

Integration of Artificial Intelligence in Specialist Nursing Education: Experiences of an Innovative Pedagogical Strategy in Tissue Viability

Citation: Rodrigues AM, Cardoso AA, Coelho IMdSB, Carvalho LS, Silva MILPd, Santos MMR, Pena PIM, Figueiredo RMV, Silva MSMd. "Integration of Artificial Intelligence in Specialist Nursing Education: Experiences of an Innovative Pedagogical Strategy in Tissue Viability" (2025) *International Journal of Wound Research* 1(2): 80-91. DOI: <https://doi.org/10.64115/ijwr-2025-137>

Received: September 30, 2025

Revised: December 3, 2025

Just accepted online: December 31, 2025

Published: December 3, 2025

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Data Availability Statement: All relevant data are within the paper and its Supporting Information files. This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination, and proofreading process, which may lead to differences between this

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Abstract

Introduction. Artificial intelligence (AI) has emerged as a transformative tool in health education, with the potential to enhance scientific literacy, critical thinking, and evidence-informed decision-making. In specialist nursing education, particularly within tissue viability, innovative pedagogical strategies are required to strengthen research competencies. This study aimed to analyse and to compare the integration of AI as an educational support tool through two applied case studies.

Methods. Within a specialist/master's nursing curriculum, students formulated structured research questions, performed systematic database searches, and interacted with AI tools using predefined inclusion and exclusion criteria. Two case studies were developed: (i) caregiver burden in diabetic foot ulcers and (ii) coping strategies in ostomy patients. Traditional narrative and integrative literature reviews (PubMed, Scopus, Web of Science, EBSCO, B-On) were compared with AI-assisted searches (ChatGPT-4.0, SciSpace, Consensus). Data were screened, extracted, and analysed through thematic analysis.

Results. In the first case study, both traditional and AI-assisted searches identified the same three eligible studies addressing

version and the Version of Record.

Competing Interests: The author(s) declare(s) no conflict of interest.

caregiver burden. Common factors included female gender, low income, low educational level, high caregiving workload, limited social support, and poor communication with health professionals. AI retrieval was faster but required human critical appraisal. In the second case study, three studies on coping strategies in ostomy patients were identified, highlighting active information-seeking, professional guidance, peer support, cognitive reframing, and religious or social support. AI outputs overlapped with these findings and emphasised emotional and cognitive dimensions such as acceptance and self-efficacy.

Discussion and conclusions. The integration of AI improved the efficiency of evidence retrieval and supported enriched thematic analysis. Although it did not replace methodological rigour or human critical reasoning, AI functioned as a valuable complementary pedagogical resource, enhancing student autonomy, scientific literacy, and reflective practice.

Keyword: Nursing Education, Artificial Intelligence, Wound Care, Caregivers, Ostomy, Coping Strategies

Introduction

Higher education is undergoing constant evolution and is currently facing a profound transformation, driven by the demands of an increasingly digital and interconnected society, which requires the incorporation of emerging technologies aimed at enhancing teaching and learning processes. Teaching methodologies have evolved to foster active, reflective, and student-centred learning, emphasising the learner's active role in the acquisition of knowledge. Within the context of specialist nursing education, it is imperative to adopt innovative pedagogical strategies that promote not only technical competences but also complex cognitive skills such as critical thinking, evidence-based decision-making, autonomy in knowledge construction, and scientific literacy.

Several authors have highlighted the potential of digital technologies to promote more dynamic, reflective, and problem-oriented teaching, supporting the development of transversal competences such as critical thinking, autonomy, and research capacity.^{1,2} These methodologies are aligned with the contemporary need to train healthcare professionals capable of responding to complex and constantly changing scenarios.

