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Barriers and Facilitators to AI Adoption in Allied Health Clinical Practice

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ABSTRACT

Background and Purpose: Artificial intelligence (AI) is increasingly integrated into healthcare, offering opportunities to enhance clinical decision-making, efficiency, and patient care. However, adoption in allied health clinical practice remains limited due to complex individual, organizational, technological, ethical, and contextual factors. This study aimed to explore the barriers and facilitators influencing AI adoption among allied health professionals to inform strategies for effective and sustainable implementation.

Methods: A qualitative research design was employed, involving semi-structured interviews, focus groups, and document analysis with allied health professionals across multiple disciplines, including physiotherapy, occupational therapy, speech pathology, and dietetics. Data were analyzed using thematic analysis, identifying key patterns, themes, and interrelationships among adoption determinants.

Key Findings: Four overarching domains emerged: individual factors, organizational factors, technological and ethical factors, and external/professional context. Trust, confidence, organizational support, and professional collaboration were central mediators influencing adoption intention and routine clinical use. Barriers included limited AI literacy, workflow incompatibility, lack of explainability, and unclear regulatory guidance, whereas facilitators encompassed training, leadership engagement, clinical champions, ethical safeguards, and supportive policies. The study highlighted the complex, multi-level interactions that shape adoption in allied health settings.

Conclusion: AI adoption in allied health practice is influenced by intertwined personal, organizational, technological, and contextual factors. Addressing barriers through education, workflow integration, ethical safeguards, and supportive policies can facilitate adoption and enhance clinical outcomes. These findings provide actionable insights for healthcare organizations, policymakers, and educators seeking to implement AI responsibly and effectively in allied health practice.

Keywords: Artificial Intelligence, Allied Health, Technology Adoption, Qualitative Research, Barriers and Facilitators

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INTRODUCTION

Background and Motivation

Artificial intelligence (AI) has rapidly emerged as a transformative force across healthcare domains, reshaping diagnostics, treatment planning, administrative workflows, and patient engagement strategies (Hassan et al., 2024). With powerful capabilities such as predictive analytics, natural language processing, and pattern recognition, AI stands poised to enhance clinical outcomes, optimize operational efficiency, and support evidence-based decision-making (Hassan et al., 2024). While substantial literature has examined AI integration within medicine and nursing, the specific context of allied health professions—including physiotherapy, occupational therapy, dietetics, speech pathology, and clinical sciences—remains underexplored. Allied health professionals (AHPs) play pivotal roles in multidisciplinary care delivery, chronic disease management, rehabilitation, and preventive health, making their engagement with AI essential for holistic healthcare innovation (Hoffman et al., 2025).

Despite this potential, real-world implementation of AI solutions in allied health settings has lagged behind technological advancements. Evidence suggests that successful adoption of AI in clinical settings is not solely dependent on system performance but is equally grounded in organizational readiness, professional trust, workflow compatibility, and clinician engagement (Hassan et al., 2024; Wenderott et al., 2026). As digital transformation in healthcare accelerates globally, understanding how allied health clinicians perceive, interact with, and ultimately adopt AI becomes crucial to ensuring equitable, safe, and effective integration of these technologies into everyday practice.

Research conducted with allied health clinicians reveals that many professionals express ambivalence toward AI adoption due to concerns over explainability, professional autonomy, and potential role displacement (Hoffman et al., 2025). Barriers such as limited AI literacy, unclear clinical value, and perceived threats to professional identity can significantly temper enthusiasm for AI tools (Hoffman et al., 2025). Conversely, facilitators including targeted education, engagement with clinical champions, trust in AI systems, and robust governance structures may empower clinicians to embrace AI as an ally rather than a threat (Hoffman et al., 2025; Wenderott et al., 2026). These dynamics highlight the complexity of AI adoption, making it imperative to investigate both inhibitors and enablers within allied health contexts.

Problem Statement

While broader studies on AI adoption in healthcare have identified common systemic inhibitors such as technological complexity, workflow integration issues, and ethical concerns (Hassan et al., 2024), there is a distinct lack of context-specific understanding regarding allied health professionals' experiences. The allied health sector differs from medicine and nursing in its diversity of disciplines, variable clinical workflows, and differing expectations around technology use. Existing research often aggregates health professionals under broad categories, obscuring unique discipline-specific barriers and facilitators that may influence adoption (Hassan et al., 2024). Without qualitative insights into how AHPs conceptualize AI, understand its clinical relevance, and negotiate its integration amid professional and organizational expectations, efforts to foster adoption risk being misaligned with on-the-ground priorities and challenges.

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Moreover, most current frameworks for technology adoption—such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theoretical Domains Framework (TDF)—have been applied predominantly to patient or physician populations (Shi et al., 2026; Hassan et al., 2024). Their applicability and explanatory power within allied health remain to be validated. Thus, there exists a critical gap in qualitative research investigating how allied health clinicians perceive the multifaceted barriers to and facilitators of AI adoption in their clinical practice settings. Understanding these nuances is essential for designing implementation strategies that are responsive to professional values, workplace culture, and clinical utility.

