

Exploring the impact of incontinence-associated dermatitis on wellbeing

Spacek A, Dunk AM & Upton D

ABSTRACT

Introduction: Incontinence-associated dermatitis (IAD) is caused by chemical and physical irritation from excrement in contact with skin. Though IAD is a risk factor for pressure injury development and can occur simultaneously, inconsistencies and gaps within the literature remain.

Background: Psychosocial assessments are essential to holistic assessment of a person with a wound to ensure positive impacts are maximised and the negative influence on wound healing minimised. However, there has been little discussion on the psychosocial impacts of IAD on the patient, hence this literature review.

Methods: A systematic literature search was undertaken using CINAHL, EMBASE, MEDLINE and PubMed databases to explore the link between wellbeing and IAD. A comprehensive search was employed and 12 articles were included in the review.

Results: The IAD literature focused on treatments briefly inferring impact to the patient, whilst omitting psychosocial assessments and patient involvement. The few mentions of IAD impact on patient wellbeing were generalised from the

incontinence literature. Two articles recommended the need for patient involvement and exploring the impact of IAD.

Conclusion: Research is needed to investigate the psychosocial factors which impact on patients with IAD wounds, along with the role wellbeing may play in wound healing in adults with IAD.

Keywords: Incontinence-associated dermatitis, wellbeing.

INTRODUCTION

Incontinence-associated dermatitis (IAD) is a form of moisture-associated skin damage (MASD) caused by persistent or chronic skin exposure to urine and/or faecal incontinence and moisture¹⁻⁵. Excrement damages the outermost skin layer, the stratum corneum's lipid barrier function, through increasing skin pH²⁻⁶. This results in greater moisture permeability and hyper-hydration from the skin surface down^{3,4}. The resulting maceration weakens the skin structure, predisposing it to further chemical and physical injury, especially friction and shear^{2,4-6}.

Though rates of IAD vary depending on the environment, prevalence and incidence rates are wide and range from 5.6% to 50%, and 3.4% to 25%, respectively across a variety of settings⁶. IAD can occur wherever skin contacts with excretory products, but is commonly found on the genitals, groin, sacrum, peri-anal/perineum, buttocks, thigh and abdomen^{2,6}. Skin damage presentations range from intact red, oedematous skin, to a rash, and superficial skin loss, which can lead to complete denudation and even deep wounding^{2,4-6}.

IAD risk increases from urinary incontinence, to double incontinence and is further elevated with loose stools, which are especially corrosive to skin^{4,7}. Risk factors include critical illness, restricted mobility, cognitive impairment, decreased independence with activities of daily living, malnutrition, fever, medications, conditions which predispose to poor skin integrity and, of course, incontinence^{2,6,7}. Moreover, IAD not only predisposes patients to infection but is also a significant individual risk factor for pressure injury (PI) formation^{3,6-8-10}. Though evidence grows, the numerous gaps in the literature require further review and understanding of the impact IAD has upon the patient. In this respect, clinicians' knowledge can be improved, as can the resultant care for those with IAD^{2,5}.

Alicia Spacek*

RN, BNurs
Nurse Educator, Neurology, Stroke & Infectious Diseases
Canberra Hospital, ACT Health, Australia
Email Alicia.spacek@act.gov.au

Ann Marie Dunk

RN, BHthSc (Nurs), MNurs(Research)
Adjunct Associate Professor, University of Canberra
Clinical Nurse Consultant, Tissue Viability Unit,
Canberra Hospital, ACT Health, Australia

Dominic Upton

BSc (Hons), MSc, PhD, FBPsS, FHEA, CSsi
Dean, College of Health and Human Sciences,
Charles Darwin University, NT, Australia

* Corresponding author

BACKGROUND

The World Health Organization acknowledges three overarching psychosocial factors being “physical, mental, and social”, which impact on the overall health and wellbeing of an individual^{11,p.1}. These factors theme in both general and moreover in wound-specific quality of life (QoL) and wellbeing (WB) models due to the demonstrated positive and negative implications of these factors on wound healing¹¹⁻¹⁶. Indeed, there is growing evidence of positive psychological or ‘protective’ factors offsetting the well-versed negative consequences or stressors on wounds¹³. Wound healing correlates with these three psychosocial factors and have important implications for enhancing patient wound care treatment and results¹²⁻¹⁶.