Artificial intelligence (AI), in particular, has gained prominence as an emerging and promising

tool in the transformation of education, offering opportunities for personalised learning, support for critical thinking, and the development of students' reflective skills. Recent studies suggest that integrating AI tools into teaching and learning processes, in conjunction with active, student-centred methodologies-especially in higher nursing education can significantly enhance the efficiency and effectiveness of learning by promoting more interactive and personalised educational experiences.^{3,4} In nursing specifically, the adoption of AI-based technologies has shown potential to enrich student training, particularly in the acquisition of clinical competences and evidence-based decision-making.^{5,6}

AI may be particularly useful in conducting literature reviews, a central academic practice in the development of scientific literacy. Literature review, as an essential competence in the academic and professional trajectory of nursing students, requires the ability to locate, select, interpret, and integrate relevant scientific evidence-skills that are vital to evidence-based practice. Traditionally conducted through scientific search engines, this activity has recently been enriched by the emergence of generative AI tools, which can assist in formulating research questions, systematising information, and clarifying complex concepts.^{7,8} When used critically and ethically, these tools hold considerable potential

to foster deep and meaningful learning. The simultaneous integration of scientific databases and AI represents an opportunity to stimulate critical thinking, a core competence in advanced nursing education, particularly in contexts where evidence-based decision-making is required.⁹

Furthermore, this strategy contributes to developing an investigative and collaborative mindset among students, while also raising ethical discussions regarding the reliability, privacy, transparency, integrity, and limitations of AI tools in academic context thereby requiring a careful, critical, reflective, and guided pedagogical approach by educators.^{7,9}

As part of a master's/specialist nursing curriculum, an innovative pedagogical strategy was developed to combine the scientific rigour of literature review with the emerging potential of generative AI. This approach involved challenging students to formulate a relevant nursing research question, conduct a systematic search in recognised scientific databases, and simultaneously interact with an AI tool to explore, validate, and structure the knowledge obtained. Students were asked to query the AI based on their research question and triangulate its responses with the scientific articles identified.

This methodology not only strengthens the ability to identify and interpret scientific literature but also, by critically comparing AI-generated responses with evidence from reliable sources, empowers students to reflect on the validity and trustworthiness of information, fostering a more critical and ethical stance towards new technologies.¹⁰ The strategy was designed to promote scientific information literacy, encourage autonomy in constructing scientific knowledge, develop critical and reflective thinking skills in the analysis of evidence, and explore the potential of AI as a complementary tool for academic reasoning.¹¹

Thus, the articulation between active methodologies, scientific literacy, and emerging technologies such as AI constitutes a valuable pedagogical opportunity in specialist nursing education. This integration can support the development of fundamental competences for contemporary professional practice, namely critical analysis, reflective thinking, and evidence-informed decision-making, placing the student at the centre of the knowledge construction process.

This article aims to describe the integration

of artificial intelligence as an innovative pedagogical strategy in specialist nursing education, through two applied case studies in tissue viability: one addressing the burden of informal caregivers of people with diabetic foot ulcers, and another focusing on the coping strategies employed by individuals with an ostomy. The aim was to compare traditional literature review methods (narrative and integrative reviews) with AI-assisted approaches, exploring their pedagogical potential to foster scientific literacy, critical thinking and evidence-informed decision-making among nursing students, in an exploratory, descriptive educational design rather than a hypothesis-testing study.

The pedagogical activities described in this article were implemented within a master's/specialist nursing programme at a higher education institution in Portugal. Students were enrolled in a curricular unit focused on research methods and evidence-based practice in wound care. A total of 20 students participated and all participants were registered nurses with at least 3 years of clinical practice chronic care. These activities were part of the regular coursework and were supervised by the teaching staff responsible for the curricular unit.

In both case studies, generative AI tools were used as complementary resources to traditional database searches. For each topic, students first formulated a clear research question and completed the database search and preliminary selection of studies. Only afterwards were AI tools queried, using structured prompts that included: (i) the research question, (ii) the target population and context, (iii) the desired time frame, and (iv) a request for recent, peer-reviewed scientific references.

