



Understanding Clinicians' Lived Experiences in Teleconsultation and Professional Identity

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ABSTRACT

Digital health systems have transformed modern healthcare by integrating technology into clinical practice, reshaping how clinicians deliver and experience care. Within this transformation, teleconsultation platforms have become central to patient management, yet their impact on clinicians' lived experiences and professional identity remains insufficiently explored. Existing research has largely focused on usability and adoption metrics, leaving a critical gap in understanding how healthcare professionals interpret and find meaning in their digital interactions. This study employs an Interpretative Phenomenological Analysis (IPA) to examine how clinicians navigate empathy, trust, and professional authenticity within teleconsultation environments. Data were collected through semi-structured interviews with twelve medical practitioners actively engaged in digital consultations during the COVID-19 pandemic. The analysis revealed four interrelated themes redefining clinical presence, negotiating trust with technology, reconstructing professional identity, and developing emotional resilience that describe the existential process of adapting to digital care. Findings indicate that clinicians reinterpret their sense of presence and empathy through communicative strategies that compensate for the absence of physical interaction, while also renegotiating trust and responsibility within technology-mediated contexts. This study offers a distinctive contribution by foregrounding the existential and interpretive dimensions of clinicians' digital practice—an area rarely centered in telemedicine research. These insights deepen the understanding of human experience in digital healthcare, emphasizing the need for human-centered design that preserves empathy and ethical integrity in telemedicine. The study contributes to both theoretical and practical discourse by framing digital transformation as an experiential and interpretive phenomenon rather than merely a technical advancement.



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INTRODUCTION

The rapid advancement of digital technology has transformed nearly every dimension of human life, including the domain of healthcare delivery (Mukhlis, Suradi, et al., 2023; Mukhlis, 2025b). The emergence of digital health systems and platforms, such as telemedicine, electronic health records (EHR), and AI-assisted diagnostic tools, has reshaped how medical professionals engage with patients and manage clinical information (Dagsever et al., 2025). These systems have created unprecedented opportunities for accessibility, efficiency, and data-driven decision-making, particularly during global crises such as the COVID-19 pandemic (Grodiewicz & Hohol, 2023). However, despite these advancements, existing discussions often emphasize technological progress without adequately addressing how such transformations are experienced by clinicians at an existential and emotional level. Amidst this transformation, healthcare has increasingly evolved into a hybrid interactional space mediated through screens, algorithms, and networked communication where clinical presence and human connection are redefined through digital interfaces.

In this shifting landscape, teleconsultation platforms have emerged as vital instruments for ensuring continuity of care, allowing patients to receive medical attention while minimizing physical contact (Ma & Saadati, 2025). However, beyond their technical and logistical significance, these platforms have also introduced new experiential realities for healthcare providers (Makgahlela et al., 2022). The clinical encounter, once grounded in face-to-face empathy and embodied communication, has been transposed into a digital medium that requires new modes of attentiveness, interpretation, and emotional engagement (Aovare et al., 2025). For clinicians, this transformation extends beyond operational adjustment; it challenges the very sense of professional identity, presence, and trust that defines the healing relationship.

The relevance of this phenomenon lies not only in its technological implications but also in its existential and human dimensions. Clinicians' experiences of connection, detachment, and adaptation in digital environments reveal deeper tensions between the efficiency of technological mediation and the intrinsic need for human empathy in medical practice. As Batsis et al. (2021) noted, the emotional labor of clinicians often intensifies in digital care, where the absence of physical cues may lead to uncertainty, fatigue, and a re-evaluation of care ethics. Understanding these experiences is critical for developing digital health systems that not only function effectively but also honor the relational and moral fabric of clinical work.

Thus, there is a growing need to explore the lived meanings and subjective experiences of healthcare professionals who operate within this digitally mediated context. While prior studies have focused primarily on the usability, adoption, and technical efficacy of telemedicine platforms, the phenomenological dimensions of how practitioners experience, interpret, and construct meaning around their engagement with digital tools remain underexplored. A phenomenological approach provides a way to bridge this gap by foregrounding the human experience of technology, emphasizing how digital transformation is lived, felt, and understood by those at the forefront of care delivery.

Through this lens, digital healthcare is not merely a technological innovation but a profoundly human experience that reshapes how care, empathy, and professional purpose are embodied in a digital age. By investigating the subjective realities of clinicians within teleconsultation systems, this study contributes to a deeper understanding of the intersection between technological modernity and the lived essence of clinical practice.