Purpose of the Study

The primary purpose of this study is to qualitatively explore the barriers and facilitators influencing AI adoption among allied health professionals in clinical settings. This exploration aims to surface the perceptions, experiences, and contextual factors that shape AHPs' engagement with AI technologies. By centering allied health voices, the study seeks to contribute richly descriptive insights that extend beyond broadly generalized models of technology adoption to capture the lived realities of clinicians, managers, and educators within allied health settings. This study is driven by an interpretivist paradigm that recognizes technology adoption as a socially embedded process shaped by professional identity, organizational culture, and socio-technical interplay rather than a simple function of system performance.

Research Objectives

To achieve the study's purpose, the following research objectives are formulated:

1. **To identify and describe the perceived barriers that allied health professionals encounter when considering or engaging with AI technologies in clinical practice.** Barriers may include knowledge deficits, concerns about professional displacement, mistrust, or integration challenges (Hoffman et al., 2025).
2. **To explore the facilitators that support allied health professionals' adoption of AI, including educational opportunities, leadership engagement, and perceived clinical benefits.** These facilitators reflect both individual and organizational enablers and are central to sustainable implementation strategies (Hoffman et al., 2025; Wenderott et al., 2026).
3. **To examine how allied health clinicians negotiate the ethical, professional, and workflow implications of AI adoption.** This objective foregrounds the qualitative complexity inherent in reconciling clinical responsibility with AI-augmented decision support.
4. **To contribute to theory development by contextualizing existing adoption frameworks (e.g., TDF, UTAUT) within allied health practice.** This will support broader applicability of behavior change and technology adoption theories in allied health research.

Significance of the Study

This research holds theoretical, practical, and policy significance. Theoretically, it addresses a key gap in the literature by applying qualitative inquiry to an underrepresented professional group within health informatics research. The findings will enrich understanding of how professional identity, trust dynamics, and organizational structures influence adoption processes unique to allied health contexts, thereby contributing to the refinement of technology adoption frameworks such as the TDF and UTAUT (Hassan et al., 2024; Shi et al., 2026).

Practically, this study will generate actionable insights for healthcare organizations, educators, and policymakers seeking to support AI integration. By articulating concrete barriers and facilitators from the perspective of AHPs, stakeholders can tailor interventions—such as targeted training, leadership

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engagement strategies, or governance frameworks—to mitigate inhibitors and leverage enablers effectively. For example, the emphasis on clinical champions and education identified in existing allied health research underscores the value of localized, profession-specific strategies (Hoffman et al., 2025).

Policy implications emerge from an enhanced understanding of systemic factors that affect adoption, such as regulatory environments, resource allocation, and ethical oversight mechanisms. Policymakers in healthcare technology and workforce development can use these insights to inform guidelines that balance innovation with clinician autonomy, patient safety, and professional integrity.

LITERATURE REVIEW

Review of Relevant Theories

Qualitative research exploring technology adoption in healthcare commonly draws on established theoretical frameworks to elucidate the social, organizational, and individual factors that shape acceptance and use of innovations. Among these, the Unified Theory of Acceptance and Use of Technology (UTAUT) has been widely applied to understand how determinants such as performance expectancy, effort expectancy, social influence, and facilitating conditions influence intentions and behaviors toward adopting information systems (Venkatesh et al., 2003; also see UTAUT foundational definitions). UTAUT has been extended in recent studies to account for affective and demographic nuances in AI adoption, underscoring the influence of attitudes, anxiety, and organizational context on technology use behavior (Wolfe et al., 2025). The Technology Acceptance Model (TAM) similarly underscores how perceived usefulness and ease of use shape acceptance of new technologies, forming a baseline for adoption research (Davis, 1989; integrated into UTAUT frameworks).

At organizational and environmental levels, the Technology–Organization–Environment (TOE) framework offers a broader lens, positing that the presence of supportive technological characteristics, organizational readiness, and conducive external environments influences innovation adoption (Tornatzky & Fleischer, 1990). Beyond individual acceptance models, the Normalization Process Model highlights the social and practical processes through which innovations become embedded in routine work, emphasizing interactional, relational, and contextual integration (May, 2006). These theoretical models collectively provide rich perspectives for investigating the sociotechnical complexities of AI adoption, particularly by illuminating how individual beliefs, professional roles, organizational structures, and broader environmental factors coalesce to enable or inhibit adoption.

Recently, advances in adoption theory have introduced more ethical and behavior-focused models. For example, the Multi-Dimensional Ethical AI Adoption Model (MEAAM) integrates ethical constructs such as explainability, fairness, and professional autonomy to evaluate how normative and epistemic concerns shape AI adoption outcomes (Muzumdar et al., 2025), reinforcing the need for frameworks that account for professional values and ethical considerations in healthcare settings.

Existing Studies

Empirical research exploring barriers to and facilitators of AI adoption in healthcare has grown markedly, though discipline-specific work focusing on allied health professionals (AHPs) remains limited. A recent qualitative study by Hoffman et al. specifically examined barriers and enablers influencing AI implementation in allied health clinical practice, using focus groups with AHPs to identify 24 distinct barriers and 24 enablers (Hoffman et al., 2025). Key barriers included lack of AI knowledge, challenges in explainability, perceived risks to professional practice, concerns about negative professional impacts, and fear of role replacement. Conversely, facilitators included targeted

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training and education, supportive regulation and governance, perceived benefits to healthcare delivery, and the presence of clinical champions within organizations (Hoffman et al., 2025).