Students were instructed to:

- compare AI-suggested references with those retrieved from databases (title, authors, year and journal);
- check whether AI generated non-existent, inaccurate or irrelevant references (potential “hallucinations”);
- identify overlapping themes between AI-generated summaries and the findings of the selected articles;

AI outputs were not accepted at face value: they were treated as hypotheses to be verified against primary sources.

Methodology

This chapter describes the methodology adopted for this study, outlining a comparative approach between two strategies for retrieving scientific information: a narrative literature review and the use of an AI-based tool. To this end, the same research question was formulated: “What is the burden on the informal caregiver of a person with a diabetic foot ulcer?”, using both methods of inquiry.

The research question was guided by the PCC strategy: Population – informal caregivers of people with diabetic foot ulcers; Context – home setting; Concept – caregiver burden.

Inclusion criteria comprised articles involving informal caregivers who did not receive financial remuneration, describing any form of burden in caring for a person with a diabetic foot ulcer in the home/primary care/community context. Publications had to be from the past five years (January 2020 – March 2025), open access, with full text available in Portuguese and/or English.

Exclusion criteria included all studies involving formal, paid caregivers of people with diabetic foot ulcers.

The search was conducted in March 2025 in the PubMed, Scopus and Web of Science databases using a predefined search strategy based on the PCC framework. The following Boolean search string was applied, with appropriate adaptation to each database syntax: (“informal caregiver” OR “family caregiver”) AND “diabetic foot” AND (burden OR “caregiver burden”) AND (“primary care” OR “home care” OR community). A total of 17 articles were retrieved.

The time frame (January 2020–March 2025) was selected to capture recent evidence reflecting contemporary patterns of caregiving and current models of diabetic foot management. Given the exploratory and pedagogical nature of this work, the two reviews were conducted as narrative/integrative reviews rather than full systematic reviews.

The selection process followed the main steps of PRISMA 2020 statement reporting (identification, screening, eligibility and inclusion) and the diagram (Figure 1) represents an educational adaptation. In this educational context, these

steps were documented narratively and used as a teaching scaffold to guide students through each phase of the review.¹²

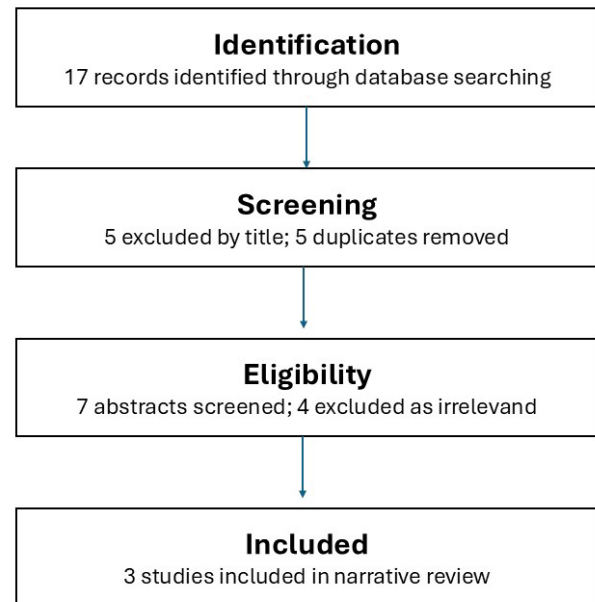


Figure 1. PRISMA-Style flowchart.

Five articles were excluded because their titles did not contain at least two of the predefined keywords/criteria. Following this filter, five duplicates were removed. Seven articles remained, and their abstracts were screened for relevance to the research question, leading to the exclusion of those deemed irrelevant.

Three articles were therefore selected for full reading and further analysis; these are described in Figure 1.

No formal, standardised critical appraisal tool (such as CASP or JBI checklists) was applied in this classroom activity. However, students were guided to assess the relevance, methodological clarity and limitations of each included study (study design, sample, setting and main biases) and to explicitly discuss these aspects in their synthesis. This lack of formal quality appraisal is acknowledged as a limitation of the present educational study.

