The Determinants of Artificial Intelligence Integration in Nursing: A Systematic Review

Mariam Ibrahim O Fallata[1], Hafizah Che Hassan[2*], Tagwa Yousif Omer[3]

[1]Faculty of nursing, Lincoln University College, Malaysia, omwareef@hotmail.com

[2]Faculty of nursing, Lincoln University College, Malaysia, hafizahche@lincoln.edu.my

[3]Faculty of Nursing, Alriyada College for Health Sciences, Saudi Arabia, tyomer@hotmail.com

[*]Corresponding Author's E-mail: hafizahche@lincoln.edu.my

Abstract: *Artificial intelligence is increasingly entering nursing education and clinical work, yet evidence on the factors shaping its integration remains fragmented across populations, settings, and outcome measures. This review investigates and organises the determinants associated with nursing readiness, intention, acceptance, adoption, and use of artificial intelligence. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses informed review synthesised 53 English-language primary empirical studies involving nurses, nursing students, nursing faculty, and nurse leaders published from January 2015 through December 2025. Database searching, citation tracking, targeted updating, critical appraisal, binary determinant mapping, and thematic narrative synthesis were applied. Fourteen determinants were identified, with attitude and demographics examined in 39 studies, artificial intelligence literacy in 37, training in 35, and usefulness in 28. Artificial intelligence literacy, attitude, usefulness, training, and enabling organisational conditions showed the most consistent support, whereas anxiety, ethical trust, and role concerns were context dependent. Social influence and innovativeness were examined in only three and five studies, respectively. The review contributes a staged sociotechnical taxonomy that separates research frequency from evidential influence. Future responsible implementation should align competency development, usability, ethical governance, infrastructure, and organisational support while evaluating sustained real-world use.*

Keywords: artificial intelligence; nursing; technology acceptance; AI literacy; readiness; adoption; systematic review.

1. Introduction

Artificial intelligence is increasingly embedded in clinical decision support, monitoring, documentation, education, predictive analytics, and administrative workflows, placing nurses at the interface between algorithmic systems and patient care. Nursing is therefore not a peripheral stakeholder in AI implementation: nurses must interpret outputs, preserve clinical judgement, communicate with patients, identify unsafe recommendations, and integrate technologies into time-sensitive work. Recent evidence shows generally positive but guarded nursing attitudes, with readiness constrained by uneven AI knowledge, limited practical exposure, infrastructure, and ethical concerns (El Arab et al., 2025). Understanding determinants of integration matters because technically capable systems can remain underused, misused, or resisted when users do not perceive value, lack confidence, distrust data practices, or receive inadequate organisational preparation. Fragmented knowledge also creates implementation risk: institutions may overinvest in technology while underinvesting in competencies, workflow redesign, governance, and support. A determinant-focused synthesis is consequently needed to distinguish modifiable enablers from contextual barriers

and to identify where evidence is sufficiently consistent to guide nursing education, management, and policy.

Existing studies span students, practicing nurses, faculty, and nurse leaders and employ diverse measures of attitude, literacy, readiness, intention, anxiety, perceived usefulness, ethical awareness, and actual use. This heterogeneity complicates direct comparison and encourages narrow explanations of adoption. The Technology Acceptance Model proposes that perceived Usefulness and Ease of Use shape technology acceptance, providing a parsimonious account of individual appraisal (Davis, 1989). The Unified Theory of Acceptance and Use of Technology broadens this logic by incorporating performance expectancy, effort expectancy, Social Influence, and Facilitating Conditions as determinants of behavioural intention and use (Venkatesh et al., 2003). Nursing evidence, however, also introduces professional and organisational considerations that exceed conventional acceptance constructs, including patient safety, privacy, accountability, human contact, job-role concerns, institutional policy, and leadership support. A recent nursing AI review mapped attitudes, literacy, readiness, and adoption but also noted concentration in cross-sectional studies and limited geographic coverage (El Arab et al., 2025). The present review therefore treats prior reviews as contextual support rather than counted evidence and integrates only primary empirical studies in its determinant matrix.