The focus on patient QoL and WB are especially noted in the *Standards for Wound Prevention and Management* published by Wounds Australia in 2016, which endorse this holistic and comprehensive patient approach inclusive of a variety of psychosocial assessments for “well-being, quality of life, social and wound impact ... for specific health populations”^{17,p.19}. However, the influence of psychosocial WB factors, along with an understanding of their relevance to the patient with IAD in equipping the clinician in the practice of holistic wound care is sadly lacking^{13,16,18}. As such, a literature review was conducted to explore the impact of adult IAD on wellbeing.

METHOD

In 2017, a literature search was undertaken using Embase (EBSCOhost), Medline (Ovid), CINAHL (EBSCO), and PubMed databases. A comprehensive search strategy was employed utilising both Medical Subject Headings (MeSH) and keywords (Figure 1). The IAD search terms were then searched with incontinence and psychology-related terms using the Boolean “AND” function. The search was limited to adults 18 years and above, published from 2012 to 2017, written in English and limited to full text articles. Titles and abstracts were sorted to ensure relevancy to both incontinence and the associated skin damage, which resulted in a final 25 papers. Articles were then excluded if they did not mention quality of life, wellbeing or psychological factors in context to the patient with IAD. PEARL searching included one article which met the inclusion from the Wounds International website. Finally, a total of 12 articles met this criteria and were included in the literature review.

RESULTS

Physical wellbeing

Emotional responses to the physical symptoms of wounding are demonstrated to impact on the physical healing of a wound^{13,15,16}. In spite of this, all of the IAD articles focused predominately on the physical consequences of the wound such as diagnosis, treatment and pain, but excluded the patient perspective and emotional reaction to these factors. Many of the studies narrated the physical impact of IAD¹⁸⁻²¹.

Pain was the most common physical symptom listed^{18-20,22-25}, as well as discomfort descriptors^{18,23-25}, and resulting sleep disturbance^{6,18}. In addition, pain was noted as an individual risk factor for IAD⁶. The lack of original research contribution by these articles to explore and support the physical experience of the patient with IAD makes them of little contribution to this review.

Despite this, only one study demonstrated pain assessment within the methodology through a longitudinal study design comparing IAD and PIs prevalence and related factors²². The study by Long *et al.* included questioning of patients for responses to pain-related symptoms, without mention of a validated pain assessment tool²². Further, questioning on a list of negative symptoms, namely “tingling, itching, burning and pain” in specific sites of their body, required only yes/no answers from the patients and assumed these were the only negative sensations of IAD^{22,p.319}. This demonstrated poor appreciation of the subjective experience of patients with IAD and PIs. Another observational study by Clarke-O'Neill *et al.*, which also used a non-validated IAD assessment tool, examined the effect of four different incontinence pads on skin outcomes²⁵. The results showed no difference in skin injuries on patients, despite the differing incontinence aids used and also noted difficulties in diagnosing IAD due to the presence of multiple other skin discrepancies, which could be associated to the assessment tool²⁵. It was remarkable that within the initial literature review in discussing that “the participant’s overall opinion rating is perhaps the most important” in incontinence aid research was highlighted, but the study failed to incorporate this measure into the study design^{25,p.662}.

An intervention review by Beeckman *et al.* demonstrated rigorous methodology in reviewing the small number of research articles which met the inclusion criteria for IAD prevention and treatment¹⁰. The authors acknowledged a small amount of low to moderate evidence to support skin care methods being due to numerous factors¹⁰. A number of the patient-specific outcomes had no data found, inclusive of treatment satisfaction, pain from IAD and pain associated with treatment methods. The authors further called for the development of a universal list of outcomes which are important for patients that will additionally guide researchers in future studies. Thus a patient-centred approach to future IAD study design measuring subjective IAD patient experiences is required.

