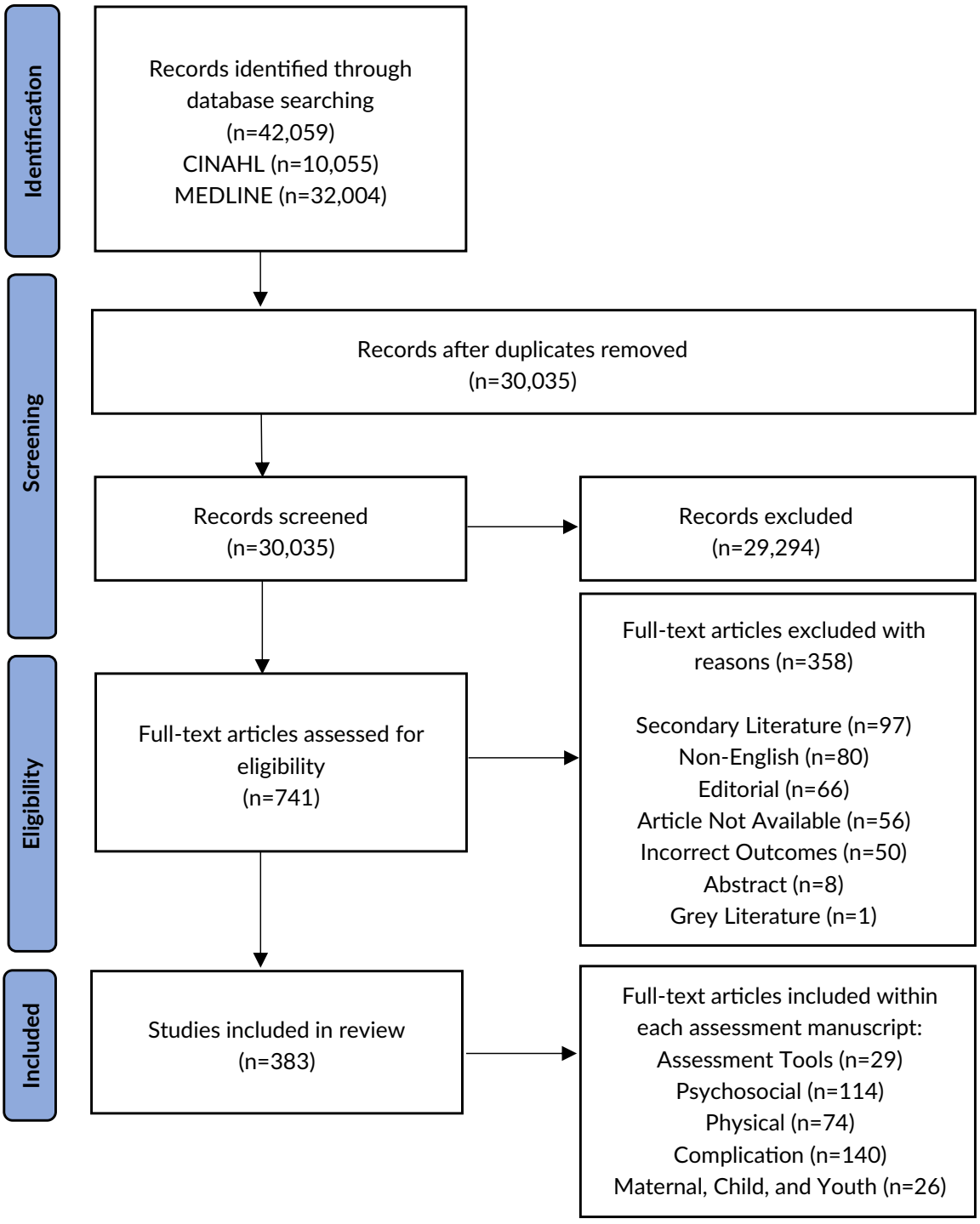
Characteristics of Sources of Evidence

The author, year, and country of the study, along with the study's aim, methodology, participants, data analysis technique, results, and ethical considerations were extracted. Of the 29 articles included in this publication, 3 studies were qualitative in nature,[7–9] 6 studies used mixed methods,[10–15] and the remainder used a quantitative design. Most studies were conducted in the United States (n=9),[7,10,16–22] Italy (n=5),[11,15,23–25] and the United Kingdom (n=5).[12–14,26–27] Studies sought to develop a pathway or protocol for readmission reduction, risk assessment, or treatment of complications,[9,14,17,24,28] and to determine the impact of a tool.[7–8,29] The remaining studies focused on the validation and/or reliability of an ostomy assessment tool.