This review aims to identify, classify, and synthesise determinants of AI integration among nursing populations and settings. It addresses four questions: which determinants have been empirically examined; how can those determinants be organised into a coherent evidence-led taxonomy; which factors are most consistently associated with readiness, intention, acceptance, or use; and where do theoretical, methodological, contextual, and geographical gaps remain? The contribution is a fourteen-determinant taxonomy linking individual capability, technology appraisal, affective response, ethical confidence, social and organisational context, and professional-role concerns. The review also separates frequency of investigation from evidential influence so that a frequently measured variable is not automatically treated as a stronger causal determinant. Table 1 maps the 53 included studies against the common determinant system, while the narrative synthesis interprets direction, consistency, design quality, and context. The following sections describe the review method, develop the conceptual and analytical contribution, discuss convergent and mixed findings, identify priority research gaps, and conclude with implications for responsible AI integration in nursing.

2. Methodology

A PRISMA-informed systematic literature review was conducted to identify empirical evidence on determinants of artificial intelligence (AI) integration among nurses, nursing students, nursing faculty, and nurse leaders. Reporting was guided by PRISMA 2020 principles, although the review is described as PRISMA-informed because no prospective protocol was registered and the search combined database retrieval with citation-led and targeted updating rather than claiming exhaustive access to proprietary indexes (Page et al., 2021). The eligibility period extended from 1 January 2015 to 31 December 2025. English-language, peer-reviewed empirical journal articles were eligible when they examined at least one determinant of AI readiness, acceptance, intention, adoption, use, integration, or a nursing-specific AI behaviour. Reviews, editorials, non-empirical commentaries, studies without separable nursing data, and reports lacking determinant analysis were excluded. Search concepts combined nursing-related terms with artificial intelligence and determinant-oriented terms including readiness, adoption, acceptance, attitude, literacy, anxiety, barriers, facilitators, intention, usefulness, self-efficacy, ethics, and organisational support. The identification process incorporated database searching, backward citation tracking, a documented horizon/update search, and targeted PubMed and publisher-platform searches. Bibliographic details and DOI links were

verified against publisher or indexing records where available, while prior reviews were used only for citation discovery and contextual framing. As shown in Figure 1, 152 records were identified: 112 through database searching, 28 through backward citation tracking, 7 through documented horizon/update records, and 5 through targeted PubMed and publisher searches. After removal of 21 duplicates, 131 records remained for title and abstract screening, of which 45 were excluded, leaving 86 full-text reports for eligibility assessment.

Of the 86 full-text reports assessed, 33 were excluded after evaluation: 20 did not meet the inclusion criteria, 7 involved an ineligible population or setting, 4 reported irrelevant outcomes, and 2 had unavailable full texts. Consequently, 53 studies met the predefined criteria and were included in the final review, with all 53 contributing to qualitative and narrative synthesis. Data extraction recorded population, setting, study design, AI context, examined determinants, outcome orientation, and direction of reported associations. Design-appropriate JBI criteria were used to inform interpretive weighting, with caution applied to cross-sectional self-report evidence and greater weight assigned, where appropriate, to intervention, mixed-method, or qualitatively triangulated studies (Barker et al., 2026). Determinant terminology was harmonised inductively into fourteen labels only when concepts were substantively comparable. Binary matrix coding identified whether each study examined a given determinant, while thematic narrative synthesis evaluated consistency, mechanisms, and contextual variation rather than treating frequency of occurrence as effect magnitude (Thomas & Harden, 2008). Quality judgements were not used as automatic exclusion criteria; instead, they informed confidence in findings, particularly where evidence relied on convenience samples, unadjusted associations, self-reported measures, or behavioural intentions. Contradictory and null findings were retained, and determinant frequencies were calculated from the final 53-study matrix only after row-level coding had been reconciled with each study's reported variables or themes. Meta-analysis was not undertaken because heterogeneity across populations, AI technologies, determinant measures, study designs, and outcome definitions made statistical pooling inappropriate.