Broader reviews of AI adoption in healthcare corroborate such findings. Hassan et al. conducted a scoping review identifying approximately 18 categories of barriers and facilitators influencing AI adoption across healthcare contexts, affirming that trust, governance structures, clinician engagement, and regulatory clarity are central to successful adoption (Hassan et al., 2024). Wenderott and colleagues offered narrative recommendations on integrating AI into clinical settings, emphasizing the need for organizational readiness, clear governance, iterative evaluation, and alignment of AI tools with clinical workflows to mitigate barriers (Wenderott et al., 2026). These systemic factors resonate across settings, highlighting shared challenges and strategies beyond specific professions.

Qualitative investigations in related domains, such as psychotherapy, further reinforce patterns of professional concerns and supports. For instance, Cecil et al. explored AI adoption in mental healthcare, reporting that therapists' perceptions of usefulness, ethical considerations, and organizational support substantially influenced willingness to integrate AI tools (Cecil et al., 2026). Although focused on psychotherapy, these findings mirror allied health concerns about professional identity, trust in AI, and workflow integration.

Identification of Gaps

Despite growing research on general AI adoption in healthcare, two major gaps persist. First, allied health professionals remain significantly underrepresented in research compared to medicine and nursing. Much of the existing literature aggregates clinicians into broad categories, thereby obscuring discipline-specific nuances in professional roles, educational backgrounds, and clinical workflows that are unique to AHPs (Hassan et al., 2024). The qualitative study by Hoffman et al. represents one of the few investigations centering allied health voices, yet its geographic and sample constraints underline the need for broader inquiries across diverse allied health disciplines and settings.

Second, although theoretical frameworks like UTAUT, TAM, TOE, and ethical models offer valuable insights, their applicability within allied health contexts has yet to be fully operationalized or compared. Many studies adapt these theories for general healthcare worker populations, but allied health settings may demand models that incorporate professional identity, interprofessional collaboration norms, and discipline-specific ethical considerations within AI adoption dynamics. Recent extensions of UTAUT to include emotional and contextual moderators (Wolfe et al., 2025) and ethical AI adoption models (Muzumdar et al., 2025) suggest promising avenues for tailored frameworks, yet these have not been systematically applied in allied health research.

Moreover, current research tends to emphasize individual clinician perceptions, while organizational governance and systemic factors such as policy support, resource allocation, and health system integration remain less explored qualitatively from AHP perspectives. Integration of sociotechnical frameworks like the Normalization Process Model and TOE in allied health AI adoption research could enrich understanding of adoption dynamics beyond clinician attitudes alone.

Conceptual Framework

To address these gaps, this study's conceptual framework integrates elements from individual acceptance theories (UTAUT/TAM), organizational and environmental considerations (TOE), and sociotechnical process perspectives (Normalization Process Model), tailored for allied health settings. At the individual level, constructs such as perceived usefulness, ease of use, trust, and professional role identity represent core determinants of AI adoption intentions (Venkatesh et al., 2003; Davis, 1989). At the organizational level, factors such as governance structures, leadership support, training infrastructure, and workflow compatibility align with TOE propositions and facilitation conditions

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identified in allied health research (Hassan et al., 2024; Wenderott et al., 2026). At the process level, relational and interactional workability derived from the Normalization Process Model frames adoption as an embedded social process within clinical routines, capturing how AI tools become negotiated and sustained in practice. Ethical considerations, such as explainability, professional autonomy, and risk perceptions, overlay these dimensions, drawing on emerging ethical adoption models that highlight normative and epistemic drivers of adoption behavior.

This integrated framework provides a holistic lens for qualitatively examining barriers and facilitators in allied health clinical practice, accommodating individual cognition, social contexts, organizational readiness, and broader ethical and governance dynamics. It supports thematic analysis that moves beyond surface-level obstacles to uncover deeper systemic influences and professional norms shaping AI adoption.