Within the expanding landscape of digital health research, the investigation of subjective experiences among healthcare practitioners has become increasingly important. The growing integration of teleconsultation systems and AI-driven platforms has not only altered clinical workflows but also transformed how medical professionals perceive, interpret, and engage with their work environment. As (Erol et al., 2025) observed, clinicians' lived experiences within digital ecosystems represent a crucial yet underexplored dimension of healthcare transformation. These experiences reflect not merely behavioral adaptations but also shifts in professional identity, emotional engagement, and ethical orientation domains that require interpretive exploration rather than quantitative validation.

Despite the expanding body of research on digital health adoption and technology acceptance, most studies have been grounded in positivist paradigms emphasizing usability metrics, adoption rates, and efficiency indicators. Quantitative frameworks such as the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT), while useful for measuring behavioral intention, fail to capture the nuanced, meaning-laden dimensions of human experience that accompany technological transformation (Morid et al., 2023). As a result, much of the existing knowledge remains surface-level, addressing what clinicians do rather than how they experience and make sense of their engagement with digital health systems.

This methodological limitation highlights a persistent challenge in digital health research: the difficulty of accessing and articulating the essence of lived experience in technologically mediated care. Traditional survey-based or observational studies, though informative, often overlook the emotional, existential, and ethical undercurrents that shape clinicians' interactions with technology (Sibrian, 2025). Consequently, the current understanding of the phenomenon remains fragmented, emphasizing outcomes over meaning and performance over presence.

A phenomenological approach offers a way to overcome these limitations by centering inquiry on the lived realities of clinicians as they navigate digital transformation. It enables an exploration of how experiences are lived, what meanings emerge from these interactions, and why such experiences matter in shaping the evolution of digital healthcare. By focusing on the interpretive processes through which clinicians assign meaning to their digital encounters, phenomenology provides a pathway toward a more holistic understanding of the human dimensions underlying technological innovation in medicine.

While digital health systems have become a cornerstone of modern healthcare delivery, existing research has predominantly focused on practical and operational solutions such as improving usability, workflow integration, and system performance. Studies frequently employ structured models like the Technology Acceptance Model (TAM) or the Unified Theory of Acceptance and Use of Technology (UTAUT) to explain adoption behavior and satisfaction levels among clinicians. These models, although valuable in understanding functional adoption, inherently emphasize behavioral intention and technical utility rather than the deeper experiential dimensions of clinicians' engagement with digital platforms.

Such instrumental approaches, while effective in quantifying efficiency or identifying systemic barriers, are limited in their ability to capture the lived meaning of technological adaptation. They tend to fragment complex human experiences into measurable constructs, thereby overlooking how clinicians internalize, interpret, and emotionally respond to the digital transformation of their professional practice (Bhat et al., 2025). Consequently, the subjective and existential aspects of working within a digital healthcare environment such as feelings of empathy loss, professional dissonance, and emotional fatigue remain insufficiently understood.

This epistemological limitation underscores a critical gap in current knowledge: the absence of interpretive inquiry into how clinicians experience and make sense of their interaction with teleconsultation systems (Mukhlis, Arifin, Ridwan, & Zulbaidah, 2025; Mukhlis, Arifin, Ridwan, Zulbaidah, et al., 2025). Quantitative and descriptive studies can explain what happens when healthcare becomes digital, but they cannot fully reveal how this transformation is lived and what it means for those who inhabit it daily.

Addressing this gap requires the adoption of a phenomenological approach, which privileges human experience as the foundation of understanding. Through phenomenology specifically the interpretative tradition rooted in Heideggerian hermeneutics research can access the essence of clinicians' digital engagement, uncovering the meanings embedded in their daily encounters with teleconsultation platforms. Such an approach moves beyond description toward interpretation, enabling a holistic comprehension of how digital technology reshapes not only medical practice but also the lived identity and emotional world of healthcare professionals.

Recent studies have explored how digital transformation reshapes healthcare delivery, particularly in the context of telemedicine and virtual care. Research by (Boers et al., 2020; Denniss & Lindberg, 2025) highlighted how digital consultations alter the dynamics of patient-clinician interaction, emphasizing the need for empathy and trust within technologically mediated care. However, these studies often remain descriptive, addressing surface-level issues such as usability and access rather than the deeper lived meanings of clinicians' experiences. Phenomenological research, by contrast, seeks to understand the essence of such experiences, revealing how technology changes professional identity and emotional engagement. This study builds upon that foundation by focusing on the subjective and existential realities of clinicians who interact daily with teleconsultation systems.