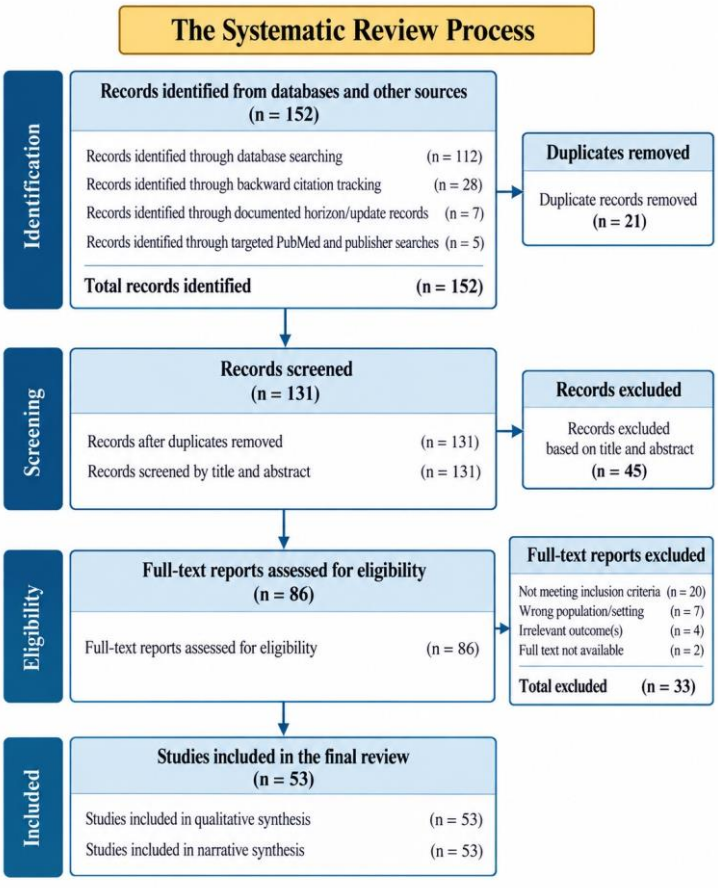

Figure 1: The Systematic Review Process

3. Conceptual and Analytical Innovation

The first analytical innovation is to conceptualise AI integration in nursing as a staged sociotechnical process rather than a single attitude or intention score. The 53 studies measure different points along an adoption pathway: awareness and AI Literacy shape whether nurses can evaluate a tool; Usefulness and Ease of Use shape technology appraisal; Attitude, Self-Efficacy, Anxiety, and Ethics/Trust influence willingness; Social Influence, Facilitating Conditions, Training, and Organisational Support shape whether willingness can be translated into practice; and Innovativeness, Demographics, and Role Concerns modify these relationships. This architecture preserves the logic of the Technology Acceptance Model while acknowledging that nursing implementation involves professional accountability and organisational readiness that individual acceptance models do not fully capture (Davis, 1989). It also aligns UTAUT constructs with nursing-specific evidence without forcing every empirical factor into the original model (Venkatesh et al., 2003). The resulting framework therefore connects person, technology, organisation, and professional role. Integration is interpreted as a negotiated outcome of capability, expected value, emotional and ethical confidence, social legitimacy, and implementation conditions, not as an inevitable consequence of positive sentiment or technology availability. This staged interpretation keeps readiness, intention, and actual use distinct because progression may fail despite favourable attitudes. It therefore provides a precise basis for locating implementation bottlenecks and matching interventions to the affected stage.

The second innovation is the inductive consolidation of fourteen recurring determinant labels while retaining distinctions that matter for intervention. AI Literacy captures knowledge, awareness, and AI-related competence; Usefulness and Ease of Use capture expected value and usability; Attitude reflects evaluative orientation; Self-Efficacy reflects confidence in capability; Anxiety captures apprehension, technostress, and resistance; and Ethics/Trust captures privacy, transparency, accountability, fairness, and confidence in AI-supported decisions. Social Influence represents normative or interpersonal pressure, while Facilitating Conditions represent infrastructure, access, technical resources, and workflow compatibility. Training is retained separately because educational exposure is modifiable even when infrastructure is fixed, and Organisational Support captures leadership, policy, governance, and implementation support. Innovativeness represents openness, innovation mindset, or related dispositions; Demographics records tested differences by age, gender, educational level, experience, or role; and Role Concerns captures fear of deskilling, replacement, dehumanisation, or erosion of nursing judgement. Keeping these constructs distinct prevents broad categories such as “barriers” or “readiness” from obscuring mechanisms. It also supports implementation planning by locating possible action at curriculum, user-interface, governance, workforce, and organisational levels. The taxonomy also separates determinants modifiable through education, governance, or system design from background characteristics that mainly describe group variation. This discourages deterministic interpretation of demographic differences and keeps intervention attention on actionable conditions.

