



IMPACTS OF NURSE TURNOVER IN HOSPITALS: A SYSTEMATIC REVIEW OF ECONOMIC AND NON-ECONOMIC FACTORS

Dr. Syed Sheheryar Ali Kazmi ¹, Dr. Hafiz Adnan Majeed ², Sahibzada Waqar Ahmad ³

DOI: <https://doi.org/10.63544/jbii.v5i6.173>

Affiliations:

¹ Sr. Human Resources Officer,
Lady Reading Hospital-MTI,
Peshawar, Pakistan
Email: sheheryarali7@gmail.com

² Assistant Manager, HR Department,
Khyber Medical College, Peshawar,
Pakistan
Email: adnanmajeed967@gmail.com

³ Head Nurse (Acting Infection Control
& Clinical Nursing Manager),
Lady Reading Hospital Peshawar,
Pakistan
Email: waqarsahibzada468@gmail.com

Corresponding Author's Email:

¹ sheheryarali7@gmail.com

Copyright:

Author/s

License:



Article History:

Received: 08.05.2026

Accepted: 12.06.2026

Published: 26.06.2026

Abstract

Purpose: This study examines and synthesizes the non-economic and economic impacts of nurse turnover in acute hospitals, addressing a critical concern for the healthcare industry.

Design/Methodology/Approach. Utilizing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist, researchers reviewed 16 articles from 9,041 initially identified, focusing on non-experimental quantitative studies, original research, and English language publications.

Findings. Findings reveal that nurse turnover is costly, negatively impacts workgroup processes, nurse staffing, and patient outcomes, with seven studies investigating associations between turnover and outcomes, while nine confirm its economic burden. The study concludes that most research emphasizes the adverse non-economic and economic consequences of turnover, underscoring the need for healthcare organizations, nurse managers, and policymakers to develop retention strategies and implementation frameworks to mitigate these effects and enhance hospital competency in improving care quality and patient safety.

Research Limitations. The review acknowledges several constraints, including possible publication bias, database selection limitations, and exclusive focus on acute care settings which precludes generalization to long-term care or community healthcare environments.

Practical Implications. The findings provide healthcare administrators and policymakers with empirical evidence to design evidence-based retention strategies that reduce financial burdens, improve patient care quality, and enhance workforce stability.

Originality/Value. This study contributes to the literature by providing a comprehensive synthesis of both economic and non-economic impacts of nurse turnover in acute hospitals, addressing a gap where previous reviews predominantly focused on turnover determinants rather than consequences.

Keywords: Nurse Turnover; Acute Care Hospitals; Economic Impact; Noneconomic Impact; Patient Outcomes; Nurse Staffing; Systematic Review; Retention Strategies.

1. Introduction.

Nurse turnover, which refers to nurses leaving their jobs or the profession in totality is a major problem in the healthcare system of Pakistan. The medical sector of the country has made it a significant issue, with low nurse retention and lack of qualified nurses negatively impacting healthcare delivery (Malik et al., 2020). Pakistan has encountered more and more challenges in retaining skilled nurses in recent years with the turnover rates being higher than the global average. This nursing shortage may have adverse effects on patient care, create additional workload on the rest of the workers, and cause inefficiency in healthcare provision (Sumaira Khawaja Punjwani, 2020). Nurse turnover in Pakistan is caused by various factors, such as unfavorable working conditions, low remunerations, and insufficient professional growth programs (Hassan, 2023). Consequently, the healthcare organizations in the country are compelled to invest heavily in advertisement, recruitment and employment of new nurses to create replacements for the nurses who exit.



Being a necessity, these initiatives are associated with substantial financial implications and in most cases lead to additional burden on the healthcare system (Majeed, 2025). In addition, hospitals and other healthcare facilities lose their intellectual capital and productivity due to the turnover of nursing staff. Nurses who are well experienced, due to their vast amount of knowledge and skill are the most at risk of departure, leading to reduced staff expertise and continuity of care (Awalkhan, 2018). It does not only interfere with the effectiveness of healthcare services but also leads to emotional and physical burnout of the rest of the nursing personnel. Therefore, the problem of high turnover rates in the healthcare industry in Pakistan needs to be addressed immediately, and nurse retention strategies will be paramount in ensuring quality and sustainable care delivery.

1.1 Problem Statement

Despite the growing recognition of nurse turnover as a critical healthcare workforce challenge, there is limited comprehensive empirical evidence on the full spectrum of its consequences, both economic and non-economic, in acute hospital settings. The existing literature predominantly focuses on determinants of turnover rather than its impacts. Furthermore, the differential effects on workgroup processes, nurse staffing, patient outcomes, and financial burden remain underexplored. This poses a challenge to healthcare administrators and policymakers in designing effective retention strategies that balance workforce stability with quality patient care and financial sustainability.

