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Clinical Adaptation, Sociotechnical Integration and Well-Being of Filipino Migrant Nurses Across Healthcare Settings in Germany: A Narrative Literature Review

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ABSTRACT

Germany's increasing reliance on internationally educated nurses, particularly from the Philippines, highlights the need to understand their clinical adaptation, sociotechnical integration, and occupational well-being. Guided by Locsin's Technological Competence as Caring in Nursing framework and Sociotechnical System Theory, this study reviewed empirical and theoretical literature concerning Filipino migrant nurses working in German healthcare settings. A narrative literature review and thematic evidence synthesis were conducted using Medline/PubMed, CINAHL, Scopus, Web of Science, Google Scholar, and institutional repositories. Of 25 initially identified sources, 21 core sources were included, comprising 16 Germany-specific and five international or comparative studies and reports. Findings were organized into four themes: recruitment and governance, clinical adaptation, sociotechnical integration, and occupational well-being. Evidence indicated that Filipino and internationally educated nurses encounter challenges involving credential recognition, language and communication, professional role adjustment, perceived deskilling, workplace discrimination, and adaptation to German healthcare practices. Clinical adaptation and occupational well-being were influenced by staffing levels, employer and colleague support, psychological safety, workload, and equitable treatment. Evidence concerning migrant nurses' integration with digital technologies, workflows, and artificial intelligence remains limited, as most German studies focus on the general nursing workforce. No identified study simultaneously examined clinical adaptation, sociotechnical integration, and occupational well-being among Filipino migrant nurses in Germany. These findings emphasize that professional integration should be viewed as an organizational and sociotechnical process requiring structured credentialing, culturally responsive orientation, mentoring, psychologically safe workplaces, equitable workloads, and digitally oriented clinical education. Further empirical research examining these interconnected dimensions is needed to support sustainable professional integration.

Keywords: *Filipino migrant nurses; clinical adaptation; sociotechnical integration; occupational well-being; internationally educated nurses*

INTRODUCTION

International nurse migration is becoming one of the most used strategies to build a workforce for countries who continue to suffer from chronic nursing shortages. Internationally educated nurses help maintain consistency in staffing, improve service delivery capacity, and increase the resiliency of the health system where they are employed. However, recruiting internationally educated nurses does not automatically ensure their successful professional integration into the new system. There is extensive

international literature that describes the transition challenges that internationally educated nurses face when transitioning into the new system. Transition challenges include obtaining equivalent credentials, differences between what internationally educated nurses expected before migrating to the new system and reality after migrating to the new system, different clinical roles than they experienced before migrating, and pressure placed upon internationally educated nurses to rapidly adjust to new systems while little reciprocal organizational adjustment occurred.

Germany is an especially pertinent location to examine these issues. Germany has engaged in international recruitment to meet its increasing nursing shortage due to the expansion of pathways for both bilateral and structured partnerships, including the Triple Win Approach and newer partnership models (Hanrieder & Janauschek, 2025; Rodriguez et al., 2025). Among the many internationally educated nurse groups being recruited to enter hospitals and other care settings in Germany are Filipino nurses. While such recruitment approaches provide needed personnel to staff facilities, the professional transition of internationally educated nurses occurs within systems that can be quite dissimilar from those where they received their education and previous worked.

Research in Germany specifically about Filipino nurses indicate that professionally devalued perceptions of their abilities occur frequently. They report feelings of incompetence, unfamiliarity with role boundaries, delays in recognizing their credentials, language-related barriers, discrimination, and homesickness during their transition (Zwergel et al., 2024; Luna, 2025). Such reports illustrate that clinical adaptation cannot simply be reduced to individual competency. Rather, factors such as the receiving organization, the culture of the team with whom they will be working, how nursing work is allocated, access to continuing education and recognition of their existing skills/experience will significantly impact whether internationally educated nurses can rebuild a meaningful professional identity in the host system.