The third innovation is the explicit separation of research attention from evidential influence. Matrix frequencies show that Attitude was examined in 39 of 53 studies, AI Literacy in 37, Training in 35, Demographics in 39, and Usefulness in 28; these high frequencies indicate where researchers have concentrated measurement, not which constructs exert the largest causal effects. By contrast, Social Influence appeared in only 3 studies and Innovativeness in 5, leaving theoretically important pathways comparatively thin. Role Concerns, Ethics/Trust, Organisational Support, and Facilitating Conditions were represented often enough to demonstrate that nursing AI integration extends beyond personal acceptance, but their effects are frequently context-bound to local governance, infrastructure, specialty, and stage of implementation. This distinction is important because much of the literature is cross-sectional and self-reported, limiting temporal and causal inference. Frequency mapping is therefore used as an evidence-gap instrument, while narrative synthesis gives greater interpretive weight to consistent directional findings, theory-supported pathways, intervention evidence, and convergent qualitative explanations. Table 1 operationalises this approach by showing coverage

without implying that each checkmark has equal magnitude, quality, or causal meaning. A low-frequency determinant may still deserve high practical priority when qualitative or intervention evidence reveals a strong mechanism, while a frequently measured determinant may remain weakly explanatory when findings are inconsistent or methodologically fragile.

Table 1: Literature Review Matrix

No.	Author(s) and Year	AI Literacy	Usefulness	Ease of Use	Attitude	Self-Efficacy	Anxiety	Ethics/Trust	Training	Innovativeness	Demographics	Role Concerns	AI Integration	Organisational Support	Social Influence	Facilitating Conditions
1	Kwak, Ahn, et al. (2022)	✓			✓	✓	✓	✓					✓			
2	Kwak, Seo, et al. (2022)		✓	✓	✓	✓							✓		✓	✓
3	Hussein Mohamed et al. (2023)	✓			✓				✓				✓			
4	Labrague, Aguilar-Rosales, Yboa, & Sabio (2023)	✓				✓			✓		✓	✓	✓			✓
5	Labrague, Aguilar-Rosales, Yboa, Sabio, & de Los Santos (2023)	✓	✓		✓				✓		✓		✓			
6	Lukić et al. (2023)	✓			✓				✓		✓		✓			
7	Sabra et al. (2023)	✓	✓		✓						✓	✓	✓			
8	Abou Hashish & Alnajjar (2024)	✓			✓	✓			✓		✓		✓			
9	Ahmed et al. (2024)	✓	✓		✓						✓	✓	✓			
10	Al Omari et al. (2024)	✓	✓		✓				✓		✓		✓			
11	Alruwaili et al. (2024)	✓	✓		✓				✓		✓	✓	✓			
12	Atalla et al. (2024)	✓			✓			✓		✓	✓		✓			
13	Cho & Seo (2024)	✓	✓		✓		✓						✓			
14	Demir-Kaymak et al. (2024)	✓				✓	✓		✓		✓		✓			
15	Ramadan et al. (2024)		✓	✓				✓	✓			✓	✓	✓		✓
16	Rony, Kayesh, et al. (2024)		✓		✓			✓	✓			✓	✓	✓		✓
17	Rony, Numan, Akter, et al. (2024)				✓			✓				✓	✓	✓		
18	Rony, Numan, Johra, et al. (2024)	✓	✓		✓			✓	✓		✓	✓	✓			
19	Summers et al. (2024)		✓	✓				✓	✓			✓	✓	✓		
20	Tuncer & Tuncer (2024)	✓	✓		✓				✓		✓		✓			
21	Ünal & Avcı (2024)	✓				✓	✓		✓		✓		✓			
22	Yalcinkaya et al. (2024)	✓			✓	✓			✓		✓		✓			
23	Abuadas et al. (2025)	✓			✓			✓	✓				✓			
24	Akca Sumengen et al. (2025)	✓			✓				✓		✓		✓			
25	Alatawi & Kerari (2025)	✓			✓	✓			✓		✓		✓			
26	Alenazi & Alhalal (2025)		✓	✓	✓						✓		✓		✓	✓
27	Almagharbeh et al. (2025)	✓	✓					✓	✓			✓	✓	✓		✓
28	Alnomasy et al. (2025)	✓	✓		✓				✓		✓	✓	✓	✓		