Results of Individual Sources of Evidence

Following our inductive content analysis approach, the findings from this portion of the OASIS review were grouped into 5 categories: (1) ostomy assessment tools; (2) self-efficacy and

Figure 1: *PRISMA Flow Diagram*



self-care; (3) dehydration/high output; (4) quality of life; and (5) adjustment.

Ostomy Assessment Tools

A dozen assessment tools related to ostomy were identified in the literature. These tools included the Skin Assessment and Care Strategies (SACS) tool, discussed by Bosio et al.[25] as a validated classification system for lesion interpretation that improves assessment accuracy. Kapsandoy describes the SACS tool as easy to use, with over 80% of respondents supporting this claim.[20] The SACS tools reached a Content Validity Index (CVI) of 1 in a study by Invernizzi Silveira and Lanza, indicating that experts believe the SACS tool to be highly valid and relevant.[30]

The Peristomal Skin Assessment Tool (PSAT) examines 6 parameters: colour, tissue type, type of exudate, bleeding, wound edges, and hydration. In a study by Sodhi and Sharma, this tool achieved a CVI of 0.8, indicating a significant agreement among experts that it is relevant.[31] Obtaining a significant CVI helps ensure that this tool is useful and accurately captures a patient's risk for developing complications associated with having a stoma.

The Ostomy Skin Tool (OST) and the Discolouration, Erosion, Tissue Overgrowth (DET) tool are interconnected as the OST uses the DET's framework to assess peristomal skin conditions in a standardized way. A study by Inch highlighted this by examining how the OST can guide nurse evaluations and decisions using DET scores.[7] Several studies indicated that the DET tool obtained validation, as there was a strong intra-nurse agreement on the scoring system.[32–33] Kelleher et al. indicated that although the OST is a validated tool, it has limitations regarding mechanical/allergic factors, as it does not include factors related to chemical dermatitis.[8]

The Peristomal Lesion Scale (PLS) is used to measure and describe types of skin lesions. This tool was compared with existing scales and found to describe and measure skin alterations more accurately.[15] The same study found that the tool was valid for monitoring the peristomal skin area.

Other tools examined by several studies included the Ostomy Complication Severity Index (OCSI) and the Ostomy Risk Factor Index (ORFI). Pittman used the OCSI tool to measure ostomy complications in the postoperative period.[22] The tool was found to have a CVI of 0.9, supporting the tool's content validity. Another study by Pittman examined the OCSI and the ORFI.[19] These studies detailed the reliability and validity of both tools and showed high inter-rater agreement and internal consistency. Some risk factors predictive of ostomy complications included stoma/abdominal characteristics (p=0.007) and BMI (p=0.002).

Another tool reported in the literature is the Canadian Ostomy Assessment Guide (COAG). This assessment tool is intended to assist health care professionals in managing peristomal skin conditions. In a study by St-Cyr, the COAG tool was rated extremely useful by 67% of the nurses who used it.[29] This study also found that COAG implementation improved patient well-being and reduced costs.

Several included studies worked to develop new ostomy assessment tools. A study by Nafees et al. developed a leakage assessment tool.[13] This study highlighted how people living with an ostomy define leakage as well as the impacts that leakage has on their daily lives. This information was used to develop the tool and to aid clinicians' and researchers' understanding of this complication.

Kalashnikova et al. developed a systematic visual inspection process to diagnose ostomy complications, including contact dermatitis.[28] The process highlights changes in colour and skin damage severity as indicators of complications. This study stressed the importance of visual inspection of the stoma for diagnosing stomal complications. Visible changes in the skin characterize peristomal skin disorders, making observation essential for diagnosis.

Osborne et al. focused on parastomal hernia as a potential complication.[14] Risk factors for this complication include age, obesity, diabetes, and chronic coughing. The scoring tool classifies people living with an ostomy into low-, medium-, or high-risk categories. This study developed a parastomal hernia risk assessment tool that determined the level of intervention that a patient required (e.g., education, support garments, etc.) based on their score. This tool was reported to be user-friendly and beneficial for guiding nurses' patient care.