In addition to clinical and linguistic learning required for clinically competent performance, digitally based technologies represent another dimension of adapting to a new system. Contemporary nursing practice in Germany incorporates electronic documentation, clinical information systems, digital teaching platforms and developing AI-based tools. Unfortunately, technology adoption varies greatly across Germany's nursing systems because of varying degrees of organizational preparedness to adopt technology and/or legal/operational constraints. Therefore, in addition to clinical and linguistic learning requirements for safe and confident functioning in local sociotechnical systems, internationally educated nurses must also learn how to function effectively within these systems.

There is a dearth of direct evidence about how Filipino migrant nurses perceive these sociotechnical systems. Additionally, occupational wellbeing is fundamental to both integration and retention. Studies conducted using samples of both migrant and non-migrant nurses in Germany have demonstrated significant associations between burnout, job dissatisfaction, psychological distress and variables related to staffing workload, psychological safety, fair treatment, organizational climate and discrimination (Can et al., 2022; Beqiri et al., 2025; Khouri et al., 2026). More importantly, there is considerable variability in current studies regarding whether migration status is predictive of poorer mental health and burnout given that working conditions are considered. As a result, we shift our focus away from viewing migrant nurses' struggles as deficits toward focusing on the environmental conditions created by employers/receiving organizations.

Locsin's Technological Competence as Caring in Nursing (TCCN) framework (2001), and Sociotechnical System (STS) Theory supported this study's theory base. TCCN posits that technological knowledge and competence are compatible with, and possibly integral to, caring practice. STS Theory supports this perspective by describing how the interactions among people, tasks, technologies, physical environments, and organizational structures create a system-level process. Both frameworks support the notion that clinical and technological adaptation are systemic rather than individually focused.

The purpose of this systematic review was to synthesize the empirical literature examining clinical transitions, sociotechnical integration, and occupational wellbeing among Filipino migrant nurses

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practicing in various healthcare settings in Germany. Additionally, this review explored documented clinical transition experiences of Filipino migrant nurses practicing in German healthcare settings; the state of digital/sociotechnical integration within contemporary German nursing practices; occupational wellbeing among migrant vs. host nurses; relationships among clinical transition experiences, sociotechnical integration and occupational wellbeing; and research gaps that should inform workforce policies/practices and future empirical investigations.

METHODS

Research Design

The methodology employed in this study was a narrative literature review and thematic evidence synthesis. There was no collection of primary field data. This review synthesized empirical research, policy analyses, institutional reports, and cross-national evidence to provide a baseline for both a conceptual and an empirical framework for the understanding of Filipino migrant nurses in Germany.

Information Sources and Search Strategy

An extensive, multi-database search was conducted using the databases PubMed/MEDLINE, CINAHL, Scopus, Web of Science, Google Scholar, and institutional repositories, such as the ILO, OECD Publishing, and Center for Global Development. Three sets of keywords were searched:

1. population and context: e.g., "Filipino nurses," "migrant nurses," "internationally educated nurses," "foreign-trained nurses" combined with "Germany" or "German healthcare";
2. core study variables: e.g. "clinical adaptation", "role adjustment", "competence", "recognition", "Anerkennung", "sociotechnical integration", "health IT", "artificial intelligence", "digital health", "documentation", "well-being", "burnout", "work-related stress", "job satisfaction", "work-life balance";
3. theory and policy: e.g., "Technological Competency as Caring in Nursing", "Sociotechnical Systems Theory", "Triple Win", "Global Skill Partnership".

Eligibility Criteria

Eligible sources included: peer reviewed qualitative, quantitative, or mixed-methods studies; policy analyses; relevant scoping review protocols; comparative or theoretical literature. Priority was given to studies that directly involved Filipino migrant nurses in Germany; then to studies of internationally educated, migrant or minority nurses working in German healthcare; and finally to studies of the broader German nursing workforce when they provided contextual evidence on burnout, workplace well-being, artificial intelligence, health information technology, or organizational conditions. International reviews and comparative policy literature were included if they directly contributed to our understanding of nurse migration, adaptation, TCCN or sociotechnical systems.

Sources were excluded if they addressed public attitudes towards expanded nursing roles but did not evaluate transition, technology, or well-being; contained unverified data or inadequate methodological details.