Subsequently, a prompt was entered into the AI tools ChatGPT-4.0 and SciSpace, using the same research question and previously defined inclusion and exclusion criteria. The aim was to identify whether the results would differ; however, the articles provided by the AI coincided with those retrieved from the scientific databases.

Results

In the narrative literature review, of the 17 articles initially retrieved, 3 met the predefined inclusion and exclusion criteria. Their main characteristics and results are summarised in Table 2.

The study by Costa et al. (2020) aimed to assess the burden and quality of life (QoL) of caregivers of diabetic patients who had undergone amputation one month earlier, using six assessment scales on a sample of 110 caregivers.¹³ Regarding sociodemographic and clinical data, collected through the Sociodemographic and Clinical Questionnaire, it was observed that female caregivers, unemployed or retired, living with chronic conditions, and lacking family and social support reported lower QoL when compared with male caregivers who were married, employed, physically active, and able to take holidays, who showed higher QoL indices.

The Burden Assessment Scale revealed that increased caregiver burden (around 36.5%) was associated with fragile family dynamics, high stress levels, and lack of social support. Assessment of depression and anxiety levels through the Depression Anxiety Stress Scales identified symptoms such as devaluation, inertia, lack of interest, anxiety, difficulty relaxing, restlessness, and irritability among caregivers with dysfunctional family structures and poor social support.

Findings from the Satisfaction with Social Support Scale showed that caregivers who were more dissatisfied with perceived social support experienced higher levels of burden. Similarly, data from the Family Assessment Device indicated that caregivers within functional and supportive family structures had higher QoL and less burden.

Assessment of physical and mental burden using the Short Form Health Survey demonstrated that caregivers with health problems showed greater burden both physically and mentally, negatively impacting their QoL. In summary, the sample was predominantly composed of female caregivers, unemployed, with low educational attainment, lacking regular physical activity and social support. They reported lower QoL and higher incidence of symptoms of depression and anxiety.

The study by Hançerlioğlu et al. found that the burden level among caregivers was moderate

and identified the following influencing factors: being female, aged between 40 and 63 years, being a first-degree relative of the patient, taking on the caregiving role out of obligation, low educational level, low income, the number of weekly hours dedicated to care, and disease progression.¹⁴ The authors recommend that healthcare professionals consider these factors during interviews with informal caregivers to better direct interventions aimed at reducing burden. They also emphasised the importance of further research to identify other influencing elements and develop more effective strategies to mitigate caregiver burden.

The study by Doss et al. mapped and analysed evidence on the impact of family caregiving for individuals with lower limb wounds resulting from diabetes mellitus (DM), focusing on caregiver burden and QoL.¹⁵ Qualitative results showed that informal caregivers of people with DM-related lower limb wounds face significant emotional and socioeconomic challenges. Five thematic axes related to caregiver experience were identified: disruption of routine and activities of daily living (ADLs); anxiety and insecurity; difficulties in communication with healthcare professionals; financial impact; and coping strategies.

Regarding disruption of daily routine, caregivers reported difficulties balancing care demands with personal life, experiencing sleep deprivation, deterioration of their own health, and limitations in their social and professional lives. The caregiving role was often perceived as an unavoidable imposition, with no viable formal support alternatives. Anxiety and insecurity were linked to the absence of clear, structured information on required care, leading to high levels of uncertainty. Caregivers expressed fear of not performing wound care procedures correctly, worrying about prognosis, disease progression, and risk of amputation.

Lack of communication with healthcare professionals was identified as a central source of emotional burden, worsening difficulties in obtaining appropriate clarification and continuous support. Inconsistent guidance and absence of effective support resulted in frustration and feelings of isolation.

On the socioeconomic level, a significant financial impact was noted. Caregivers who had to reduce their working hours or quit their jobs to provide care faced economic hardship,

heightening the sense of burden. Furthermore, uncertainty regarding the patient's disease progression and treatment costs contributed to constant concern.

Finally, some caregivers developed coping strategies to manage care demands, such as structured routine organisation, informal support from family and friends, and increased emotional resilience. These strategies partially mitigated the negative impacts of caregiving and favoured better adaptation to the role.