Two studies by Beitz et al. were included in this scoping review. Beitz et al. noted an expert consensus on the importance of evaluating a stoma profile and peristomal skin complications when developing plans of care.[10] This study aimed to develop a new standardized algorithm for ostomy care, as non-specialized clinicians provide most care. The newly developed tool included assessment areas, such as ostomy type, output type and volume, stoma type, and stoma profile. Researchers also included the SACS tool, which is already validated, to guide their tool development. The new tool obtained a CVI of 0.95, indicating high content validity, and participants noted its ease of use. It is important to note that the participants in this study were experts in ostomy care.

A follow-up study by Beitz aimed to test whether the previously developed ostomy algorithm accurately helps non-specialized nurses select appropriate products and management strategies.[21] This was accomplished by using real-life scenarios, and participants were nurses without specialized ostomy management training. The mean correct response rate across participants was 84.23%, and construct validity was supported. These results indicate that the algorithm effectively helped nurses select safe, evidence-based interventions, underscoring the need for such a tool.

Self-Efficacy and Self-Care

Throughout the literature analysis, a positive correlation be-

tween self-efficacy (confidence and perceived ability) and consistent and effective self-care behaviours (maintenance, monitoring, management) was found. A study by Villa et al. found that higher self-efficacy was associated with better self-care outcomes and quality of life.[23] Both the Ostomy Self-Care Index (OSCI) and the Caregiver Companion Care Index (CCOSCI) were used to quantify this relationship. Both tools showed a strong internal consistency (OSCI α=0.975, CCOSCI α=0.972).

Dellafiore et al. developed the Self-Efficacy Ostomy Care Nursing Management (SE-OCNM) tool for ostomy care nursing management, which was found to be highly reliable.[11] The SE-OCNM, used to assess self-efficacy in ostomy care, showed significant reliability with an overall α=0.978. These results validated the assessment of self-efficacy as a measurable and consistent construct, essential for designing interventions to improve self-care competence.

It is noteworthy that variations in self-care behaviours were observed between those with ileostomies and colostomies. People living with ileostomies were found to empty their pouching systems more frequently, while those with colostomies changed their entire pouching system more frequently.[16] This suggests that although there is a similar perceived function of ileostomy compared to colostomy, individual self-care routines vary. These variations in self-care practices underscore the need to strengthen self-efficacy for personalized care.

Dehydration/High Output

Dehydration was identified as a significant postoperative readmission factor, affecting 15.5% of people living with an ostomy.[17] A protocol developed by Gonella et al. showed that readmission rates due to dehydration dropped significantly from 9% to 2.9% following implementation of their protocol.[24] In this protocol, people living with an ostomy met with staff with specific training on stoma management. People living with an ostomy were assessed for ileostomy output, weight loss, and signs of dehydration and based on these factors, provided with education on the benefits of a balanced diet along with printed information, recommendations for medications and reassessment, or urgent medical management. They were also given instructions on identifying signs and symptoms of dehydration and were periodically followed up postoperatively.

Additionally, a study by Chen et al. validated the Dehydration Readmission After Ileostomy Prediction (DRIP).[18] This tool is designed to identify people living with an ostomy at risk for dehydration following ileostomy formation. Researchers identified good predictive ability with an area under the curve (AUC) of 0.71 (95% CI: 0.68–0.74), indicating moderate accuracy. The reduction in readmissions due to dehydration after implementing these tools underscores the need to assess people living with an ostomy for dehydration after stoma formation.

A study by McDonald focused on dehydration as a complication of having a stoma.[9] In this study, a high-output stoma management flowchart was created to identify signs of dehydration. The flowchart suggests that people living with an ostomy with a high output should have their ins/outs, sodium, magnesium, creatinine, and potassium monitored to prevent further complications.