Study Selection and Quality Control

After conducting the initial title/abstract search, 25 candidate records were found. After completing full-text assessments based on the inclusion/exclusion criteria two additional records were excluded as they focused primarily on areas outside the scope of this review (one addressing public attitudes towards advanced practice nursing roles and one addressing medical assistants). Therefore the final synthesis incorporated 21 core sources. Of these, 16 represented Germany-specific studies/reports while 5 represented international/comparative sources providing support to the synthesis.

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Quality control emphasized accurately representing study populations, methods, limitations and associations. In addition to avoiding causal language in those instances where the underlying studies were either observational or qualitative we differentiated between direct Filipino-specific evidence and contextual evidence related to other migrant groups or the larger German nursing workforce.

Data Extraction and Evidence Hierarchy

All eligible studies were summarized by author/year, country, context, participants, setting, method, topic, major findings, thematic categories, relevance to Germany and relevance to the current review. An evidence hierarchy consisting of five tiers was utilized: Tier 1 - direct evidence on Filipino migrant nurses in Germany; Tier 2 - high context evidence on migrant, minority and internationally trained nurses in Germany; Tier 3 - supportive evidence from the broader German nursing workforce; Tier 4 - system level/technology/recruitment-policy context; Tier 5 – theory and international comparative scaffolding (see Appendix A. Literature Matrix Summary).

Data Synthesis

Findings were synthesized both narratively and thematically within five domains:

1. Recruitment Pathways and Institutional Governance
2. Clinical Adaptation, Roles Recognition and Credential Recognition
3. Sociotechnical Integration, Digital Workflow and Healthcare Technology Uptake
4. Occupational Well-being, Burnout Determinants and Workplace Equality
5. Theoretical Integration and Research Gaps Utilizing TCCN and STS Theory. Due to the heterogeneity of the included literature (i.e., population/design/outcome measures), no statistical meta-analysis was performed.

RESULTS AND DISCUSSIONS

As a result of the low number of studies about Filipino nurses in Germany and the fact that the majority of them were qualitative, there is a lack of knowledge about how Filipino nurses adapt to their new clinical environments. Additionally, the studies examining internationally educated migrant or minority nurses in Germany either include very few Filipinos or do not examine whether clinically adapted nurses feel integrated into the workplace or if they report good well-being. As a result, the empirical basis for the proposed theoretical framework differs substantially. For example, the evidence base for clinical adaptation is moderate, the evidence base for well-being is relatively strong, and the evidence base for sociotechnical integration is weak.

Additionally, the methodology used in each study differs greatly. The Philippines-based studies were all small-scale qualitative studies, whereas the large-scale quantitative studies of mixed migrant groups or German nurses overall were unable to combine estimates and therefore limited their ability to generalize results directly to Filipino nurses. German policy regarding recruitment of international nurses, including those from the Philippines, is intended to address the current and future staff shortages within the German nursing workforce. Hanrieder and Janauschek (2025), as well as Miña (2026), conducted reviews of policies related to recruitment of international nurses and concluded that recognition timeline, professional inclusion, retention, and anti-discrimination provisions are critical components of successful long-term integration of international nurses into German healthcare.

In contrast, Zwergel et al. (2024) and Luna (2025) identified significant uncertainties regarding economic security and timing of recognition processes and initial entries into German practice. Zwergel et al. (2024) also identified "peaks" of professional development, learning, social support, and recognition that occurred at times when professional foreignness, competence loss, and devaluation of professional identity were being mitigated. Similarly, Zwergel et al. (2024) identified "valleys" of professional growth

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characterized by language difficulties, delayed recognition, perceived discrimination, and feelings of homesickness. These findings indicate that successful formal entry into employment does not automatically equate to complete professional incorporation.

Clinical adaptation encompasses role adjustment, communication and language proficiency, professional confidence, and reconstructing professional identity. Philippine nurses often experience a dissonance between the previous educational or experiential background and the duties they are initially permitted to perform in Germany. Thus, continuing education and moving towards technologically sophisticated or specialized nursing responsibilities can be important mechanisms for regaining professional confidence and status (Zwergel et al., 2024).