The Beeckman *et al.* paper about the global expert panel provides a comprehensive review of IAD, in the absence of any thorough care guideline on IAD⁶. The document is strengthened by the in-depth and supported discussions of current knowledge and identification of gaps to promote IAD research⁶. Noted within were clinician difficulties differentiating IAD from PI and other MASD and that IAD and PI can co-exist, with diagnosis relying on clinician education and accurate wound assessment and treatment⁶. Further noted

were low validity and reliability of results, limiting credibility of the evidence for the treatment and management with further research and consolidation of knowledge required⁶. This gives clear cause for patients to potentially feel uneasy or stressed over IAD and the treatments and warrants investigation into their subjective experience with IAD.

Social wellbeing

Social factors are evidenced to impact on wound healing rates^{13,15,26}. However, the IAD literature provides overall little evidence into the social consequences of IAD, despite IAD patients being found in a variety of social settings^{6,10,22,25}. Negative patient feelings are reported, such as low self-

Figure 1: Search strategy

- 1 exp dermatitis/
- 2 dermatitis.mp.
- 3 exp diaper dermatitis/
- 4 diaper dermatitis.mp.
- 5 diaper rash.mp.
- 6 moisture associated skin damage.mp.
- 7 (moisture adj5 skin damage).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading]
- 8 (moisture adj10 skin damage).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading]
- 9 moisture lesion\$.mp
- 10 skin lesion\$.mp.
- 11 exp skin defect/
- 12 exp tissue injury/
- 13 tissue damage.mp.
- 14 incontinence associated dermatitis
- 15 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14
- 16 exp incontinence/
- 17 incontinence.mp.
- 18 exp incontinence aid/
- 19 incontinence aid.mp.
- 20 (aid adj5 incontinence).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading]
21. (aid adj10 incontinence).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading]
- 22 16 or 17 or 18 or 19 or 20 or 21
- 23 15 and 22
- 24 wellbeing or well being or well-being .mp.
- 25 exp psychological wellbeing/
- 26 exp quality of life/
- 27 quality of life.mp.
- 28 psycholog\$.mp.
- 29 22 or 23 or 24 or 25 or 26
- 30 23 and 29
- 31 limit 30 to (adult <18 to 64 years> or aged <65+ years>)
- 32 limit 31 to yr="2012-Current"
- 33 limit to 32 English language
- 34 limit 33 to full text

esteem²³, embarrassment^{20,23-24}, being alone¹⁸ and shame²⁰. Social evasion is stated to result due to the stigmatisation of having IAD^{20,23}. References for the impact of social factors on IAD are sourced largely from the incontinence literature^{6,23-24}, or are wholly unsupported^{23,27}. Thus, the social factors are at best a generalisation to patients who have both injured skin as well as incontinence. There was no research amongst the IAD population examining the social implication of the condition, on their person or their family and friends, in either a QoL or WB focus. Additionally, although the gap of social impact of IAD was identified in one article²¹, no specific recommendations to explore social experience and IAD were made by the authors, further highlighting the need for better appreciation of the patient perspective, comprehension of the social experience of patients with IAD to tailor holistic wound care to patient needs.

On the other hand, Edwards *et al.* conducted a rigorous randomised control trial on community patients with venous leg ulcers, which saw patients distributed between the Lindsay leg club intervention group, which provided a social support group with other patients with venous leg ulcers, and the control group²⁶. Consistent treatment controls as well as numerous validated and reliable psychosocial and pain assessment tools were used in the data collection, further verifying the results observed²⁶. Statistically significant improvements were noted in the intervention arm for pain, morale and healing rates, amongst others, supporting the efficacy of positive social factors improving wound healing outcomes²⁶.