Quality of Life

Across the literature, it was identified that quality of life is multidimensional and is not a single construct. More specifically, Nafees et al. stressed the need for further research to better understand the impact of social relationships on a patient's quality of life.[12] The Chinese City of Hope– Quality of Life Ostomy Questionnaire (C-COH) was used to identify 4 distinct dimensions of a patient's quality of life and returned a Cronbach α=0.931. These dimensions include physical, psychosocial, social, and spiritual well-being.[34] The lived experiences of people with an ostomy are also something to which assessment tools should be sensitive. A study by Thyo et al. developed the Colostomy Impact Score (CIS), in which a score of ≥ 10 indicated a major colostomy impact (major-CI).[26] This tool examined the lived experiences of those living with an ostomy and found that individuals in the major-CI group reported a significant impairment in their quality of life. Given the multidimensional nature of a person's quality of life, it is necessary to develop tools that account for multiple dimensions to enable a holistic assessment.

Adjustment

Stoma acceptance is a key psychological factor as higher levels of acceptance positively correlate with improved adjustment outcomes. Simmons et al. suggested that the Ostomy Adjustment Inventory (OAI-23) aligns with Felton's Acceptance of Illness Scale, which supports the importance of psychological acceptance.[27] Improvements in ostomy adjustment were consistent with increasing time since surgery.[27] Additionally, Zhang et al. used the Ostomy Adjustment Scale (OAS) to measure a patient's adjustment to life with an ostomy.[35] Researchers found that stoma acceptance was significantly associated with adjustment (p=0.000). The interrelatedness of stoma acceptance and overall adjustment suggests that assessing this variable is beneficial.

DISCUSSION

Summary of Evidence

In the section of the OASIS scoping review focusing on assessment tools, we identified 29 relevant studies. Further synthesized, 3 studies focused on tools related to quality of life, 2 on tools related to adjustment to living with an ostomy, 3 on dehydration and risk of dehydration related to an ostomy, and 3 on self-efficacy and self-care. Finally, 18 studies focused on physical assessment and complications associated with the ostomy.

Throughout the literature review, 12 ostomy assessment tools were commonly used to measure the health of a patient's stoma and peristomal regions. Many of these assessment tools focused on peristomal skin health. These tools included the SACS, PSAT, OST/DET tools and the PLS. These tools examine variables, such as skin colour, exudate type,

wound edges, erosion, and skin lesion classification. The SACS, PSAT, OST, and DET tools have all obtained validation in their respective studies.

Ostomy assessment tools can improve care plan development and enable monitoring of changes over time. Harputlu and Özsoy conducted a study designed to develop care plans for individuals living with an ostomy with peristomal allergic contact dermatitis (PACD).[36] Researchers used the DET and OST tools in their study. The OST tool yielded effective plans of care, and the patient's DET score accurately reflected the severity of this skin disorder. This further emphasizes the relevance and validation of these tools and the use of assessment tools in improving the care plans for those living with an ostomy.

Novel assessment tools were found in this scoping review. Nafees et al., for example, developed a validated and reliable leakage assessment tool.[13] This study highlighted the impacts of ostomy leakage on an individual's daily life. Kalashnikova et al. is another example of the development of a novel assessment tool to diagnose ostomy complications, such as contact dermatitis.[28] This tool stresses the importance of visual inspection of the stoma site. Another novel tool identified in this study was a parastomal hernia assessment tool. Osborne et al. developed a risk assessment tool to determine the level of intervention a patient requires based on their risk score for developing a parastomal hernia[14] while noting that the new tool requires further validation. These examples of novel tools demonstrate the wide variation in assessment factors relevant to those living with an ostomy and the opportunities to continue to develop resources for assessment of those living with an ostomy.

Providing education and information on improved autonomy in stoma management during hospitalization have been shown to correlate with better self-care maintenance and monitoring among those living with an ostomy.[37] This finding is in line with the outcomes discussed by Dellafiore et al. in their utilization of the OSCI and the CCOSCI.[11] This relationship emphasizes the benefit of predicting an individual's self-care ability. This is further supported by findings that self-care behaviours differ between those with ileostomies and those with colostomies, demonstrating the need to consider the individual and their self-care abilities.[11] These findings demonstrate the benefit that assessment tools can bring to assessing self-care ability for those living with an ostomy.

Dehydration is a common risk among those living with an ostomy. Hyde et al. conducted a study to identify the reasons for hospital readmission.[38] They found dehydration to be one of the most common causes of preventable readmission among individuals living with an ostomy in their study. Gonella et al.[24] developed a protocol to assess risk factors for hospital readmission, while Chen et al.[18] developed a DRIP tool. Both underscore the need to assess dehydration risk and current hydration status using available tools to prevent hospital readmission.