This research employs Interpretative Phenomenological Analysis (IPA) to explore how clinicians make sense of their digital encounters and professional adaptation. The phenomenological approach is particularly suited to uncovering meaning because it prioritizes participants' voices and lived realities over theoretical abstraction. By using IPA, the study responds directly to the knowledge gap identified earlier namely, the need to move beyond technical evaluations toward understanding the human meaning of digital care (Polat, 2021). The method allows for a detailed examination of how clinicians experience empathy, trust, and identity within digital health systems. Through this

interpretive lens, the study aims to capture the essence of human experience embedded within digital transformation.

The article is structured to guide readers through the logic and depth of this exploration. The Introduction presents the conceptual and contextual background, identifying the theoretical foundations and the existing research gap (Iijima et al., 2025). The Method section describes the interpretative phenomenological approach, data collection, and analysis processes that uncover experiential meanings. The Results section presents the themes derived from participants' narratives, illustrating the emotional and ethical dimensions of clinicians' engagement with digital care (Canfell et al., 2022). Finally, the Discussion and Conclusion sections interpret these findings, connecting them to broader theoretical and practical implications for digital health systems and human-centered design.

RESEARCH METHODS

Study Design

This study employed an interpretative phenomenological approach to explore the lived experiences of medical practitioners using digital teleconsultation platforms during the COVID-19 pandemic (Lutz & Knox, 2014; McNabb, 2015). The phenomenological design was selected to capture the essence and meaning of clinicians' subjective experiences as they navigated the transformation of traditional clinical practices into digitally mediated interactions. This approach aligns with the epistemological foundation of phenomenology, emphasizing the interpretation of human experience as it is lived and perceived in context.

The interpretative orientation of this study draws on Heidegger's hermeneutic philosophy, which posits that understanding arises through interpretive engagement rather than objective description (Fife, 2020; Kawamura, 2020). This methodological stance allowed for an in-depth exploration of how clinicians constructed meaning around their evolving professional roles, emotional adaptation, and ethical responsibilities within the digital health environment. Through this lens, the study sought to reveal not only what clinicians experienced but also how they interpreted and made sense of those experiences.

In addition, the overall design was guided by an explicit commitment to research ethics and methodological rigor, which informed the procedures for recruitment, consent, confidentiality, and validation of findings described in the following sections.

Participants

Participants consisted of licensed medical professionals actively engaged in providing teleconsultation services during the COVID-19 pandemic across diverse healthcare institutions (Hillman & Radel, 2018; Migdal, 2018). The inclusion criteria encompassed clinicians with at least one year of experience in digital consultations, proficiency in using telehealth platforms, and direct involvement in patient care. Exclusion criteria involved administrative personnel, trainees without independent clinical responsibilities, and professionals who had limited exposure to virtual consultations.

A purposive sampling strategy was applied to ensure the selection of individuals who could provide rich, relevant insights into the phenomenon under study. A total of 12 participants were involved, comprising seven physicians and five specialists in internal medicine and general practice. The participants ranged in age from 29 to 54 years (mean age 41), representing both genders equally. This demographic variety facilitated a comprehensive understanding of the diversity of experiences within the digital healthcare setting.

Data Collection

Data were collected through semi-structured, in-depth interviews designed to elicit participants' reflections on their experiences with teleconsultation systems. Interviews were conducted via secure video conferencing platforms to ensure accessibility and safety during pandemic

restrictions. Each interview lasted approximately 45 to 70 minutes, allowing participants to elaborate on their personal and professional experiences in depth.

The interview protocol included open-ended prompts focusing on clinical adaptation, emotional engagement, professional identity, and trust in technology. All sessions were audio-recorded with consent and subsequently transcribed verbatim. Efforts were made to create a comfortable conversational environment, enabling participants to speak freely without interruption. Data collection continued until thematic saturation was achieved when no new insights emerged from additional interviews.

Data Analysis

Data were analyzed using the Interpretative Phenomenological Analysis (IPA) framework, which emphasizes an idiographic, detailed examination of each participant's account before developing shared themes (Carreiras & Castro, 2012; Iosifides, 2016). Analysis proceeded through several iterative steps: (1) repeated reading of transcripts to gain familiarity with the data, (2) identification of significant statements and meaning units, (3) transformation of these units into emergent themes, (4) clustering of themes into superordinate categories that reflected shared meanings across participants, and (5) articulation of the essential structures of experience.

NVivo software was used as an auxiliary tool to support data organization and thematic coding; however, the interpretative process remained grounded in the phenomenological perspective rather than in software-driven analysis (Daly, 2007; Longhofer et al., 2012). Reflexive journaling and thematic mapping were employed to ensure that emerging interpretations remained faithful to participants' lived experiences while recognizing the interpretive role of the researcher.