No.	Author(s) and Year	AI Literacy	Usefulness	Ease of Use	Attitude	Self-Efficacy	Anxiety	Ethics/Trust	Training	Innovativeness	Demographics	Role Concerns	AI Integration	Organisational Support	Social Influence	Facilitating Conditions
29	Alruwaili et al. (2025)		✓	✓				✓	✓			✓	✓	✓		✓
30	Amin et al. (2025)				✓		✓			✓	✓	✓	✓	✓		
31	Atalla et al. (2025)				✓	✓				✓	✓		✓			
32	Ayed et al. (2025)				✓		✓				✓		✓			
33	Bakarman et al. (2025)	✓	✓		✓	✓			✓		✓		✓			
34	Boztepe et al. (2025)	✓			✓	✓			✓		✓		✓			
35	Burucu & Türkben Polat (2025)	✓				✓	✓		✓		✓	✓	✓			
36	Chen et al. (2025)	✓	✓					✓	✓			✓	✓	✓		✓
37	Dai et al. (2025)		✓	✓	✓			✓			✓		✓		✓	✓
38	Ehmke et al. (2025)	✓			✓	✓			✓		✓		✓	✓		
39	El-Sayed et al. (2025)	✓				✓				✓	✓		✓			
40	Göktepe & Sarıköse (2025)		✓					✓	✓			✓	✓	✓		✓
41	Hamad et al. (2025)	✓	✓	✓	✓						✓		✓			
42	Jalal et al. (2025)		✓	✓	✓						✓		✓	✓		
43	Kahraman et al. (2025)	✓							✓		✓		✓			
44	Kardaş Kin & Çelik (2025)	✓				✓	✓	✓	✓		✓		✓			
45	Kotp et al. (2025)	✓	✓		✓	✓			✓		✓		✓	✓		✓
46	Mariano et al. (2025)	✓	✓		✓				✓		✓		✓			
47	Namdar Areshtanab et al. (2025)	✓	✓		✓				✓		✓		✓			
48	Oweidat et al. (2025)	✓			✓				✓		✓	✓	✓	✓		✓
49	Rony et al. (2025)	✓	✓					✓	✓			✓	✓	✓		✓
50	Salama et al. (2025)	✓	✓		✓				✓		✓		✓			
51	Sarman & Tuncay (2025)				✓		✓				✓		✓			
52	Şimşek et al. (2025)		✓		✓	✓					✓		✓			
53	Tsiara et al. (2025)				✓					✓	✓		✓			

4. Discussion

Across the evidence base, the most coherent individual-level pathway begins with AI Literacy and perceived Usefulness. Nurses and students who understand AI concepts, recognise relevant applications, and have prior digital or AI exposure tend to report more favourable attitudes, confidence, readiness, or intention to use AI, although knowledge alone does not guarantee integration. A recent nursing-focused systematic review similarly concluded that perceived usefulness, self-efficacy, and facilitating conditions recur as predictors of attitude and behavioural intention (El Arab et al., 2025). In a UTAUT path analysis, nursing students' intention to use AI-based healthcare technology was shaped through performance-related appraisal and enabling conditions rather than simple awareness (Kwak, Seo, et al., 2022). More recent UTAUT work also

linked intention with expected performance, effort, social context, and facilitating conditions, while actual usage remained contingent on opportunity and implementation context (Alenazi & Alhalal, 2025). This pattern supports a progression from knowing what AI is, to judging whether it is useful and manageable, to believing one can use it competently. Training is therefore most defensible when it develops applied AI literacy, critical appraisal, prompt or interface skills, and scenario-based clinical judgement instead of delivering generic awareness. The mixed relationship between exposure and actual use also indicates that capability-building should be paired with access to relevant systems, protected learning time, and feedback. Education can increase readiness, but it cannot by itself compensate for poorly designed tools, absent infrastructure, or workflows that make safe use impractical. Curricula should therefore distinguish conceptual literacy from operational competence: knowing AI terminology is not equivalent to interrogating outputs, recognising bias or hallucination, and deciding when escalation is required. Competency-oriented preparation is especially important when learners hold positive attitudes before meaningful clinical exposure to AI-enabled systems.