Across the three studies, common factors contributing to caregiver burden were identified: caregivers are mostly women, direct family

members, with low income and low educational attainment, assuming the role involuntarily and dedicating many hours per week to care. The burden manifests through stress, anxiety, and depression, exacerbated by lack of social support, poor communication with healthcare professionals, and insecurity about correct wound treatment. Additionally, balancing caregiving with professional and social life is challenging, leading to isolation and significant financial impact. Although some caregivers develop adaptive coping strategies, the studies highlight the need for targeted interventions that promote psychological support, empowerment for caregiving, and work–life balance.

Table 1. General analysis of the articles.

Author	Title	Objectives	Study type	Conclusions
Costa, S et al. (2020)	Burden and quality of life in caregivers of patients with amputated diabetic foot	To assess caregiver burden and QoL among informal caregivers of diabetic patients who had undergone amputation or presented with diabetic foot ulcers	Cross-sectional study	Higher burden and lower QoL were observed among older female caregivers, unemployed, and lacking support in caregiving. Highlights the need for greater psychological and social support, stress-reduction interventions, and encouragement of physical activity. The formal recognition of the “informal caregiver” status was also considered a positive aspect.
Haçerlioğlu, S et al. (2023)	Burden of Diabetic Foot – caregivers and affecting factors	To determine the caregiver burden of informal caregivers of patients with diabetic foot and the factors influencing it	Cross-sectional study	Caregiver burden was higher among older caregivers, with low income and low educational attainment, caring for patients with Wagner stage 4–5 diabetic foot ulcers, and dedicating more weekly hours to care. Burden was lower among those caring for patients without a history of amputation. Influencing factors: age, family structure, educational level, income level, and hours of care provided per week.
Doss, E et al. (2023)	Informal Family Caregiving of Patients with Diabetic Extremity Wounds: An Integrative Review	To synthesise the literature on the experiences of informal caregivers of patients with diabetic lower limb wounds	Integrative literature review	Caregiver burden decreased over time but remained higher in cases of major amputation. Anxiety, insecurity, lack of support and communication with healthcare professionals, unemployment, lack of access to holidays, routine disruption, stress, and compromised personal health were linked to higher burden levels.

Discussion

The caregiving process is dynamic and complex, requiring continuous cognitive, emotional, and physical effort, often underestimated and insufficiently recognised. When prolonged, it can generate significant negative impacts, with consequences not only for the caregiver but also for the family.¹⁶ The number of diabetes cases has risen sharply in recent decades, a trend expected to continue. Alongside this increase, the incidence of diabetic foot ulcers and the consequent need

for continuous care has also intensified. In this context, the role of informal caregivers becomes essential in assisting these individuals.¹⁴

Caring for a person with a diabetic foot ulcer imposes a significant burden on informal caregivers, linked to personal characteristics (eg, age, education, income), lack of adequate family and social support, and the severity of the patient's condition—particularly wound extension, pain, and level of amputation.¹³ This situation results in high levels of stress, anxiety, and negative impact on QoL, disrupting daily routines and evidencing the need to improve

social support, communication with healthcare professionals, and the promotion of self-care practices.¹⁵

Analysis of the selected studies shows that informal caregivers perform a wide range of tasks, including meeting the physical and emotional needs of the care recipient. The findings also indicate that caregivers experiencing higher burden and reduced QoL are mainly direct family members, predominantly women, with low literacy, not actively employed, and with weak socioeconomic support.^{13,17} Using the AI tool Consensus, the response to our research question highlighted the same three articles previously identified in the narrative literature review. This reinforces the understanding that caregiving is associated with physical, psychological, emotional, social, and financial challenges for the caregiver, impacting care quality and, ultimately, the health, well-being, and QoL of all those involved: caregiver, patient, and family.¹⁸ Nurses hold the responsibility to support informal caregivers both during the caregiving period and in promoting healthy lifestyle habits, recognising the importance of caring for caregivers' well-being as well.¹⁹