Mental wellbeing

Individual psychological factors such as poor mental health, depression or stress are demonstrated to impact negatively on skin injury healing rates^{16,28}. Broad statements within the IAD literature were found on the impact on patient psychological health^{6,10,19,27}, but only one mentioned the impact on patient mental state²⁰. Bianchi and Segovia-Gomez stated faecal incontinence and the consequential skin injury as having a detrimental psychological impact on the patient's "dignity, causing embarrassment and stigma" as well as anxiety^{20,p.18}. Feelings of depression and distress are broadly applied statements as consequences of IAD^{19,22}, and again were derived solely from the incontinence literature^{18,23}. Other feelings of frustration, anger and even helplessness are further suggested by authors, with no evidence to corroborate these negative patient emotions²³. All these broad statements are not verified as the intervention review demonstrated no findings on the impact of IAD on patient psychology¹⁰. Thus, there is no direct evidence within the IAD literature to determine the impact of IAD on the mental status of the patient.

In contrast, the wound literature provides further proof of the mental impact of wounding on patients. Walburn *et al.* conducted a comprehensive systematic review and meta-analysis, providing quantifiable results from 17 of 22

studies on varying wound types and supports that stress over extended periods of time negatively hinders wound healing¹⁶. The enormous practical and statistical relevance of these findings was likened similarly to the proven impact diabetes has on wound healing outcomes¹⁶. They concluded that future research needs to focus on factors which mediate and moderate stress to further establish an understanding between wound healing and the stress response¹⁶. This supports the legitimacy and momentum of wellbeing in wound healing science and the relevance to wound types that remain yet to be explored, such as IAD.

Quality of life

Numerous articles identified IAD impacting on patient QoL by linkage to the incontinence literature^{6,18,22,23,25}. These results thus are generalised to IAD patients, making application to those with IAD indirect at best and difficult to apply as there was little mention of skin injury. Secondly, IAD can result from an acute or chronic incontinence^{6,20} and thus makes the negative psycho-social experiences of patients with most commonly chronic incontinence less applicable to the IAD population. Of interest, only two studies attempted to assess IAD patient QoL^{10,29}. Whilst one study remains yet to report study protocol findings²⁹, most notably the intervention review showed there was no available data to justify any influence on QoL from IAD or its treatments, despite it being suggested in the literature reviewed in this paper¹⁰. Furthermore, only two articles recommended the need for exploration into patient experience^{6,10}, and only one article actually used wound psychology literature alongside that of incontinence to substantiate the negative consequences of IAD on the person²¹. The advantage of this article in acknowledging the incontinence and wound research is that it more fully encompasses the IAD factors of incontinence and wounding. Research is required that examines both the positive and negative aspects to the patient IAD experience.

Wellbeing

As evidenced, none of the article designs evaluated wellbeing in adults with IAD. Four of the five articles which mentioned wellbeing, did so in the introduction or summary and in broad statement applying only the negative patient consequences of IAD^{19,20,23}. This confirms the incorrect application of the wellbeing definition and confusion with QoL¹³. The lack of consideration of the patient experience and participation throughout the IAD literature is in direct contradiction of the holistic focus and recommendations of wound clinician guidelines to involve the patient in their care^{12,14}. Moreover, patient involvement has demonstrated improved patient outcomes¹², and the resultant lack of patient participation is detrimental to the treatment and management techniques of IAD. IAD academic literature should demonstrate incorporating best practice, holistic care, inclusive of psychosocial assessments and role model this so as to promote best practice amongst wound clinicians caring for patients with IAD. Furthermore, exploration of wellbeing in IAD is required to optimise patient outcomes.