RESULTS

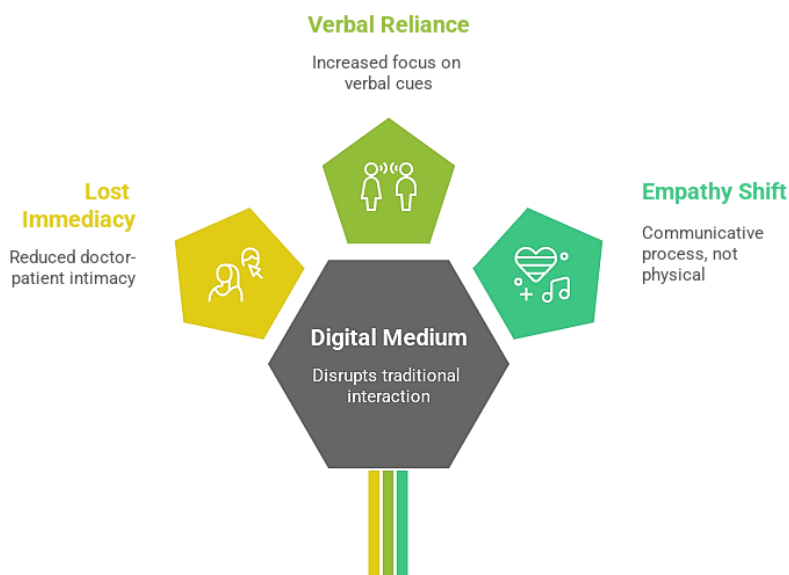
Redefining Clinical Presence in Digital Space

Participants described a profound transformation in how they perceived clinical presence when consultations transitioned from face-to-face to virtual interactions. The digital medium disrupted the traditional sense of immediacy and intimacy between doctors and patients, prompting professionals to reconstruct their understanding of empathy through technology. One participant reflected:

“I felt like I lost part of myself as a doctor when I had to communicate through a screen. It was harder to feel the patient's emotions or see subtle cues.”

This theme reveals that clinicians had to adapt their interpersonal communication strategies relying more heavily on verbal expressions, tone, and structured questioning to compensate for the absence of physical proximity. Over time, many participants began to view empathy not as a physical act but as a communicative process that could be conveyed digitally through attentiveness, active listening, and reassurance.

Digital Medium Redefines Clinical Presence



Negotiating Trust with Technology

Clinicians reported ambivalence toward the technological systems that mediated their interactions with patients. While teleconsultation platforms enabled continuity of care during crises, they simultaneously introduced a sense of vulnerability concerning privacy, data accuracy, and technological reliability. One respondent noted:

“I trust my own clinical judgment, but not always the system that carries it. Sometimes I wonder if the technology really supports or restricts me.”

The experience of technological mediation created a dual sense of empowerment and constraint. Some participants appreciated the efficiency and documentation features, while others expressed anxiety over system errors and data breaches. Trust was not static; it evolved through daily use, technical literacy, and institutional support mechanisms that validated digital competency.

Professional Identity and Role Transformation

A recurring pattern in the narratives concerned how clinicians redefined their professional identities. The shift to digital practice blurred the boundary between professional and personal spaces, as doctors consulted from home and navigated hybrid work environments. A senior clinician shared:

“It felt strange giving medical advice while my children were in the next room. My professional self and personal self started to overlap.”

This theme underscores the psychosocial adjustments required as practitioners negotiated new norms of professionalism in virtual care. Participants experienced both liberation from physical constraints and discomfort from the perceived dilution of professional authority. The process of identity reconstruction became a reflective exercise, shaped by continuous negotiation between human values and digital expectations.

Emotional Fatigue and Resilience in Digital Practice

Many participants reported emotional exhaustion associated with prolonged screen time, limited non-verbal feedback, and the perceived pressure to maintain attentiveness in digital environments. Yet alongside fatigue emerged adaptive strategies reflecting resilience and emotional regulation. A participant described:

“After a while, I learned to pace myself turn off the camera for a few minutes, breathe, and then re-engage. It became part of my survival routine.”

This theme illustrates how clinicians developed self-care mechanisms to sustain emotional balance. Institutional interventions, such as peer support and training, were perceived as critical for maintaining digital wellbeing. Emotional resilience thus emerged as both an individual and collective adaptive process within the evolving digital health ecosystem.

The lived experiences of clinicians reveal a multifaceted transformation encompassing professional identity, emotional engagement, and ethical responsibility in digital care delivery. Central to this transformation is the reinterpretation of empathy and trust in a mediated environment, where technology becomes both a bridge and a barrier to human connection. Clinicians' adaptation reflects not only cognitive and behavioral adjustments but also existential reflections on what it means to "be present" in the digital clinical world.