The importance of the Statute of the Informal Caregiver, approved under Law No. 100/2019 of 6 September, also became evident. This statute recognises the fundamental role of informal caregivers in ensuring the well-being of care recipients, while safeguarding their right to receive support and training for skill and competency development in providing adequate healthcare. Its aim is to relieve burden and enhance QoL.²⁰ Furthermore, it is essential that healthcare services provide psychological support whenever necessary, including after the death of the care recipient, and ensure periods of rest that promote well-being, emotional balance, and work-caregiving reconciliation. The statute thus represents a relevant social milestone, highlighting the growing importance of informal caregivers (19). Reflecting more deeply on the implications of the results for nursing practice, we conclude that the findings converge in both approaches (traditional and AI-assisted). However, the AI-based search was faster, though it still required the nurse's critical judgement.

Second experience: Coping with loss and emotions—coping strategies in ostomy patients

Methodology

This study aimed to identify coping strategies used by individuals with an ostomy during the process of adapting to their condition. The research question guiding the study was formulated as follows: "What coping strategies facilitate the adaptive process in individuals with an ostomy?"

To address this question, an integrative literature review was conducted, based on rigorous selection criteria. The descriptors were extracted from the Medical Subject Headings (MeSH) terminology: Ostomy, Coping Skills, Coping Behaviour, and Psychological Adaptation. These terms were combined using the Boolean expression: "Ostomy AND (Coping Skills OR Coping Behaviour OR Psychological Adaptation)".

The bibliographic search was performed in three databases recognised for their relevance in health sciences: EBSCO, B-On, and PubMed. Inclusion criteria were: (i) articles published in the last five years (2019–2024), (ii) in Portuguese or English, (iii) peer-reviewed, (iv) full-text available, and (v) exclusively addressing adult individuals (aged over 18) with an ostomy. Studies conducted in inpatient hospital settings were excluded to ensure the focus on experiences in community or outpatient contexts.

The time window (2019–2024) was chosen to focus on contemporary ostomy care practices and coping models, ensuring that the evidence reflected current psychosocial and clinical approaches. The review was designed as an integrative review, suitable for synthesising heterogeneous qualitative and quantitative evidence within an educational setting.

As with the first experience, no formal critical appraisal tool was systematically applied; instead, students were encouraged to identify methodological strengths and weaknesses (study design, sampling, transferability of results) during guided group discussions. This decision reflects the pedagogical focus of the activity and is considered a limitation of the review's methodological rigour.

A total of 63 articles were initially identified. After screening titles and abstracts according

to the criteria, 14 were selected for full reading. Of these, only 3 were included in the final analysis, as they provided relevant data directly related to the research question. The selection process followed the main steps of PRISMA 2020 statement reporting (identification, screening, eligibility and inclusion) and the diagram (figure 2) represents an educational adaptation.¹²

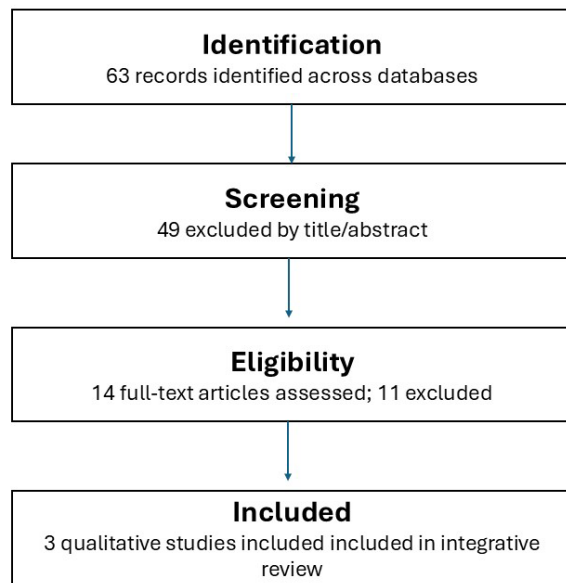


Figure 2. PRISMA-Style flowchart.