Table 1: Literature review

Reference	Purpose & themes	Sample & design	Result	Strengths	Weaknesses	Implications
Bardsley 2013 ²¹	IAD prevention and management.	Narrative on IAD.	Wound and incontinence psycho-social impacts discussed as well as IAD, skin structure, assessment, prevention and management.	Acknowledgement of the impact of both the wound and incontinence psycho-social factors in discussion. Identified the gap within the literature of psycho-social factors in the IAD cohort.	Lack of contribution to IAD research.	The only IAD literature review that included the combination of psycho-social incontinence and wound-related literature. Identified the lack of psycho-social exploration of IAD.
Beekman, et al. 2015 ⁶	Best practice guideline for IAD. Aims to "promote effective skin care strategies for IAD prevention, improve patient quality of life and clinical outcomes."	International Wound guideline. Best practice principles. IAD literature review and analysis of evidence and consensus from global experts panel on IAD.	Identifies and compiles evidence-based practice for clinician application. Identifies areas for future IAD research and improvement.	Best practice guide substantiated by current evidence and expert collaboration. Comprehensive and detailed discussion of current evidence-based IAD literature. Provides a gap analysis in areas for future research. Recommends patient assessment and involvement in care.	Numerous IAD strategies have weak evidence to support clinical action.	Provides a needed consensus in IAD definitions and literature. Guideline for clinicians on IAD. Recommends future study on quality of life impact for patients with IAD. Study design does not address the wellbeing of adults with IAD.
Beekman, et al. 2016 ¹⁰	Intervention review of IAD prevention and treatment methods.	Systematic review and meta-analysis. Comprehensive search included 13 studies.	Prevention and treatment methods were the same. Different concentrations of topical barrier creams in conjunction with differing combinations of active ingredients made comparison impossible. Limited evidence to support skin care methods of low to moderate quality. Determined that cleansers without soap and applying a cream thereafter, was better than no care. A number of patient-specific outcomes within the review had no data reported on from any of the studies.	Identification of areas in IAD studies require strengthening. Identified the gap within IAD treatment and prevention literature and made recommendations for patient participation and inclusion of patient outcomes in future research.	Only 13 studies included with differing study designs, small sample sizes, lack of blinding, randomisation using non-validated techniques, use of invalidated IAD assessment tools for data collection techniques amongst the studies. Low power of studies decrease usability of this review.	No clarity on the efficacy of barrier products on IAD. No soap cleansing and the use of a barrier product are recommended. Future IAD research requires larger sample sizes, blinding, valid methods for randomisation, consistent follow-up period for results. Demonstrated a lack of patient involvement and consideration of the patient experience within the IAD treatment and prevention literature, supporting need for a holistic IAD patient focus. Study design does not address the wellbeing of adults with IAD.

Table 1: Literature review (continued)

Reference	Purpose & themes	Sample & design	Result	Strengths	Weaknesses	Implications
Beldon 2012 ¹⁸	Protecting older patients' skin with IAD.	Narrative on IAD literature.	Outline of pathophysiology, incidence and causes of incontinence, QoL impact. Discussed skin assessment and cleansing. Advocated for topical agents.	Comprehensive narration. Declared conflict of interest.	Lack of contribution to IAD research. QoL impact supported only by incontinence literature. Supported by Clinimed company who makes the LBF cream featured.	Health professionals to evaluate need for barrier cream in IAD care. Study design does not address the wellbeing of adults with IAD.
Bianchi 2012 ¹⁹	Strategies to prevent and treat moisture lesions from incontinence.	Narrative on IAD literature.	Discussion of moisture lesions and incontinence causes. Describes excretory containment devices. Physical and psychological patient effects.	Provides a useful alternate management for IAD through use of containment devices.	Lack of contribution to IAD research. Physical and psychological patient impact supported by incontinence literature. Recommends a systematic but not holistic approach to skin care.	Recommended the use of containment devices for IAD management. Study design does not address the wellbeing of adults with IAD.
Bianchi & Segovia-Gomez 2012 ²⁰	Highlight impact of faecal incontinence on patient, QoL and finances.	Narrative on IAD literature and single case study.	Causes of faecal incontinence, at-risk patients, consequences, QoL, financial cost, MASD and strategies for managing faecal incontinence.	Thorough discussion on faecal incontinence related to skin damage and QoL. In-depth discussion about the negative social implications for patients with faecal incontinence.	Lack of contribution to IAD research. Use of incontinence literature to support social impact on patient who may have IAD.	Study design does not address the wellbeing of adults with IAD.
Clarke-O'Neill et al. 2015 ²⁵	Evaluate IAD skin presentations using 4 different incontinence aids.	Sample 80 and power calculated 78 participants with both urine and faecal incontinence, from 10 nursing homes in England. Randomised multiple crossover, observational, exploratory study.	No statistical difference in patient IAD skin between using different pad designs. Varying skin presentation and difficulties in diagnosis observed and discussed. IAD point prevalence of "45.5%".	Multi-site study. Randomisation of order of pad trial. Declared funding and acknowledgements/conflicts of interests from UK Health Technology Assessment program and SCA Hygiene Products AB (who funded all products used in the study and paper publication).	Use of non-validated IAD assessment tool. Broad control criteria for patients to receive normal care throughout study — potentially skewing results. Researchers only assessed skin biweekly. No reliability testing between the HCA and researcher skin assessments, potentially influencing study findings. Lack of patient views on pad efficacy within study. Under-reporting of IAD from health care assistants involved in data collection. 2 of the 5 authors work for SCA hygiene products — not disclosed in conflict of interest, but present in author affiliations.	IAD prevalence rates. Study design does not address the wellbeing of adults with IAD.