These findings form the empirical foundation for the proposed Empathic Digital Care Framework, which integrates human-centered design principles with phenomenological insights to enhance the relational quality of teleconsultation systems.

DISCUSSION

Summary of Key Findings

The findings revealed that clinicians' experiences with digital teleconsultation platforms are deeply intertwined with transformations in professional identity, empathy, and emotional resilience (Mukhlis et al., 2024; Mukhlis, Maryam, et al., 2023). These experiences reflect a redefinition of what it means to "be present" in clinical practice, where human connection and trust are mediated through digital systems.

Contribution of Findings to the Research Question

The central research question how clinicians navigate their professional roles and empathetic interactions within digital teleconsultation environments is addressed through an interpretive understanding of lived experience. The results demonstrate that clinicians do not simply adapt to digital tools but engage in a continuous process of meaning-making as they reconcile technological mediation with their ethical and emotional commitments to patient care (Shilpa et al., 2025). This interpretive process constitutes a form of digital embodiment, in which empathy and professional integrity are reformulated to align with virtual modes of interaction. The research contributes uniquely by conceptualizing digital care as an existential negotiation between technological efficiency and human connectedness. Such insights extend beyond technical assessments, offering a human-centered understanding of how clinicians experience vulnerability, agency, and moral responsibility in digitally mediated care.

Relation to Previous Literature and Theoretical Frameworks

The present findings align with and expand upon prior scholarship emphasizing the relational and emotional complexities of digital healthcare. (Mihai et al., 2022) described how teleconsultations disrupt the immediacy of doctor-patient interactions, while (Ali et al., 2024) identified the ethical tensions emerging from digitally transformed care environments. This study deepens those observations by illuminating the lived meanings underlying such disruptions how clinicians interpret the absence of physical proximity as both a loss and an opportunity for renewed empathy. Similarly, Batsis et al. (2021) reported clinicians' ambivalence toward telemedicine technologies; the current study extends this by framing ambivalence as a space of reflexivity where clinicians reconstruct trust through interpretive engagement with technology. The findings also resonate with Heidegger's hermeneutic phenomenology, particularly the notion of being-in-the-world, as clinicians' interactions with digital platforms reveal the existential condition of care mediated through technological presence. In doing so, the research bridges empirical inquiry with phenomenological theory, contributing to a more nuanced understanding of the human experience at the intersection of medicine and digital innovation.

Implications of the Findings

The findings of this study carry significant theoretical and practical implications for understanding the human dimension of digital healthcare (Mukhlis, Janwari, et al., 2023; Mukhlis & Abdullah, 2025). From a professional perspective, the reinterpretation of empathy and trust within teleconsultation environments highlights the need for human-centered digital health design, emphasizing relational continuity rather than mere technological efficiency. Culturally, the study illustrates how clinicians construct meaning within an evolving digital paradigm, where care is increasingly mediated through screens and algorithms. This reveals a broader social transition in how compassion, responsibility, and professional authenticity are expressed in technologically infused interactions (Lai et al., 2024). The insights gained suggest that training and policy frameworks in healthcare should incorporate emotional and ethical literacy for digital practice recognizing that effective teleconsultation is not solely a matter of competence but of embodied understanding and digital presence.

Limitations of the Study

This study is subject to several limitations that should be acknowledged. First, the sample size, while appropriate for phenomenological inquiry, limits the transferability of findings to broader populations or diverse healthcare settings. The experiences captured reflect a specific cultural and institutional context during the COVID-19 pandemic, which may not represent clinicians' experiences in other sociotechnical environments. Additionally, phenomenological interpretation, by its nature, involves the researcher's engagement with participants' meanings, introducing potential interpretive bias despite efforts toward reflexivity and validation through member checking (Shaikh et al., 2025). These limitations, however, are intrinsic to phenomenological research and serve to highlight its depth-oriented rather than generalizable nature.

Prospective Directions for Future Research

Future studies could extend these findings by examining digital empathy and professional adaptation across different healthcare disciplines, including nursing, mental health, and allied care (Mukhlis, 2025a; Mukhlis & Saidah, 2025). Longitudinal phenomenological research could also explore how clinicians' meanings and emotional orientations evolve as digital systems become more embedded in daily clinical routines. Comparative studies between interpretative and descriptive phenomenological traditions might further illuminate how different philosophical lenses shape our understanding of digital experience in healthcare. Moreover, interdisciplinary collaborations integrating phenomenology with design thinking and human-computer interaction could advance the development of systems that honor the lived world of clinicians while promoting technological innovation. Ultimately, such future research will continue to refine how digital care can sustain both professional integrity and human compassion in an increasingly mediated healthcare landscape.