Migrant nurses' qualifications can become objects of negotiation at the team level. Peppler et al. (2023) demonstrated that the introduction of academically-educated migrant nurses coincided with a period of transformation in German nursing roles leading to debates about who should undertake basic versus specialized nursing functions. This process may lead to both inclusion and exclusion. More broadly, international literature documents a one-way integration model in which migrant nurses bear an unfair proportion of the costs of adaptation (Rajpoot et al., 2024).

The degree to which adaptation occurs will likely vary depending upon the type of organization employing the migrant nurse. Roth et al. (2021) reported potential for improving safety culture during workplace integration in some types of organizations. Furthermore, Roth et al. (2021) reported different levels of burnout and work-life balance among internationally educated nurses compared to host country-trained nurses. Together these studies provide evidence supporting the notion that clinical adaptation is influenced by both individual transition factors and organizational context.

Sociotechnical integration refers to a combination of technical and social factors influencing the way that migrants integrate into their workplaces. The technological environment within German nursing was documented far more clearly than were migrant nurses' experiences of it. While general nursing literature provides a clear picture of the differential adoption rates of nursing specific information technology systems (e.g., nursing information systems, standardized nursing terminologies, artificial intelligence applications) across German hospitals (Hubner et al., 2010), the literature also demonstrates that lower adoption rates were observed in German hospitals relative to equivalent Austrian hospitals despite equivalent Information Technology (IT) budgets per bed. Such a finding highlights the importance of regulatory documentation requirements as well as organizational preparedness in facilitating or hindering adoption of nursing specific IT.

Recent literature from the ILO (2026) reported that nurses made use of artificial intelligence less frequently than other occupational categories; however, many employees initiated uses of AI themselves without systematic implementation by employers. However, associations between AI utilization and decision latitude disappeared when clusters of employer organizations were taken into account, further highlighting the impact of employer context on utilization. Moreover, no review article examined whether sociotechnical integration varied between migrant and locally trained nurses in Germany. Perhaps most importantly, none of the reviewed articles examined sociotechnical integration specifically among Filipino migrant nurses in Germany. The literature did not describe how Filipino migrant nurses adapted to electronic documentation practices, local digital workflow processes, healthcare technologies, or technology-facilitated collaboration between disciplines.

Thus sociotechnical integration remains the least empirically-supported construct in the current body of evidence. Evidence relating to well-being was abundant across a wide range of studies representing both migrant and non-migrant nursing populations. Factors known to affect well-being included workload, staffing arrangements, psychological safety, organizational climate, motivation, fairness, social support, perceived inequalities, discrimination or anti-discriminatory measures (Beqiri et al., 2025). Beqiri et al. (2025) found that migrant nurses in Germany had poorer self-reported physical and social health outcomes than did native-born German nurses but had higher levels of positive mental health outcomes and fewer

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cognitive symptoms than did native-born German nurses; Beqiri et al. (2025) noted that migrant nurses in Germany also reported higher emotional demands, time pressures and negative organizational climate perceptions than did native-born German nurses.

Studies examining foreign-background nurses and technologists as part of broader German nursing samples found that foreign-background professionals were among those reporting high levels of discrimination (Can et al., 2022); furthermore, Can et al. (2022) reported that perceived workplace inequity was negatively associated with workplace satisfaction. Home care settings offered additional examples where migrant nurses experienced general stressors common to all nurses (e.g., time pressure, workload physically demanding work); however migrant nurses also experienced unique stressors including prejudices, bullying, language/communication barriers and client-related discrimination; supportive supervisory interactions and peer exchange were noted as resources to help mitigate these stressors (Schilgen et al., 2019).

Broader German nursing samples reported lower burnout levels among nurses who worked in teams with high psychological safety ratings and/or positive staffing evaluation ratings; however migration experience was largely nonsignificant once working conditions were accounted for (Khouri et al., 2026). Additional studies examining burnout risks cited workload, job satisfaction, organizational climate, subjective control, motivation, rewards and fair treatment at work as correlates (Swakowska et al., 2025; Kwiatkowska-Ciotucha et al., 2021). Collectively these findings suggest that working conditions may play a more significant role in determining well-being than migration experience itself.