Table 1: Literature review (continued)

Reference	Purpose & themes	Sample & design	Result	Strengths	Weaknesses	Implications
Holroyd & Graham 2014 ²⁷	Trial of new generation Cavillon 'durable barrier' cream, with removed perfume.	89 evaluators in product evaluation.	95% of patients would continue to use new product. 76% preferred this to their current product.	Multi-site product evaluation with numerous participants. Some patient involvement in review.	Product evaluation design. Considerable risk of bias: – Majority of subjects evaluating product already used Cavillon current generation barrier cream. – Most participants used the previous generation cream. Unsupported claims as to the social and psychological affects of IAD and QoL. Lack of declaration of conflict of interest. Author employed by barrier cream company.	Little to no value to IAD literature. Study design does not address the wellbeing of adults with IAD.
Long et al. 2012 ²²	Measure IAD and PI prevalence factors on admission. Assess incidence of incontinence and PI at facility.	177 patients evaluated in a longitudinal repeat measures design, in long-term acute care facility.	Patients evaluated weekly for 12 weeks. 39 patients had IAD on admission, prevalence of 28.8%. 60 patients had a PI on admission, prevalence of 35.1%. 7.6% incidence for developing IAD in facility.	Use of validated Braden PI assessment tool within data collection.	Single site study. Use of non-validated, unreliable IAD assessment tool for data collection. No validated pain scale used in pain assessment. Use of yes/no answers for assessment of patient discomfort.	IAD prevalence reflected acute care rates, but showed higher rates for long-term care facilities. Identified factors associated with IAD and PI occurrence. Though limited, the only study to ask participants if they had physical symptoms from IAD. Study design does not address the wellbeing of adults with IAD.
Payne 2016 ²³	Comment on IAD management.	Narrative on IAD literature and case study.	Significance of IAD management and prevention.	Community nursing focus.	Single case study. Lack of contribution to IAD research. Case study demonstrate the ambivalence only of some care staff of IAD. Unsupported claims of IAD impacting on patient wellbeing. Continence literature only to support social withdrawal. Comment literature.	Study design does not address the wellbeing of adults with IAD.

Table 1: Literature review (continued)

Reference	Purpose & themes	Sample & design	Result	Strengths	Weaknesses	Implications
Seers <i>et al.</i> 2012 ²⁹	Implementation of incontinence research findings into practice.	Study protocol, pragmatic RCT, across 24 long-term nursing sites in four countries.	Yet to be determined. Plan to assess secondary measures of IAD and quality of life within the study.	Large RCT. Multinational, multi-site. Measured across 24 months. Qualitative and quantitative approach.	Results not yet published, thus unable to add to IAD literature.	Only study to include QoL measures for people with IAD. Study design does not address the wellbeing of adults with IAD.
Southgate & Bradbury 2016 ²⁴	Utilising a silicone topical barrier for IAD management.	6 case study product review from Medi-Derma S product trial.	Enhanced skin integrity of participants.	Declared conflict of interest. Reported patient outcomes from 6 case studies.	Bias risk as author employed by barrier cream company. Mentions wellbeing via continence literature and not wound literature. Unverified claim of decreasing injury to tissue from pressure through topical barrier.	Study design does not address the wellbeing of adults with IAD.