CONCLUSION

This study explored clinicians' lived experiences in navigating digital teleconsultation systems, addressing the question of how professional identity, empathy, and trust are redefined in technologically mediated care. The findings revealed that clinicians continuously construct meaning as they balance technological efficiency with human connection, reflecting an ongoing negotiation between digital adaptation and professional authenticity. Through an interpretative phenomenological lens, the study illuminated the emotional, ethical, and existential dimensions of digital care that quantitative approaches have overlooked. These insights contribute to a deeper understanding of the human essence within digital healthcare, offering theoretical grounding for more empathetic and human-centered system design. By highlighting clinicians' interpretive engagement with technology, this research bridges the gap between operational performance and lived meaning in medical practice. In practical terms, the findings suggest that designers, administrators, and policymakers should collaboratively refine digital consultation workflows, integrate empathy-supportive features, and provide ongoing training to sustain human-centered care. Future studies may extend these findings across diverse clinical settings and explore interdisciplinary models that integrate phenomenology with digital innovation frameworks.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article. All authors have reviewed and approved the final version of the manuscript, and the research was conducted independently without any commercial or financial influence that could be perceived as a potential conflict.

REFERENCES

- Ali, T. E., Ali, F. I., Morad, A. H., Abdala, M. A., & Zoltan, A. D. (2024). Diabetic Patient Real-Time Monitoring System Using Machine Learning. *International Journal of Computing and Digital Systems*, 16(1), 1123–1134. Scopus. <https://doi.org/10.12785/ijcds/160182>
- Aovare, P., Beune, E., Laar, A., Moens, N., Moll van Charante, E. P., & Agyemang, C. (2025). User experiences with a mobile health app for self-management of diabetes and hypertension in Ghana: A qualitative study. *Annals of Medicine*, 57(1). Scopus. <https://doi.org/10.1080/07853890.2025.2517395>
- Bhat, T. F., Bhat, R. A., Trambo, I. A., & Antony, S. (2025). Surveilled Selves and Silenced Voices: A Linguistic and Gendered Critique of Privacy Invasion in Marie Lu's *Warcross*. *Forum for Linguistic Studies*, 7(5), 437–448. Scopus. <https://doi.org/10.30564/fls.v7i5.9505>
- Boers, S. N., Jongasma, K. R., Lucivero, F., Aardoom, J., Büchner, F. L., de Vries, M., Honkoop, P., Houwink, E. J. F., Kasteleyn, M. J., Meijer, E., Pinnock, H., Teichert, M., van der Boog, P., van Luenen, S., van der Kleij, R. M. J. J., & Chavannes, N. H. (2020). SERIES: eHealth in primary care. Part 2: Exploring the ethical implications of its application in primary care practice. *European Journal of General Practice*, 26(1), 26–32. Scopus. <https://doi.org/10.1080/13814788.2019.1678958>
- Canfell, O. J., Kodyattu, Z., Eakin, E., Burton-Jones, A., Wong, I., Macaulay, C., & Sullivan, C. (2022). Real-world data for precision public health of noncommunicable diseases: A scoping review. *BMC Public Health*, 22(1). Scopus. <https://doi.org/10.1186/s12889-022-14452-7>
- Carreiras, H., & Castro, C. (2012). Qualitative methods in military studies: Research experiences and challenges (p. 194). Taylor and Francis; Scopus. <https://doi.org/10.4324/9780203099223>
- Dagsever, F., Sharif-Khodaei, Z., & Aliabadi, M. H. F. (2025). WSN-Based Multi-Sensor System for Structural Health Monitoring. *Sensors*, 25(14). Scopus. <https://doi.org/10.3390/s25144407>
- Daly, K. J. (2007). Qualitative methods for family studies & human development (p. 293). SAGE Publications Inc.; Scopus. <https://doi.org/10.4135/9781452224800>
- Denniss, E., & Lindberg, R. (2025). Social media and the spread of misinformation: Infectious and a threat to public health. *Health Promotion International*, 40(2). Scopus. <https://doi.org/10.1093/heapro/daaf023>
- Erol, I., Peker, I., Medeni, I. T., & Yüce, F. (2025). Towards precision dentistry through artificial intelligence and blockchain-based digital Twins: Investigating challenges and solution strategies. *Technology in Society*, 83. Scopus. <https://doi.org/10.1016/j.techsoc.2025.103051>