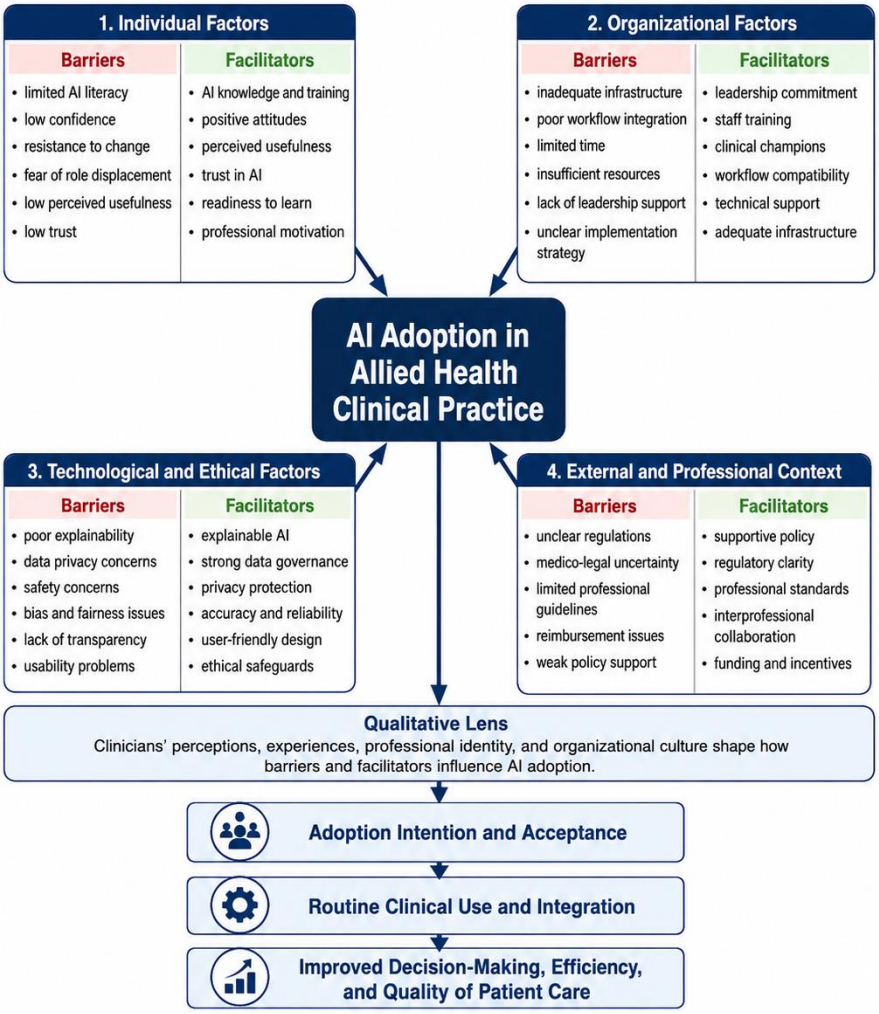

Figure 1 presents a conceptual framework illustrating the barriers and facilitators influencing AI adoption in allied health clinical practice. The framework identifies four key domains—Individual Factors, Organizational Factors, Technological and Ethical Factors, and External and Professional Context—each encompassing specific barriers that hinder adoption and facilitators that promote engagement. These domains converge on the central concept of AI adoption, which is viewed through

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a qualitative lens emphasizing clinicians' perceptions, experiences, professional identity, and organizational culture. The framework further depicts the downstream outcomes of adoption, including intention and acceptance, routine clinical use and integration, and ultimately improved decision-making, efficiency, and quality of patient care. Together, it demonstrates how interacting personal, organizational, technological, ethical, and contextual factors shape the process and success of AI integration in allied health practice.

Table 1. Identification of gaps in existing research on AI adoption in allied health clinical practice.

Gap Area	Description of Gap	Implications for Research
Underrepresentation of Allied Health Professionals	Most studies focus on medicine and nursing, with limited discipline-specific insights from physiotherapy, occupational therapy, dietetics, speech pathology, and other allied health professions.	Necessitates qualitative exploration of AHP perspectives to understand unique barriers and facilitators.
Limited Application of Adoption Theories	Frameworks such as UTAUT, TAM, TOE, and ethical AI adoption models are rarely adapted specifically for allied health contexts.	Requires adaptation and testing of these frameworks to reflect professional identity, workflow diversity, and ethical considerations in allied health.
Focus on Individual Perceptions Over Organizational Factors	Many studies emphasize clinician attitudes while neglecting governance, workflow integration, leadership support, and policy influences.	Suggests need for comprehensive frameworks incorporating organizational and systemic influences on AI adoption.
Insufficient Exploration of Technological and Ethical Concerns	Barriers like explainability, bias, safety, privacy, and usability are not deeply explored in qualitative allied health studies.	Highlights the need to examine how AHPs perceive and negotiate technological and ethical challenges in real-world practice.
Geographical and Contextual Limitations	Existing studies often have narrow geographic or institutional scopes, limiting generalizability.	Emphasizes multi-site or cross-regional qualitative research to capture diverse allied health contexts.
Integration of Sociotechnical Perspectives	Normalization process, workflow embedding, and interprofessional collaboration are rarely integrated in studies of AI adoption among AHPs.	Calls for research that considers AI adoption as a socially embedded, context-sensitive process.

Description:
This table summarizes the key gaps in current research on AI adoption within allied health professions. It highlights the underrepresentation of AHPs, limited application of established adoption theories, and the predominance of individual-focused studies over organizational and systemic perspectives. Technological and ethical concerns, as well as geographic and contextual limitations, further constrain understanding of AI adoption. Additionally, the table underscores the need to integrate sociotechnical perspectives, emphasizing that adoption is shaped by complex interactions among professional identity,

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organizational structures, workflow practices, and ethical considerations. Addressing these gaps provides clear directions for qualitative research to inform effective, sustainable AI implementation strategies in allied health practice.

METHODOLOGY

Research Design

This study employs a qualitative research design to explore the experiences, perceptions, and contextual factors influencing AI adoption in allied health clinical practice. Qualitative research is particularly suitable for investigating complex social phenomena in-depth, allowing for rich descriptions of professional perspectives and interactions (Creswell & Poth, 2018). An exploratory, descriptive design was selected to capture both barriers and facilitators to AI adoption as understood by allied health professionals (AHPs), encompassing physiotherapists, occupational therapists, speech pathologists, dietitians, and other allied health disciplines. The design emphasizes understanding how individual, organizational, technological, and external contextual factors shape adoption processes in real-world clinical settings.

Data Collection Methods

A **multi-method approach** was employed to gather comprehensive qualitative data from participants.