CONCLUSION

Despite evidence to support the significance of psychological factors on wound healing, the IAD literature remains focused on the wound and skin injury itself and inconsistently acknowledges vital gaps on the topic such as patient participation and patient-formulated outcome measures. The authors noted a lack of implementation of psychosocial assessments within study design, further demonstrating a poor holistic focus. Additionally, there was no direct evidence of the impact of psychosocial factors on QoL, let alone on IAD patient wellbeing. The evidential lack of insight into the negative as well as positive patient experience in IAD limits clinician understanding and guidance in delivering holistic patient-centred care to this vulnerable cohort. Future exploration into the IAD patient experience, emotional response and positive coping strategies to these challenges, in particular, are warranted, to enhance clinician understanding and patient outcomes.

Recommendations include greater patient involvement and holistic focus in IAD enquiry through the assessment of psychosocial factors in future research design. The discussion of psychosocial factors needs to be broadened to incorporate both incontinence and wound specialties for IAD applications. Finally, future exploration of the wellbeing of adults with incontinence-associated dermatitis is required.

CONFLICT OF INTEREST

No author conflict of interest.

FUNDING

The authors received no funding for this study.

REFERENCES

- Black JM, Gray M, Bliss DZ *et al.* MASD Part 2: Incontinence-associated dermatitis and intertriginous dermatitis: a consensus. *J Wound, Ostomy Continence Nurs* 2011;38(4):359–370.
- Beeckman D, Van Damme N, Van den Bussche K, De Meyer D. Incontinence-associated dermatitis (IAD): an update. *Dermatol Nurs* 2015;14(4):32–36.
- Beeckman D, Van Lancker A, Van Hecke A, Verhaeghe S. A systematic review and meta-analysis of incontinence-associated dermatitis, incontinence, and moisture as risk factors for pressure ulcer development. *Res Nurs Health* 2014;37:204–218. DOI: 10.1002/nur.21593.
- Woo KY, Beeckman D, Chakravarthy D. Management of moisture-associated skin damage: A scoping review. *Adv Skin Wound Care* 2017;30(11):494–491.
- Conley P, McKinsey D, Ross O, Ramsey A, Feeback J. Does skin care frequency affect the severity of incontinence-associated dermatitis in critically ill patients? *Nursing* 2014;44(12):27–32. DOI:10.1097/01.NURSE.0000456382.63520.24.
- Beeckman D, Campbell J, Campbell K *et al.* Proceedings of the Global IAD expert panel. Incontinence-associated dermatitis: moving prevention forward. *Wounds Int* 2015. Available from: <https://www.woundsinternational.com/resources/details/incontinence-associated-dermatitis-moving-prevention-forward>