The analysis of selected articles was based on critical and interpretive reading, systematising the coping strategies described. Subsequently, the AI platform ChatGPT-4.0 was used as a complementary tool for thematic exploration, enabling comparison with findings from the narrative literature review. A structured prompt was formulated with the research question and inclusion/exclusion criteria.

This methodology sought to ensure rigour and validity in identifying the most effective coping strategies, contributing to a holistic understanding of the adaptation process of ostomised individuals, with practical implications for specialised nursing practice.

Results

The analysis of data obtained from both the literature review and the AI platform (ChatGPT-4.0) identified several coping strategies adopted by ostomised individuals, with direct impact on adaptation to their new life condition.

Both approaches revealed strong convergence in identifying adaptive and maladaptive strategies, reinforcing the consistency of the results.

From the literature review, three qualitative studies were included:

Chen et al. (urostomy patients) highlighted the importance of proactive information-seeking and professional support as key determinants of effective stoma management. Participants adopting a proactive attitude towards knowledge and self-care demonstrated better adaptation and reduced emotional distress. Cognitive strategies, such as reframing negative thoughts, were also emphasised as important in minimising the stigma associated with an ostomy.²¹

Son and Kang (focus groups with ostomised patients) identified a structured adaptive trajectory in three stages: struggling and suffering, learning to live with the ostomy, and living with the ostomy. Family support, religious faith, and peer interaction were key elements fostering confidence, resilience, and self-esteem. Skills developed in ostomy management - such as accident preparedness, adaptation of sexual activity, and dietary reorganisation - were associated with greater sense of control and security.²²

Choudhary and Kaur (meta-synthesis of 13 studies) reinforced the value of peer-to-peer collaborative learning. Sharing experiences not only helped participants solve practical daily challenges but also provided emotional comfort and encouraged effective coping. Problem-solving, creativity in overcoming limitations, and maintaining continuity of daily activities were identified as protective factors for mental health and quality of life.²³

Complementing these findings, the AI platform ChatGPT-4.0 - after structured reformulation of the research question - presented consistent results aligned with existing evidence. It highlighted studies such as Ang et al., Bondarchuk et al., and Hughes and Romo, which emphasised active acceptance of the condition, cognitive restructuring, and promotion of self-efficacy as key strategies for reducing depressive symptoms and enhancing adaptation.²⁴⁻²⁶ The AI also underscored the role of social and emotional support, including healthcare professionals' interventions through tailored educational programmes, directly improving perceived control and self-esteem in ostomised individuals.

While the literature had a stronger emphasis

on practical dimensions of coping (self-care, daily management), the AI added insights on emotional and cognitive aspects, such as belief re-evaluation and integrating the experience into life projects. This complementarity enriched understanding, showing that adaptation to an ostomy depends on interconnected physical, psychological, social, and spiritual factors.

Discussion

The results of this study demonstrate that adaptation to an ostomy is multidimensional, requiring not only physical adjustments but also significant emotional, cognitive, and social transformations. The coping strategies identified in both the literature and AI analysis were essential to mitigate the impact of this chronic condition and to promote quality of life among ostomised individuals.

Scientific evidence indicated that active knowledge-seeking, professional support, self-care skill development, and peer experience-sharing are widely valued adaptive strategies.²⁷ These were reinforced by AI analysis, which also highlighted active acceptance of the condition, cognitive reappraisal, and fostering a positive self-image as central elements of adjustment. Effective coping thus results from a balance between practical actions and cognitive strategies, empowering individuals to face challenges imposed by ostomy.