No included study measured clinical adaptation, sociotechnical integration and well-being simultaneously in a sample of Filipino migrant nurses. A subset of studies demonstrated indirect correlations among some combinations of these constructs. Specifically, clinical adaptation and well-being correlated in studies describing professional devaluation, foreignness, coping mechanisms, burnout, work-life imbalance and safety culture (Luna, 2025; Zwergel et al., 2024; Roth et al., 2021). However none of the studies demonstrated mediation or causality.

Similarly, correlations between sociotechnical integration and well-being were also uncertain. German nursing literature did not support a simple relationship between increased technology usage and improved or decreased well-being. Rather it appears that organizational context moderated technology effects. None of the included studies examined sociotechnical integration and well-being relationships among Filipino or other migrant nurses in Germany.

There are four interdependent research gaps exist: First a population gap exists since little direct evidence exists for Filipino-specific research in Germany - i.e., most relevant research is small scale qualitative studies with no quantitative correlational studies assessing clinical adaptation, sociotechnical integration, well-being among Filipino nurses in Germany. Second a variable gap exists since most evidence on sociotechnical integration relates to general nursing populations rather than migrant nurses. Third a technology gap exists since little research describes how migrant nurses utilize German healthcare technologies and digital workflows. Lastly a methodology gap exists since no study using a sequential explanatory mixed-methods design assessed quantitatively the relationships among clinical adaptation, sociotechnical integration and well-being followed by qualitatively explaining those relationships.

There are a number of ways to interpret the integration of migrant nurses into healthcare organizations. Most of these frameworks focus on an individual's ability to adjust to new roles and responsibilities (Harrison & Lubienski, 2005). These models emphasize the migrant nurse's "ability" to integrate successfully and fail to consider the role of the organization in supporting or hindering the integration process.

A more appropriate approach is to view integration as a complex, multi-dimensional organizational process. Integration is shaped by a wide variety of organizational and environmental variables including the availability of training opportunities, the level of support provided by peers and mentors, and the degree

of fit between the migrant nurse's skills and knowledge and the needs of the organization (Buchan & O'Malley, 2016).

Clinical transition represents the primary dimension that defines successful integration. However, clinical transition occurs within a larger system that includes other key elements such as credential recognition, language, role assignment, team dynamics, technology, staff ratios, and work environments (Kwak et al., 2017). Therefore, when we talk about integrating migrant nurses into our healthcare organizations we must think about developing comprehensive organizational systems that support both the clinical transition of migrant nurses and their overall integration into the organization. Understanding clinical transition as occurring within a larger organizational system has significant implications for how we approach the integration of migrant nurses. In particular, it emphasizes the importance of thinking about the entire organizational environment in terms of how it will influence the transition and integration process of migrant nurses. For example, hospitals that provide clear information about expected levels of clinical performance, develop systems to help migrant nurses understand and navigate organizational policies and procedures, and encourage peer mentoring may be able to create better transitional systems for migrant nurses.

Similarly, organizations that recognize the value of prior education and experience of migrant nurses, which may involve providing them with different levels of support based upon their previous experience, may also promote better integration (Cantor et al., 2009). Organizational characteristics, including psychological safety, staffing, workload, fairness, organizational climate, and social support are also linked to the well-being of migrant nurses (Lavergne et al., 2008). These findings suggest that improving team safety and staffing practices for all nurses may concurrently address issues related to burn-out and mental health for migrant nurses. Interventions intended to assist internationally educated nurses should be developed within the context of broader quality improvement efforts in healthcare workforce development.

While there is some limited evidence regarding sociotechnical integration in the German literature, few studies examine how internationally educated nurses acquire knowledge and skills required for effective use of digital technologies used in practice. There is a notable gap in the literature regarding the acquisition of technological competence by migrant nurses in German practice. This gap is not trivial. Digital documentation systems, medical devices, digital medications, electronic patient records and computer-based decision support systems are just some of the many technologies that can affect migrants' perceptions of their own competence and safety during transition. Research that fails to account for this domain may attribute sociotechnical mediated friction to individual clinical incompetence.