A common theme across relevant studies was that quality of life is multidimensional, not a single construct, and requires a holistic view of the individual living with an ostomy. Studies stressed the need to include the patient's lived experience as well as their physical, psychosocial, social, and spiritual well-being. This is also demonstrated in recent literature, including Goodman et al.[39] who found that several factors influence a patient's quality of life and acknowledged that prior research assumed that people with a stoma are a homogeneous group.[39] Their findings suggest that domains, such as age, number of abdominal surgeries, and time since stoma formation, all significantly affect quality of life. This research further stresses the need for a comprehensive assessment of a patient's quality of life, positioning the quality-of-life assessment tools discussed in this study to assist in assessing quality of life among individuals living with an ostomy.

Adjustment to life with a stoma was a common theme among the included articles. It was found that stoma acceptance is a significant indicator of adjustment to life with a stoma.[27,35] The authors found that the longer it had been since an individual underwent stoma surgery, the more likely they were to adjust to having a stoma. The relationship between time since surgery and ostomy adjustment was also explored by Stott et al.[40] who found that, among the 4 domains of the Ostomy Assessment Inventory (OAI-23), those with an ostomy experienced significantly less anger over 9 months after surgery.[40]

Furthermore, a recent study by Lisboa et al. examined how self-care is defined and applied among individuals living with an ostomy.[41] This study found that there is still a need for more comprehensive assessment tools that acknowledge the multifaceted nature of self-care. Heerschap and Butt, in a recent integrative review of algorithmic approaches to ostomy management, also found a lack of published, validated tools to care for those living with an ostomy.[42] This indicates that there is still an opportunity to develop comprehensive and validated assessment tools.

Strengths and Limitations

In this scoping review, the authors sought to comprehensively map the landscape of ostomy assessment tools. Using the Joanna Briggs Institute framework and the PRISMA-ScR reporting guidelines, we attempted to strengthen the rigour, reproducibility, and transparency of the scoping review process.

Despite the comprehensive nature of this study, we acknowledge its limitations. Due to the structure of the OASIS study manuscripts, findings spanning multiple themes were included in only one thematic paper for clarity and manageability, given the study's scope. This may have led to some secondary results being under-represented; for example, a tool discussed in this manuscript but related to utilization in a pediatric population would not have been included in the maternal, child, and youth manuscript. Additionally, while improving the quality of results, the decision to exclude grey literature, abstracts, and non-peer-reviewed literature may have led to the omission of new or innovative tools and resources that are not yet formally published.

We must also acknowledge that the search for this study was conducted in January 2021, and studies published after this search were not included in the review. Given the scope of the search, an update to this review was beyond the project's scope. The authors, however, believe that the findings

of this study constitute the first major mapping of the ostomy assessment literature to the date the data were collected. The results of this study provide a foundation for future reviews, allowing for a narrower focus and incorporation of evidence published after the 2021 search.

CONCLUSION

This scoping review, as part of the OASIS study, provides an overview of the literature related to ostomy assessment tools. Findings identified multiple tools used to assess the individual living with an ostomy that have been validated and address the many domains of ostomy assessment, including stoma and peristomal assessment, self-efficacy, dehydration, quality of life, and psychosocial adjustment. These tools emphasize the importance of holistic patient assessment to guide support for individuals living with an ostomy and to develop care plans.

While validated tools, such as the SACS, PSAT, OST/DET, ORFI, and OSCI, continue to be developed, gaps in the assessment needs of those living with an ostomy remain. Tools that focus on integrating the many indicators of quality of life and the many considerations in both physical and psychosocial assessment are needed. The use of validated tools within clinical practice should also be further explored, along with their benefits for those living with an ostomy. Because nonspecialized clinicians often provide care for those living with an ostomy, the continued development and dissemination of accessible, easily used tools are important for improving care.

Implications for Future Research

Future research should focus on the ongoing development and validation of tools to assist in assessing the many needs of individuals living with an ostomy. There remains limited research and ample opportunity for further research on tools for assessing quality of life, long-term adjustment, pediatric assessment, and caregiver assessment. Future longitudinal studies should also focus on patient outcomes related to the use and impact of ostomy assessment tools for individuals living with an ostomy.