Social support—from family, support groups, or religious communities—emerged as an essential determinant of emotional stability and ostomy acceptance. This support not only offers psychological relief but also acts as a catalyst for developing positive strategies, reducing risks of isolation and prolonged emotional distress. Literature confirmed that adaptation is more successful when supported by formal and informal networks.^{21,23}

Adaptation to an ostomy is a dynamic, complex, and deeply individual process, requiring effective coping strategies and integration of physical, emotional, social, and cognitive resources.^{28,29} The findings of this study reinforce the importance of self-care competence development, social and emotional support, and cognitive reframing as fundamental pillars of successful adaptation.

The use of AI as a complementary analytical tool proved valuable for content systematisation and for strengthening validity of findings.

Although it initially generated generic responses, once the research question was reformulated, AI provided an analysis consistent with traditional data, including relevant citations from recent literature.^{30,31} The convergence between both methods underscores AI's potential in scientific research, especially as a resource for supporting evidence synthesis. Nevertheless, as noted by various authors, AI cannot replace human critical thinking or the methodological rigour required in scientific practice.³⁰ Its value lies in expanding and complementing analysis, provided it is carefully guided and supervised.

Additionally, this study highlights the importance of healthcare professionals, particularly nurses, in developing personalised interventions that support ostomised individuals in adopting effective coping strategies. Promoting self-care skills, active listening, emotional support, and facilitating access to support groups should be integral to each patient's therapeutic plan. Equally important is incorporating person-centred approaches that respect individual adaptation rhythms and the diversity of sociocultural contexts.

Educational and clinical implications

Integrating artificial intelligence into specialist nursing education may offer a complementary tool to support students in critically appraising evidence and reflecting on clinical decision-making, although this was not formally measured in the present study.

AI tools can accelerate evidence retrieval but require ethical guidance and critical appraisal to evaluate its limitations, ensuring safe and responsible adoption.

Across both experiences, students also became aware of the risks of AI-generated “hallucinations” and implicit biases, as some initial AI outputs were overly generic or omitted relevant contextual details. This was explicitly addressed in class discussions, reinforcing that AI must be used as a support tool whose outputs always require verification against primary scientific sources.

Combining conventional database searches with AI-assisted approaches appears to be a potentially valuable pedagogical strategy, which may help prepare nurses to navigate complex clinical scenarios with technological competence and evidence-informed reasoning; this

hypothesis should be tested in future research using well-defined educational outcomes.

Conclusion

Through the analysis of this pedagogical practice within the scope of tissue viability, this study seeks to contribute to the contemporary debate on the role of artificial intelligence (AI) in health education, while offering concrete insights for curricular innovation aimed at preparing critical, reflective professionals equipped to address future challenges.

In the first case study, the use of AI as an auxiliary tool for literature search proved to be a valuable ally by facilitating quicker access to information with fewer steps and filters. However, the articles retrieved by the AI overlapped with those obtained through traditional scientific databases. In the second case study, although the AI initially produced generic responses, once the research question was reformulated, it presented an analysis consistent with findings derived from conventional methods, including relevant citations from recent literature. The convergence between results obtained through both approaches highlights the potential of AI in scientific research, particularly as a support resource for evidence synthesis.

This experience suggests that AI may act as a mediator of knowledge and a potentially useful resource to support nurses' autonomy and critical capacity in constructing scientific knowledge, when embedded within structured, supervised pedagogical activities. While AI cannot replace the researcher's critical and analytical reasoning, it emerges as a valuable complementary tool, capable of strengthening analytical robustness and providing a more integrated perspective of the phenomenon under study.

Furthermore, Within the limits of this descriptive educational experience, AI appeared to be a promising supplementary tool, particularly for identifying patterns and synthesising relevant evidence, provided it is applied with methodological rigour, appropriate guidance and ethical responsibility. However, no formal learning outcomes were measured, and future studies are needed to evaluate the impact of AI-assisted approaches on educational results quantitatively and qualitatively.

In the current context of rapidly evolving technologies, nurses are called upon to seek the

best available evidence by employing research tools that facilitate the mobilisation of knowledge in the domain of new technologies. This includes the management, intervention, and evaluation of complex therapeutic processes, optimising both time and effort, while ensuring that professional practice remains anchored in scientific evidence.

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