A second pathway concerns affective and ethical confidence. Anxiety is consistently relevant but should not be treated as a stable personality deficit: it often reflects unfamiliarity, technostress, uncertainty about competence, fear of errors, or concern about professional consequences. Studies of nursing students and neonatal nurses connect higher AI anxiety with lower readiness or less favourable acceptance, while educational exposure can reduce uncertainty when it clarifies capabilities and limitations (Ünal & Avcı, 2024). Ethics/Trust is similarly multidimensional. Nurses raise privacy, data security, transparency, bias, accountability, informed consent, and overreliance concerns, especially when AI influences clinical decisions or uses sensitive patient information. Qualitative nursing evidence shows that perceived benefits can coexist with fears about depersonalisation and loss of professional judgement (Rony, Kayesh, et al., 2024). Importantly, ethics education is not merely a barrier-removal exercise: a quasi-experimental programme improved ethical awareness, moral sensitivity, attitudes, and generative-AI adoption intention, indicating that principled competence can support rather than suppress responsible adoption (Abuadas et al., 2025). Role Concerns therefore warrant interpretation as legitimate implementation signals rather than resistance to innovation. Organisations should make human oversight, escalation pathways, accountability, data governance, and scope-of-use rules visible before expecting trust. The synthesis suggests that sustainable integration depends on calibrated trust: sufficient confidence to use AI where appropriate, combined with enough scepticism to verify outputs, recognise uncertainty, and protect the relational functions of nursing. Trust-building should therefore function as governance rather than promotion. Nurses need understandable information about system purpose, data use, limitations, monitoring, and responsibility for final decisions, alongside protected channels for reporting unsafe outputs or unintended consequences. These safeguards can reduce avoidable anxiety without normalising unquestioning reliance.

Organisational conditions determine whether favourable individual appraisals become routine practice. Facilitating Conditions include reliable hardware, connectivity, interoperability, technical support, workflow fit, data availability, and time to learn; Organisational Support adds leadership commitment, policy clarity, governance, change management, and opportunities for nurses to influence implementation. Registered nurses describe both categories as central facilitators or barriers when moving AI from concept to clinical work (Ramadan et al., 2024). Nurse managers likewise identify implementation as a managerial and work-environment issue rather than a purely technical purchase decision, requiring communication, staff development, role clarification, and local adaptation (Göktepe & Sarıköse, 2025). Faculty evidence shows a similar gap: positive attitudes may coexist with limited self-perceived knowledge and skills, making institutional policy and curriculum support consequential for educational integration (Ehmke et al., 2025). Social Influence was less frequently examined in the matrix, yet UTAUT-oriented evidence indicates that peers, educators, leaders, and professional norms can shape intention when AI use is visible or expected. These findings caution against interpreting “readiness” as an individual endpoint. An organisation can have interested nurses but remain unready because systems are inaccessible, policies ambiguous, training

disconnected from practice, or staff excluded from design. Conversely, implementation support can reduce uncertainty and make benefits observable. Co-design with nurses, staged pilots, local champions, protected training, transparent governance, and monitoring of unintended effects therefore represent evidence-aligned implementation strategies. Organisational readiness also has a temporal dimension: support is needed before deployment to prepare workflows, during rollout to resolve usability and role problems, and after implementation to audit performance and adapt policy. Treating implementation as a one-time training event risks transferring system shortcomings to individual nurses.

The evidence also reveals important variation that prevents a universal adoption formula. Demographic associations are common but inconsistent: age, gender, education, professional experience, academic year, role, and prior technology exposure sometimes predict literacy or readiness, yet directions vary by sample and setting. Such variables should therefore be treated as contextual markers or potential moderators rather than fixed explanations. Innovativeness and related personality or change-orientation constructs are even less developed, making it premature to screen users or target implementation on dispositional profiles. The broader methodological limitation is that much of the evidence relies on cross-sectional surveys of intention, attitude, or self-reported readiness rather than observed longitudinal use. This creates common-method bias, limits causal ordering, and makes it difficult to determine whether positive attitudes produce use or whether experience with usable systems produces positive attitudes. The geographic concentration of recent studies in selected Middle Eastern, Asian, and European settings further constrains transferability to low-resource systems and other nursing cultures (El Arab et al., 2025). Qualitative studies add mechanism and implementation detail, but many remain single-site. Consequently, the strongest current conclusion is not that one determinant dominates. AI integration among nursing populations emerges from interactions among competence, value appraisal, confidence, ethical assurance, implementation resources, and professional context. Future implementation should be evaluated as a multilevel change process using behavioural and clinical measures, not only acceptance scales. This limitation matters because intention-to-use outcomes may overstate adoption when respondents have not experienced real costs, interruptions, accountability dilemmas, or competing workload demands. Future studies should connect psychosocial determinants to logged use, task performance, safety events, and patient or workforce outcomes wherever feasible.