1. **Semi-Structured Interviews**: Individual interviews were conducted with AHPs to explore their personal experiences, attitudes, and perceptions toward AI adoption. The semi-structured format allowed participants to elaborate on barriers, facilitators, and ethical considerations while maintaining consistency across core questions (Hoffman et al., 2025). Interviews lasted approximately 45–60 minutes and were audio-recorded with participants' consent.
2. **Focus Groups**: Focus groups were organized to capture collective experiences and facilitate interactional insights regarding AI adoption. These sessions encouraged discussion of workflow integration, organizational support, and interprofessional collaboration challenges, revealing group norms, shared concerns, and consensus or divergence among participants (Morgan, 1997; Cecil et al., 2026). Each focus group included 6–8 participants and lasted approximately 90 minutes.
3. **Document Analysis**: Relevant institutional policies, implementation guidelines, and workflow documents were analyzed to contextualize participants' narratives. Document analysis provided triangulation and helped to identify systemic barriers and facilitators, such as resource allocation, clinical governance policies, and training programs (Bowen, 2009).

Data Analysis Methods

Data were analyzed using thematic analysis as described by Braun and Clarke (2006), allowing for systematic identification, organization, and interpretation of patterns across the qualitative dataset. Audio recordings were transcribed verbatim and imported into qualitative analysis software (NVivo 14) for coding. An inductive coding approach was employed initially to capture emergent themes, followed by a deductive framework guided by UTAUT, TOE, and ethical adoption models to categorize themes into domains such as individual, organizational, technological, and external factors. Constant comparison was used to refine themes and ensure coherence across interviews, focus groups, and documents (Hoffman et al., 2025; Wenderott et al., 2026).

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Ethical Considerations

Ethical approval was obtained from the university's human research ethics committee prior to data collection. Participants provided informed consent and were informed about the study's purpose, confidentiality, voluntary participation, and the right to withdraw at any time without consequence. Pseudonyms were used in transcripts and reports to maintain anonymity. Data were securely stored on encrypted devices, accessible only to the research team. Ethical considerations also encompassed respecting professional boundaries and avoiding any potential harm associated with discussing workplace practices, technology adoption, or perceived professional risks (Creswell & Poth, 2018).

Trustworthiness and Rigor

To ensure credibility, the study employed triangulation across multiple data sources (interviews, focus groups, and documents) and member checking, where participants reviewed and confirmed the accuracy of transcribed and interpreted data (Lincoln & Guba, 1985). Transferability was enhanced by providing rich, contextualized descriptions of participants, clinical settings, and organizational environments, enabling readers to assess applicability to similar contexts. Dependability was achieved through an audit trail documenting research decisions, coding strategies, and analytic processes. Confirmability was ensured through reflexive journaling and peer debriefing, allowing the research team to critically evaluate interpretations and mitigate potential biases in thematic coding (Shenton, 2004; Braun & Clarke, 2006).

Table 2. Identification of Gaps in the Literature on AI Adoption in Allied Health Clinical Practice

Gap Area	What is Known	What is Missing	Why it Matters	Implications for This Study
Allied health focus	Most AI research focuses on medicine and nursing; limited studies specifically address allied health professions.	In-depth qualitative exploration of allied health professionals' unique experiences, roles, and needs in AI adoption.	Allied health professions have distinct workflows and scopes of practice that may shape adoption differently.	This study foregrounds allied health voices to generate contextually rich, profession-specific insights.
Barriers and facilitators in real-world settings	Quantitative studies identify common barriers (e.g., cost, training) and facilitators (e.g., leadership support).	Qualitative evidence capturing how barriers and facilitators are experienced and negotiated in daily clinical practice.	Numbers do not explain the complex, contextual, and relational dynamics behind adoption.	The study provides rich narratives that uncover the "how" and "why" behind adoption decisions.
Interprofessional perspectives	AI adoption literature often examines single professional groups in isolation.	Understanding of how allied health professionals perceive AI in relation to other team members	AI adoption is interdependent across teams and systems; siloed views limit implementation success.	The study captures interprofessional dynamics influencing AI integration in practice.

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		(e.g., physicians, nurses, IT staff).		
Organizational and contextual factors	Frameworks highlight organizational culture, leadership, and infrastructure as important.	Rich qualitative accounts of how organizational context shapes allied health professionals' readiness and use of AI.	Context determines whether AI initiatives are sustained or abandoned.	The study explores organizational enablers and constraints from the lived experience perspective.
Ethical, legal, and human factors	Ethical concerns (e.g., privacy, bias, transparency) are frequently discussed at a theoretical level.	Frontline allied health perspectives on ethical dilemmas and trust in AI tools.	Ethical acceptance and trust are critical for meaningful adoption.	The study elicits practitioner views on trust, accountability, and ethical considerations.
Implementation outcomes	Studies report AI adoption rates and intention to use.	Qualitative insights into how adoption affects professional identity, job roles, and patient relationships.	Adoption is not only technical but also social and professional.	The study examines the broader impact of AI use on allied health practice and professional meaning.

Description:
This table summarizes key gaps in the existing literature on AI adoption in allied health clinical practice. While prior research has provided valuable quantitative data and high-level frameworks, limited qualitative evidence exists that captures the lived experiences of allied health professionals. This study addresses these gaps by exploring how barriers and facilitators are experienced in real clinical settings, how interprofessional and organizational contexts shape adoption, and how ethical and professional dimensions influence acceptance and use of AI.