7. Beeckman D, Van den Bussche K, Alves P *et al.* Towards an international language for incontinence-associated dermatitis (IAD): design and evaluation of psychometric properties of the Ghent Global IAD Categorisation Tool (GLOBIAD) in 30 countries. *Br J Dermatol* 2018. DOI:10.1111/bjd.16327.
8. Gray M, Giuliano KK. Incontinence-associated dermatitis, characteristics and relationship to pressure injury. *J Wound Ostomy Continence Nurs* 2018;45(1):63–67. DOI: 10.1097/WON.0000000000000390.
9. Gray M, Black JM, Baharestani MM *et al.* Moisture-associated skin damage overview and pathophysiology. *J Wound Ostomy Continence Nurs* 2011;38(3):233–241. DOI: 10.1097/WON.0b013e318215f798.
10. Beeckman D, Van Damme N, Schoonhoven L *et al.* Interventions for preventing and treating incontinence-associated dermatitis in adults. *Cochrane Database Syst Rev* 2016;11:CD011627. DOI: 10.1002/14651858.CD011627.pub2.
11. World Health Organization. Measuring Quality of Life; 1997. Available from: http://www.who.int/mental_health/media/68.pdf
12. Gray D, Boyd J, Carville K *et al.* Effective wound management and wellbeing for clinicians, organisations and industry. *Wounds Int* 2012;2(2):21–25. Available from: <https://www.woundsinternational.com/resources/details/effective-wound-management-and-wellbeing-for-clinicians-organisations-and-industry>
13. Upton D, Upton P. *Psychology of Wounds and Wound Care in Clinical Practice*. Switzerland: Springer International Publishing; 2015.
14. International Consensus Document. Optimising wellbeing in people living with a wound. An expert working group review. *Wounds Int* 2012. Available from: <https://www.woundsinternational.com/resources/details/international-consensus-optimising-wellbeing-in-people-living-with-a-wound>
15. Broadbent E, Koschwanetz HE. The psychology of wound healing. *Curr Opin Psychiatry* 2012;25:135–140. DOI:10.1097/YCO.0b013e32834e1424.
16. Walburn J, Vedhara K, Hankins M, Rixon L, Weinman J. Psychological stress and wound healing in humans; A systematic review and meta-analysis. *J Psychosom Res* 2009;67:253–271. DOI:10.1016/j.jpsychores.2009.04.002.
17. Wounds Australia. *Standards for Wound Prevention and Management*. 3rd edn. Osborne Park, WA: Cambridge Media; 2016.
18. Beldon P. Incontinence-associated dermatitis: protecting the older person. *Br J Nurs* 2012;21(7):402–407.
19. Bianchi J. Causes and strategies for moisture lesions. *Nurs Times* 2012;108(5):20–22.
20. Bianchi J, Segovia-Gomez T. The dangers of faecal incontinence in the at risk patient. *Wounds Int* 2012. Available from: <https://www.woundsinternational.com/resources/details/expert-commentary-the-dangers-of-faecal-incontinence-in-the-at-risk-patient>
21. Bardsley A. Prevention and management of incontinence-associated dermatitis. *Nurs Stand* 2013;27(44):41–46.
22. Long MA, Reed LU, Dunning K, Ying J. Incontinence-associated dermatitis in a long-term acute care facility. *J Wound Ostomy Continence Nurs* 2012;39(3):318–327. DOI: 10.1097/WON.0b013e3182486fd7.
23. Payne D. Not just another rash: management of incontinence-associated dermatitis. *Br J Community Nurs* 2016;21(9):434–440. DOI:10.12968/bjcn.2016.21.9.434.
24. Southgate G, Bradbury S. Management of Incontinence-associated dermatitis with a skin barrier protectant. *Br J Nurs* 2016;25(9):20–29.
25. Clarke-O'Neill S, Farbot A, Lagerstedt ML, Cottenden A, Fader M. An exploratory study of skin problems experienced by uk nursing home residents using different pad designs. *J Wound Ostomy Continence Nurs* 2015;42(6):621–631. DOI: 10.1097/WON.0000000000000177.
26. Edwards H, Courtney M, Finlayson K, Shuter P, Lindsay E. A randomised controlled trial of a community nursing intervention: improved quality of life and healing for clients with chronic leg ulcers. *J Clin Nurs* 2009;18:1541–1549. DOI: 10.1111/j.1365-2702.2008.02648.x.
27. Holroyd S, Grahem K. Prevention and management of incontinence-associated dermatitis using a barrier cream. *Br J Community Nurs* 2014;19(12):32–38. DOI: 10.12968/bjcn.2014.19.Sup12.S32.
28. Vedhara K, Miles NV, Wetherell MA *et al.* Coping style and depression influence the healing of diabetic foot ulcers: observational and mechanistic evidence. *Diabetologia* 2010;53:1590–1598. DOI: 10.1007/s00125-010-1743-7.
29. Seers K, Cox K, Crichton NJ *et al.* FIRE (Facilitating Implementation of Research Evidence): a study protocol. *Implement Sci* 2012;7(25):1–11.