Implications for Practice

The integration of evidence-based assessment tools provides clinicians with the resources to improve clinician decision-making and monitor patient progress. Tools that screen for complications and risk factors, such as dehydration, may assist with early intervention, reduce hospital readmission rates, and improve patient quality of life and well-being. Using evidence-based ostomy assessment tools may help nonspecialized clinicians enhance care for those living with an ostomy across care settings. •

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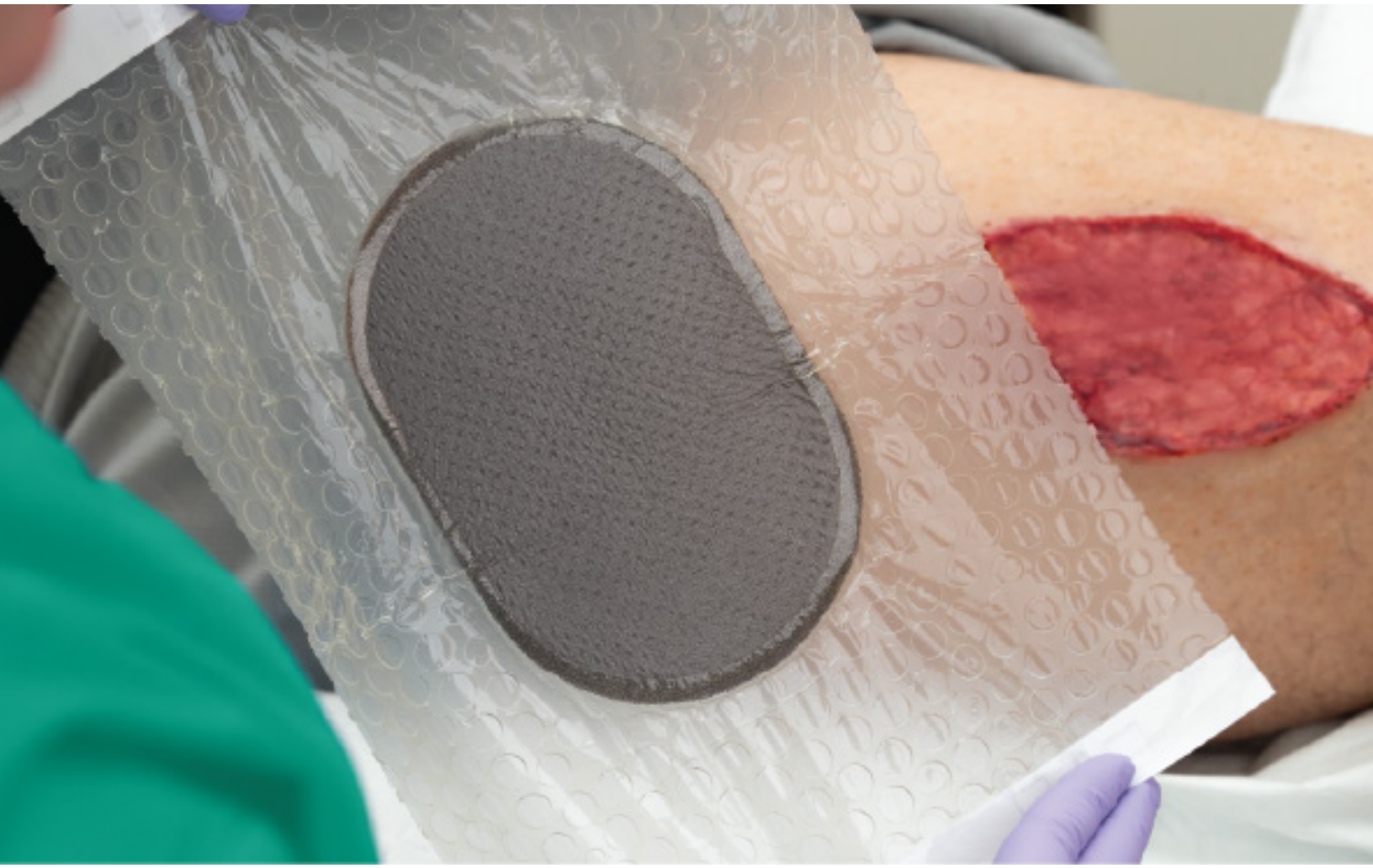

[1] Lors d'un essai d'utilisation simulé comportant [12] membres du personnel infirmier et chirurgiens. Temps moyen de 0148. SAT-MTF-05-995965. Étude de commercialisation sur le Solventum V.A.C. Pansement Peel and Place, 2023.