RESULTS

Overview

The qualitative analysis revealed several themes and patterns reflecting allied health professionals' experiences, perceptions, and contextual factors shaping AI adoption in clinical practice. Data from interviews, focus groups, and document analysis were analyzed using thematic analysis (Braun & Clarke, 2006), revealing four overarching domains: Individual Factors, Organizational Factors, Technological and Ethical Factors, and External and Professional Context. Each domain contained barriers and facilitators, with supporting evidence from participant narratives. Visual models were developed to illustrate relationships between these themes and adoption outcomes.

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Theme 1: Individual Factors

Allied health professionals emphasized personal readiness, confidence, and perceived relevance of AI as major determinants of adoption. Key barriers included limited AI literacy, low confidence in using AI tools, and concerns about professional role displacement.

- **Barrier Example:**

"I feel that I don't fully understand how these AI tools work, and I'm worried that I might rely on them incorrectly, which could affect patient care." (Participant 4, Physiotherapist)

- **Facilitator Example:**

"Training sessions and hands-on workshops have really helped me feel confident in using AI to support my decision-making." (Participant 7, Speech Pathologist)

Participants indicated that motivation, perceived usefulness, and trust in AI were critical for adoption. Professionals were more willing to integrate AI when they saw clear benefits to clinical efficiency or patient outcomes (Hoffman et al., 2025).

Theme 2: Organizational Factors

Organizational influences were significant in shaping adoption. Barriers included inadequate infrastructure, poor workflow integration, limited time, and lack of leadership support.

- **Barrier Example:**

"The AI platform isn't integrated into our existing patient management system, so it feels like an extra task rather than a tool that helps us." (Participant 2, Occupational Therapist)

Facilitators included leadership engagement, clinical champions, workflow compatibility, and availability of technical support.

- **Facilitator Example:**

"Having our department head support the AI implementation and provide training really encouraged us to use the system." (Participant 5, Dietitian)

Organizational culture emerged as a moderator between individual readiness and adoption outcomes (Wenderott et al., 2026).

Theme 3: Technological and Ethical Factors

Professionals expressed concerns regarding explainability, transparency, bias, safety, and data privacy. These barriers often created hesitancy in trusting AI outputs.

- **Barrier Example:**

"Sometimes the AI gives recommendations without explanation, so I don't feel comfortable acting on them blindly." (Participant 3, Physiotherapist)

Facilitators included explainable AI, strong data governance, user-friendly design, and ethical safeguards, which enhanced trust and perceived reliability.

- **Facilitator Example:**

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"The system now provides explanations for its suggestions, which makes me more confident in using it during patient assessments." (Participant 8, Speech Pathologist)

These findings align with recent ethical AI adoption frameworks highlighting the role of transparency and trust in clinical acceptance (Muzumdar et al., 2025).

Theme 4: External and Professional Context

Participants emphasized the influence of policy, regulatory environment, interprofessional collaboration, and funding.

- **Barrier Example:**

"There's a lack of clear guidelines on AI use in clinical practice, and I'm not sure about legal implications if something goes wrong." (Participant 6, Occupational Therapist)

- **Facilitator Example:**

"When professional associations provide standards and guidelines, it reassures us that integrating AI is safe and accepted." (Participant 9, Dietitian)

Collaboration with physicians, nurses, and IT staff was highlighted as a facilitator to successful adoption, demonstrating the interdependent nature of allied health practice (Cecil et al., 2026).

Patterns and Relationships Across Themes

Analysis revealed several **cross-cutting patterns**:

1. **Trust and Confidence as Central Mediators:** Trust in AI and professional confidence influenced adoption across all domains.
2. **Organizational Support Amplifies Individual Readiness:** Leadership engagement and workflow integration moderated individual-level barriers.
3. **Ethical and Regulatory Clarity Enhances Acceptance:** Addressing transparency, data privacy, and professional standards facilitated both intention and routine use.
4. **Interprofessional Collaboration Promotes Sustainability:** Shared understanding across team members reduced perceived role threats and increased effective adoption.

A diagrammatic model (Figure 2) was developed to illustrate these interactions, showing how barriers and facilitators at individual, organizational, technological, and contextual levels converge to shape adoption intention, routine use, and improved patient care outcomes.