5. Research Gaps and Future Research Directions

The first priority is to move from cross-sectional intention models to longitudinal and implementation-focused evidence. Cohort studies should measure how AI Literacy, Usefulness, Self-Efficacy, Anxiety, Ethics/Trust, and organisational conditions change before, during, and after real deployment, and whether early intention predicts sustained use, appropriate override behaviour, workflow effects, or patient-related outcomes. Pragmatic trials and stepped implementation studies are also needed to isolate modifiable mechanisms: applied training, ethics education, nurse-led co-design, technical support, transparent governance, and leadership interventions should be compared against usual implementation rather than bundled without evaluation. Measurement requires consolidation because studies currently use overlapping readiness, attitude, literacy, and acceptance scales that do not always distinguish capability from intention or actual behaviour. Validation across languages, specialties, career stages, and clinical versus educational settings would improve comparability. Social Influence and Innovativeness merit targeted testing because their low matrix frequency leaves uncertainty about whether interpersonal norms and individual openness meaningfully alter adoption once organisational conditions are considered. Studies should pre-specify readiness, intention, adoption, and sustained use as distinct outcomes so interventions can be evaluated against observable behavioural progression.

The second priority is contextual and equity-sensitive research. Evidence should expand beyond convenience student samples and single institutions to include bedside nurses, advanced-practice nurses, educators, managers, rural and resource-constrained services, community settings, and underrepresented regions. Multilevel designs can test whether individual determinants operate differently under high versus low digital maturity, staffing pressure, governance capacity, or access to interoperable infrastructure. Researchers should also separate types of AI, because determinants of generative-AI use in education may differ from determinants of predictive analytics, monitoring, documentation, or decision support in clinical care. Ethics/Trust and Role Concerns require outcome-linked study of transparency, privacy, bias, accountability, human oversight, de-skilling, and preservation of therapeutic relationships rather than attitude questions alone. Comparative work should examine whether nurse participation in procurement and design improves trust, workflow fit, and sustained use. Finally, implementation studies should report adverse and unintended consequences alongside adoption success, enabling policy to distinguish responsible integration from simple uptake and to identify when non-use or override is an appropriate professional response. Economic and workforce consequences also require prospective assessment, including training time, implementation burden, task redistribution, and any new verification work created by AI.

6. Conclusion

This review synthesised 53 primary empirical studies published within the 2015–2025 eligibility window and identified fourteen determinants that structure current knowledge of AI integration among nursing populations: AI Literacy, Usefulness, Ease of Use, Attitude, Self-Efficacy, Anxiety, Ethics/Trust, Social Influence, Facilitating Conditions, Training, Organisational Support, Innovativeness, Demographics, and Role Concerns. The evidence indicates that integration is best understood as a multilevel sociotechnical process rather than a simple function of favourable attitudes. Nurses and nursing students are more likely to express readiness or intention when they understand AI, perceive practical value, feel capable of using it, and receive relevant educational exposure; however, these individual resources translate into practice only when technologies are usable, ethically credible, supported by infrastructure, and embedded within clear organisational governance. Anxiety and professional-role concerns remain meaningful because they often signal uncertainty about competence, accountability, privacy, human contact, or job redesign rather than indiscriminate resistance. The review also shows why frequency should not be confused with influence: Attitude, AI Literacy, Training, Demographics, and Usefulness dominate measurement, whereas Social Influence and Innovativeness remain underexamined, and several organisational and ethical pathways depend heavily on context. Current confidence is constrained by cross-sectional self-report designs, heterogeneous measures, limited observation of actual use, and uneven geographical coverage. Theoretical integration of TAM and UTAUT is useful, but nursing implementation requires additional attention to professional accountability, patient relationships, and organisational readiness. Responsible progress therefore depends on applied competency development, nurse-inclusive co-design, calibrated trust, interoperable infrastructure, transparent governance, and evaluation of real-world behaviour and outcomes. Longitudinal, multilevel, intervention, and comparative research should now test which combinations of these determinants produce safe, sustained, equitable AI integration across diverse nursing settings. Taken together, the evidence supports shifting from asking whether nurses are “for” or “against” AI toward asking whether specific technologies are valuable, learnable, trustworthy, governable, and compatible with nursing work. Implementation success should be judged by appropriate use, safe non-use, verification behaviour, preservation of professional judgement, and equitable access to capability-building. This framing gives educators, nurse leaders, technology teams, and policymakers a shared basis for targeting modifiable determinants while interpreting demographic differences cautiously.

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