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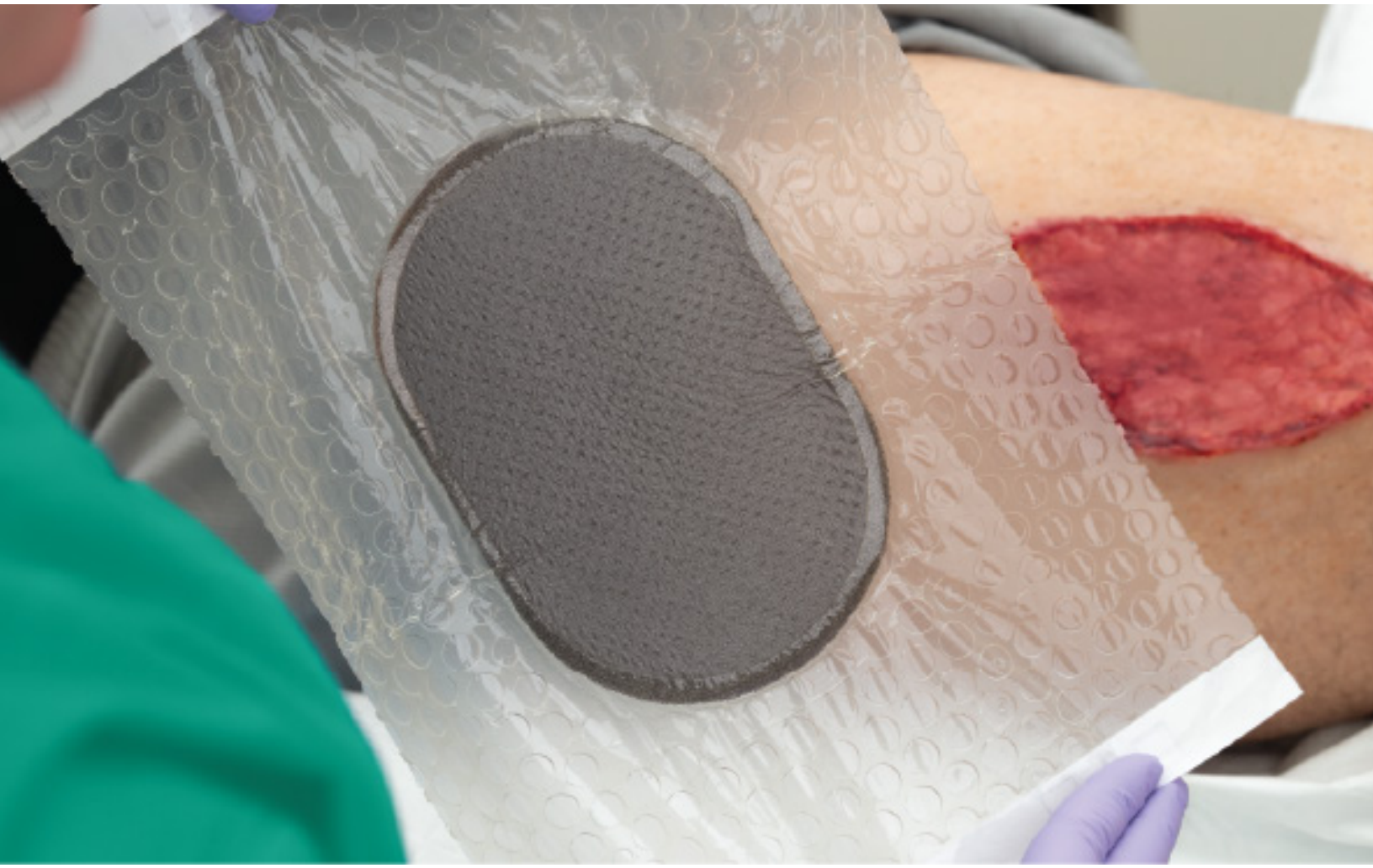

[1] In a simulated use test with 12 nurse and surgeon users. Average time of 01:48. SAT-MTF-05-995965 Marketing study for Solventum V.A.C.® Peel and Place dressing. 2023.

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