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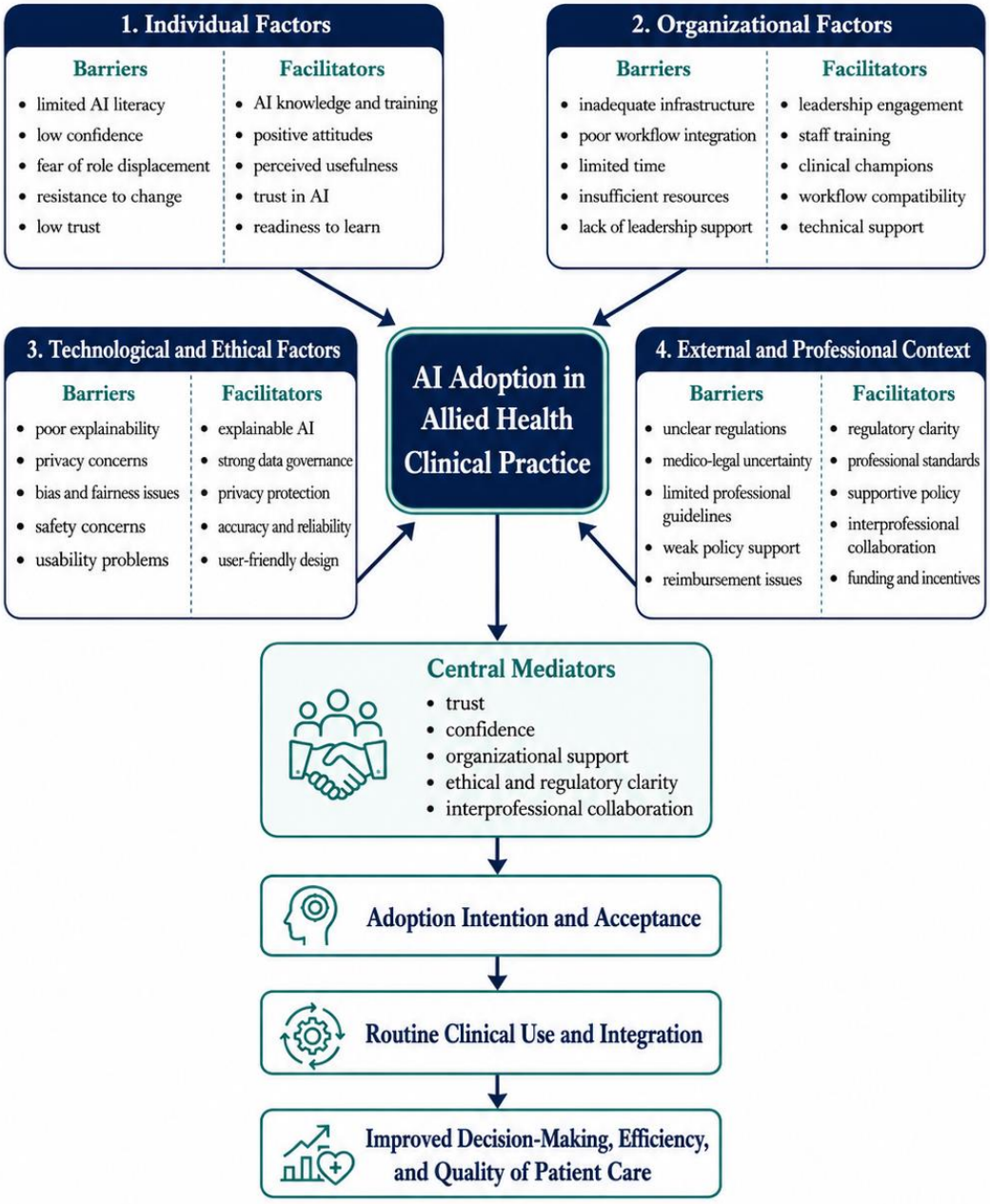
Figure 2. Thematic Model of Barriers and Facilitators Influencing AI Adoption in Allied Health Clinical Practice



This thematic model illustrates how barriers and facilitators across individual, organizational, technological and ethical, and external professional domains interact to shape AI adoption in allied health clinical practice. Trust, confidence, organizational support, ethical and regulatory clarity, and interprofessional collaboration act as central mediators that influence adoption intention, routine integration, and patient care outcomes.

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Figure 2. Thematic model of barriers and facilitators influencing AI adoption in allied health clinical practice. This model illustrates the relationships between individual, organizational, technological, and external factors. Barriers and facilitators interact to shape clinicians' adoption intentions, routine integration, and clinical outcomes, highlighting trust, confidence, and organizational support as central mediators.

DISCUSSION

The findings of this study provide a nuanced understanding of the barriers and facilitators influencing AI adoption in allied health clinical practice. Through qualitative exploration, it became evident that AI adoption is shaped by multiple interacting factors at the individual, organizational, technological, ethical, and professional levels, consistent with prior theoretical frameworks such as UTAUT, TAM, and TOE (Venkatesh et al., 2003; Tornatzky & Fleischer, 1990; Davis, 1989). The results underscore the centrality of trust, confidence, and organizational support as mediators that determine whether AI tools are integrated effectively into clinical routines.

Individual-Level Insights

At the individual level, barriers such as limited AI literacy, fear of role displacement, and low confidence echo previous studies emphasizing clinicians' apprehensions about the interpretability and reliability of AI outputs (Hoffman et al., 2025; Muzumdar et al., 2025). Conversely, facilitators including targeted training, positive attitudes, and perceived usefulness indicate that **educational interventions and professional engagement can significantly enhance adoption intentions**. These findings reinforce the need for **contextualized training programs** that not only develop technical competence but also address professional identity concerns, aligning with the literature on technology adoption in allied health (Cecil et al., 2026).

Organizational and Contextual Factors

Organizational factors, including leadership engagement, workflow compatibility, and availability of technical support, were consistently reported as critical determinants of successful adoption. These results align with Wenderott et al.'s (2026) recommendations for integrating AI into clinical practice, emphasizing the role of structural and cultural readiness. Organizational support appeared to moderate the impact of individual barriers, suggesting that even clinicians with low initial confidence may adopt AI effectively if provided with robust infrastructure, guidance, and leadership endorsement. External and professional contexts, such as regulatory clarity and interprofessional collaboration, further influenced adoption, highlighting the systemic nature of AI integration in complex healthcare environments.