Locsin's Technology Competence Continuum Nursing (TCCN) framework helps to make sense of this gap inasmuch as it posits that technological competence enables the nurse to know the patient/person and practice care/caring, rather than simply being a technical skill. Thus, for migrant nurses, acquiring technological competence in a technology-enhanced caring practice may contribute to restoring their professional identity.The evidence from Filipino migrant nurses who chose to pursue technologically advanced specializations in practice supports this interpretation. Unfortunately, however, no studies referenced in this review tested Locsin's TCCN framework specifically in relation to digitally enhanced caring practices.

Social Studies of Technology (STS) Theory offers another theoretical lens at a macro-level. As stated previously, research has shown that German migrant nurses' ability to adapt to digital technology is influenced by organizational readiness (i.e., preparedness), legal documentation requirements (e.g., patient consent forms), staffing, workflow design, and team context. According to STS theory, problems associated with digital adaptation should not be attributed solely to deficiencies in the individual nurse. Rather safe integration requires optimizing people, tasks, technology, physical environments, and organizational structures jointly. Therefore digital onboarding for migrant nurses should occur in tandem with clinical onboarding rather than as a generic IT-onboarding process.

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The synthesis of this literature has implications for both policy and management. Credentialing processes should be evaluated not only for their effectiveness in completing administrative tasks but also for their effects on role utility and deskilling. Hospitals can enhance bi-directional onboarding by establishing mutual agreements for identifying each nurse's existing competences/competency gaps in addition to recognizing differences between scope/practice in home country versus Germany. Also hospitals can establish milestones for increasing role autonomy as nurses progress from initial orientation to independent practice.

Mentorship programs that are culturally competent should provide both language support and clinical-reasoning support. Mentorship programs should also offer coaching on workflow applications utilizing digital technologies and facilitate integration with teams. Mechanisms for reporting and addressing discriminatory behavior should be obvious and accessible to migrant nurses who may not always feel comfortable reporting prejudice/harassment to supervisors due to fear of retaliation.

Additionally, education offered pre-departure (pre-migration) and post-migration (bridging education) may also be improved. Education provided prior to departure from home country should prepare students not only for proficiency in speaking German but also for understanding authentic examples of German nursing documentation, common digital technologies utilized in practice, interdisciplinary communication patterns employed in Germany, typical role expectations of nursing professionals in Germany, standard patient-safety protocols employed in Germany, and employment rights of nursing professionals in Germany.

Recommendations

Institute competency-based, two-way orientation processes which are based on the nurse's prior education and experience in a specific nursing discipline rather than solely on deficits.

1. Include digital workflow and health information systems within clinical orientation programs to support the integration of international trained nurses into German healthcare settings.
2. Create mentorship and precepting programs with a focus on providing both clinical support and inclusive language-sensitive communication to promote the team participation and increase the role autonomy of new graduate nurses.
3. Identify psychological safety, staffing, workload, discrimination, and fair treatment as metrics related to integrating and retaining internationally educated nurses.
4. Assess timeframes required for recognition and actualized use of roles after placement, along with recruitment statistics as measures of successful policy development.

CONCLUSION

The research results indicate that Filipino migrant nurses in Germany undergo a transitional process to adapt to their new environment as they integrate into the German health care system. This includes adapting to an understanding of the recognition of prior learning and experience (competence), as well as integrating into a new linguistic or communicative culture, negotiating a role within their new organization, being included within their organization, utilizing technology-based systems at work, and developing occupational wellness. A large body of literature is now available on supporting clinical adaptation and wellness for migrant nurses; however, little to no literature exists about the sociotechnical aspects of facilitating cultural integration for migrant nurses from specific ethnic groups such as Filipino.

For practice, these findings support the movement away from one-way integration models, toward a bi-directional, sociotechnically based model where both the migrant nurse and the health care organization have shared responsibilities for ensuring a successful transition. Some potential strategies include developing transparent credentialing and competency-based pathways for nurses, providing formalized mentorship for nurses, creating psychologically safe environments, promoting equitable workload distribution, establishing anti-discrimination measures to protect migrant workers, and providing migrant

nurses with culturally sensitive and relevant digital training. Ultimately future quantitative and qualitative empirical studies will need to be conducted to measure and describe how clinical adaptation relates to sociotechnical

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