- Fife, W. (2020). Counting as a Qualitative Method: Grappling with the Reliability Issue in Ethnographic Research (p. 140). Springer International Publishing; Scopus. <https://doi.org/10.1007/978-3-030-34803-8>
- Grodniewicz, J. P., & Hohol, M. (2023). Waiting for a digital therapist: Three challenges on the path to psychotherapy delivered by artificial intelligence. *Frontiers in Psychiatry*, 14. Scopus. <https://doi.org/10.3389/fpsyt.2023.1190084>
- Hillman, W., & Radel, K. (2018). Qualitative methods in tourism research: Theory and practice (p. 294). Channel View Publications; Scopus. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85050434848&partnerID=40&md5=7ea1e3f0b2027993b53f6a795804ee51>
- Iijima, K., Akishita, M., Endo, T., Ichikawa, T., Ozaki, N., Ogasawara, K., Kihara, Y., Kuzuya, M., Komatsu, H., & Terasaki, H. (2025). Reconstruction of a resilient and secure community and medical care system in the coronavirus era – English translation of the Japanese opinion released from the Science Council of Japan. *Geriatrics and Gerontology International*, 25(4), 481–490. Scopus. <https://doi.org/10.1111/ggi.15073>
- Iosifides, T. (2016). Qualitative Methods in Migration Studies: A Critical Realist Perspective (p. 266). Taylor and Francis; Scopus. <https://doi.org/10.4324/9781315603124>
- Kawamura, Y. (2020). DOING RESEARCH IN FASHION AND DRESS: An Introduction to Qualitative Methods, 2nd edition (p. 166). Bloomsbury Publishing Plc.; Scopus. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85188589040&partnerID=40&md5=b3db406659cd1ea5b20e05664bec39a3>
- Lai, Y.-C., Chiang, S.-Y., Kan, Y.-C., & Lin, H.-C. (2024). Coupling Analysis of Multiple Machine Learning Models for Human Activity Recognition. *Computers, Materials and Continua*, 79(3), 3783–3803. Scopus. <https://doi.org/10.32604/cmc.2024.050376>
- Longhofer, J., Floersch, J., & Hoy, J. (2012). Qualitative Methods for Practice Research (p. 224). Oxford University Press; Scopus. <https://doi.org/10.1093/acprof:oso/9780195398472.001.0001>
- Lutz, W., & Knox, S. (2014). Quantitative and qualitative methods in psychotherapy research (p. 448). Taylor and Francis; Scopus. <https://doi.org/10.4324/9780203386071>
- Ma, J., & Saadati, S. A. (2025). Voices of Recovery: Patients' Experiences with AI-Assisted Stroke Rehabilitation. *International Journal of Sport Studies for Health*, 8(4), 1–9. Scopus. <https://doi.org/10.61838/kman.intjssh.8.4.9>
- Makgahlela, M., Mabilalala, M., Lesolang, N., Jidong, D. E., & Monera-Penduka, T. G. (2022). Using traditional medicine to help with bereavement loss and coping: An interpretative phenomenological analysis of traditional healers' experiences. *Journal of Mental Health Training, Education and Practice*, 17(2), 145–158. Scopus. <https://doi.org/10.1108/JMHTEP-07-2021-0087>
- McNabb, D. E. (2015). Research methods for political science: Quantitative and qualitative methods: Second edition (p. 426). Taylor and Francis; Scopus. <https://doi.org/10.4324/9781315701141>
- Migdal, A. B. (2018). Qualitative Methods in Quantum Theory (p. 460). CRC Press; Scopus. <https://doi.org/10.1201/9780429497940>