Technological and Ethical Considerations

Concerns regarding explainability, safety, bias, and usability were prominent, reflecting the broader literature on ethical AI adoption in healthcare (Muzumdar et al., 2025). Facilitators such as explainable AI, robust data governance, and user-friendly design were perceived as essential to build trust and professional acceptance. These findings suggest that technology design must prioritize transparency, interpretability, and alignment with clinical workflows to address ethical and practical concerns simultaneously.

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Integration of Themes and Implications

The thematic model (Figure 2) highlights cross-domain interactions, showing that adoption is not determined by individual factors alone but emerges from the interplay of professional, organizational, and ethical contexts. The model underscores that trust, confidence, organizational support, and interprofessional collaboration act as central mediators, enhancing adoption intention, routine use, and patient care outcomes. This finding contributes to the literature by demonstrating the importance of multi-level interventions: addressing only technical performance without considering professional, organizational, and ethical dimensions is insufficient for sustainable AI integration.

From a practical perspective, these findings have significant implications for policy, education, and implementation strategies. Health institutions should prioritize comprehensive training programs, establish clinical champions, integrate AI seamlessly into workflows, and ensure clear ethical and regulatory guidelines. Professional associations and regulatory bodies also have a role in providing standards and guidance to build clinician trust. Moreover, interprofessional engagement can mitigate concerns related to role displacement and support collaborative adoption.

Comparison with Previous Studies

Consistent with Hoffman et al. (2025), this study confirms that allied health professionals experience unique barriers compared to physicians and nurses, particularly regarding professional identity and workflow integration. Similarly, findings align with studies in mental health and therapy contexts (Cecil et al., 2026) that emphasize trust and ethical safeguards as determinants of adoption. However, this study extends previous research by providing a comprehensive multi-domain model specifically tailored to allied health, integrating technological, organizational, individual, and external contextual factors.

Limitations

While this study provides valuable insights, several limitations should be acknowledged. First, the sample was limited to specific allied health disciplines and institutions, which may affect the generalizability of the findings. Second, as a qualitative study, findings are interpretive and context-dependent, reflecting participants' perspectives rather than measurable outcomes. Finally, the dynamic evolution of AI technologies may influence barriers and facilitators over time, suggesting the need for longitudinal studies to capture changing adoption patterns.

Future Research Directions

Future research should expand to multi-site and cross-regional studies, incorporate longitudinal designs, and explore quantitative validation of the thematic model. Investigating patient perspectives on AI integration and evaluating the impact of AI adoption on clinical outcomes would also enhance understanding of its broader implications in allied health.

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CONCLUSION AND RECOMMENDATIONS

Conclusion

This study provides a comprehensive qualitative exploration of the barriers and facilitators influencing AI adoption in allied health clinical practice. Findings indicate that adoption is shaped by a complex interplay of individual, organizational, technological, ethical, and external factors. At the individual level, clinicians' trust, confidence, AI literacy, and professional identity significantly influenced adoption intentions. Organizational readiness, leadership engagement, workflow integration, and technical support moderated the ability of professionals to integrate AI into routine practice. Technological and ethical considerations—including explainability, data privacy, safety, and usability—further affected willingness to adopt AI. Additionally, external and professional contexts, such as regulatory clarity, interprofessional collaboration, and professional standards, played a critical role in shaping adoption outcomes.

The thematic model developed in this study illustrates that trust, confidence, organizational support, ethical and regulatory clarity, and interprofessional collaboration act as central mediators linking barriers and facilitators to adoption intention, routine clinical use, and ultimately improved decision-making, efficiency, and quality of patient care. This work contributes to the literature by emphasizing the importance of multi-level, context-sensitive approaches that address both professional and organizational dimensions, highlighting that successful AI adoption in allied health requires more than technical functionality—it requires alignment with professional values, workflow compatibility, and ethical safeguards.

Recommendations

Based on the study findings, the following recommendations are proposed for **research, practice, and policy**:

1. Training and Education

- Develop targeted AI literacy programs for allied health professionals, including hands-on workshops and ongoing professional development.
- Emphasize ethical awareness, explainability, and clinical relevance to enhance trust and confidence.

2. Organizational Strategies

- Implement leadership engagement and clinical champions to support adoption and encourage integration into daily workflows.
- Ensure adequate infrastructure, technical support, and workflow compatibility to reduce barriers.
- Foster an organizational culture that promotes innovation while respecting professional identity.

3. Technological and Ethical Considerations

- Deploy explainable and user-friendly AI tools that provide transparency and reliability in decision-making.
- Establish data governance, privacy protection, and ethical safeguards aligned with clinical standards.

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4. Policy and Professional Support

- Develop clear regulatory and professional guidelines for AI use in allied health.
- Promote interprofessional collaboration to ensure AI adoption is harmonized across teams.
- Provide funding and incentives to support sustainable adoption and integration of AI tools.

5. Future Research

- Conduct longitudinal and multi-site studies to examine adoption patterns over time and across different allied health disciplines.
- Investigate patient outcomes and workflow efficiency as a result of AI adoption.
- Explore cross-disciplinary approaches to evaluate the interplay between technology, ethics, and professional practice.

Overall, these recommendations emphasize a holistic, multi-level approach to AI adoption that combines education, organizational readiness, ethical safeguards, and supportive policies to optimize adoption and improve patient care outcomes in allied health clinical practice.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest regarding the publication of this manuscript. There are no financial, personal, or institutional relationships that could influence or be perceived to influence the work reported in this study.

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