- Mihai, S., Yaqoob, M., Hung, D. V., Davis, W., Towakel, P., Raza, M., Karamanoglu, M., Barn, B., Shetve, D., Prasad, R. V., Venkataraman, H., Trestian, R., & Nguyen, H. X. (2022). Digital Twins: A Survey on Enabling Technologies, Challenges, Trends and Future Prospects. *IEEE Communications Surveys and Tutorials*, 24(4), 2255–2291. Scopus. <https://doi.org/10.1109/COMST.2022.3208773>
- Morid, M. A., Sheng, O. R. L., & Dunbar, J. (2023). Time Series Prediction Using Deep Learning Methods in Healthcare. *ACM Transactions on Management Information Systems*, 14(1). Scopus. <https://doi.org/10.1145/3531326>
- Mukhlis, L. (2025a). A Phenomenological Study of Personal Spiritual Experiences in Navigating Religious Pluralism within Interfaith Communities. *Irfana: Journal of Religious Studies*, 1(6), 212–220.
- Mukhlis, L. (2025b). Spiritual Grounds for Economic Growth: A Qualitative Exploration of Rural Indonesian Women's Transformative Journeys Through Mosque-Led Empowerment Programs. *Servina: Jurnal Pengabdian Kepada Masyarakat*, 1(8), 289–298.
- Mukhlis, L., & Abdullah, M. N. (2025). *Hukum Keluarga Islam di Indonesia* (1st ed.). Mukhlisina Revolution Center.
- Mukhlis, L., Arifin, T., Ridwan, A. H., & Zulbaidah. (2024). Integrating Artificial Intelligence and Maqāṣid al-Syarī'ah: Revolutionizing Indonesia's Sharia Online Trading System. *Computer Fraud and Security*, 2024(11), 301–309. <https://doi.org/10.52710/cfs.238>
- Mukhlis, L., Arifin, T., Ridwan, A. H., & Zulbaidah. (2025). Reorientation of Sharia Stock Regulations: Integrating Taṣarrufāt al-Rasūl and Maqāṣid al-Sharī'ah for Justice and Sustainability. *Journal of Information Systems Engineering and Management*, 10(10s), 58–66. <https://doi.org/10.52783/jisem.v10i10s.1341>
- Mukhlis, L., Arifin, T., Ridwan, A. H., Zulbaidah, Rosadi, A., & Solehudin, E. (2025). Reformulation of Islamic Stock Law: The Application of Taṣarrufāt al-Rasūl and Maqāṣid al-Syarī'ah to Develop a Dynamic and Sustainable Islamic Capital Market in Indonesia. *Journal of Posthumanism*, 5(3), 1–13. <https://doi.org/10.63332/joph.v5i3.913>
- Mukhlis, L., Janwari, Y., & Syafe'i, R. (2023). INDONESIA STOCK EXCHANGE: THEORETICAL AND PHILOSOPHICAL ANALYSIS OF MUDHARABAH AND MUSYARAKAH CONTRACTS. *Yurisprudencia: Jurnal Hukum Ekonomi*, 9(2), 243–264. <https://doi.org/10.24952/yurisprudencia.v9i2.8466>
- Mukhlis, L., Maryam, S., & Sormin, S. A. (2023). Model Pembelajaran Living History Berbasis PjBL Untuk Meningkatkan Keterampilan Histografi Mahasiswa. *Jurnal Educatio FKIP UNMA*, 9(4), 1800–1809. <https://doi.org/10.31949/educatio.v9i4.5595>
- Mukhlis, L., & Saidah, Y. (2025). Dynamics of Nature-Based learning in Developing Children's Motoric Skills: Teacher and Parent Perspectives. *HUMANISMA: Journal of Gender Studies*, 9(1), 64–79. <http://dx.doi.org/10.30983/humanisme.v4i2.9366>
- Mukhlis, L., Suradi, Janwari, Y., & Syafe'i, R. (2023). Sosialisasi Saham Syariah sebagai Instrumen Pengembangan Ekonomi Masyarakat di Badan Kontak Majelis Taklim (BKMT) Kabupaten Mandailing Natal. *Jurnal Pengabdian Multidisiplin*, 3(2), 2–9. <https://doi.org/10.51214/japamul.v3i2.604>

- Polat, E. O. (2021). Seamlessly Integrable Optoelectronics for Clinical Grade Wearables. *Advanced Materials Technologies*, 6(3). Scopus. <https://doi.org/10.1002/admt.202000853>
- Schofield, P., Shaw, T. Toward comprehensive patient-centric care by integrating digital health technology with direct clinical contact in Australia. *Journal of Medical Internet Research*, 21(6). Scopus. <https://doi.org/10.2196/12382>
- Shaikh, A., Adhikari, N., Nazir, A., Shah, A. S., Baig, S., & Al-Shihi, H. (2025). Blockchain-enhanced electoral integrity: A robust model for secure digital voting systems in Oman. *F1000Research*, 14. Scopus. <https://doi.org/10.12688/f1000research.160087.3>
- Shilpa, R., Patrick, H. A., Sathyanarayana, N., & Kareem, J. (2025). Examining the Effectiveness of ASHA Workers in Providing Healthcare Services in Rural and Urban Areas of Bengaluru. *WSEAS Transactions on Environment and Development*, 21, 629–647. Scopus. <https://doi.org/10.37394/232015.2025.21.52>
- Sibrian, D. (2025). Thriving Through Adversity: Ancestral Wisdom and Environmental Justice. *Environmental Justice*, 18(4), 278–290. Scopus. <https://doi.org/10.1089/env.2023.0074>