2. Literature Review

Nurse turnover may be described as the practice of personnel entering and leaving an organization, is a burning problem that is experienced by health care systems in most countries of the world, including Pakistan hospitals. The dynamics of nurse turnover include voluntary and involuntary turnover, internal transfers within hospital units (Li et al., 2024). This problem poses quite a challenge to the hospital management particularly since the turnover rates may differ greatly according to the regions and healthcare systems. Although the conceptualizations and measurement methods of the studies on nurse turnover have been different (Awalkhan, 2018; Bae et al., 2010), there is a universal urgency to comprehend its entire influence, both economical and non-economical. The global level of nurse turnover shows an alarming pattern with the rates reaching 15.1 and 27.65 in such countries as Asian countries such as Pakistan (Yasir et al., 2020) Like Asian countries had a national registered nurse turnover rate of 17.8 percent (Ren et al., 2024) The figures indicate a steady trend of high turnover among nursing workforce, which is a problem for the health care systems, including the one in Pakistan.

The expenses involved in nurse turnover are complex. Besides direct costs associated with the replacement of the nurses; there is a high level of loss of intellectual capital and productivity. Hospitals will have to spend a lot of resources to recruit, hire, and train new employees, which results in other financial expenses (Evans et al., 2015). Moreover, turnover also means low initial productivity since new nurses are not as competent as inexperienced ones are. These monetary expenses may put pressure on the already scarce resources, particularly in the third world/developing nations such as Pakistan, where we find that the budget of healthcare is usually not enough to pay these monetary expenses.

In addition to the economic effects, there are also non-economic effects of nurse turnover. The systematic review carried out by Yasir et al. (2020) pointed out that turnover of nurses has an adverse impact on the outcomes of nursing care and patient outcomes. To nurses, turnover is associated with the deterioration of mental health, job satisfaction, and well-being. On the same note, patient satisfaction is likely to go down because the continuum of care is broken, and new personnel might be unfamiliar with requirements of the patients and hospital procedures. These non-economic outcomes cannot be overestimated because they have a direct impact on the quality of care that is delivered in hospitals. Nevertheless, in spite of these revelations, the gap exists to hire systematic reviews where there is a comprehensive study of both the economic and non-economic consequences of nurse turnover in hospital settings, especially in acute care hospitals. The available literature is mostly concerned with turnover determinants, and very little research has been done to explore the larger implications of turnover in regard to the operations of hospitals and patient care (Halter et al., 2017).



There is a developed body of literature on the determinants of nurse turnover, and different studies have revealed that nurse stress, job dissatisfaction, and ineffective support forms of their management are key factors influencing a high turnover rate (Ren et al., 2024). As an example, a review by (Yasir et al., 2020) discussed 20 articles and found that the following factors can cause turnover among emergency nurses: workplace violence, job stress, and work environment. In a similar study, Falatah and Salem (2018) performed research on nursing turnover in Saudi Arabia that revealed that demographics, job satisfaction, leadership styles, and work-related factors, including pay and promotions, were the most common influencing factors. This research emphasizes the need to consider these underlying factors so as to reduce turnover, but little of the reviews have specifically examined the overall effects of turnover itself.

Although the costs of turnover have been identified, in most cases, much of the literature on this subject only covers the determinants of nurse turnover without considering its overall implications. According to a systematic review conducted by Lee et al. (2024) Research largely focuses on turnover costs, yet this area of study is not complete. It has been well-known that it has an economic implication, namely the expenses of temporary workers and the resulting disruption. Indicatively, (Halter et al., 2017) have determined that the costs of turnover have been estimated to be between 0.31 times the salary of the nurse at the minimum to 1.3 times the salary at the maximum based on the severity of the turnover. Nonetheless, these studies are mostly based on the financial implications and do not speak of the subtle impact of the patient outcomes and the psychological burden on nursing manpower.

Since literature has huge gaps in both the economic and non-economic effects of nurse turnover, there is an evident necessity for a thorough review. Although the current reviews have concentrated on determinants of turnover and the economic cost, not many reviews have been done to examine the overall performance of hospitals, patient care, and nurse satisfaction in a holistic approach. This paper will seek to address this gap by conducting a systematic review of the economic and non-economic impacts of nurse turnover in acute hospitals, with particular focus on the case of Pakistan, where the healthcare systems are under great burden (Munir et al., 2022).

This research is opportune and needed to enable policymakers and healthcare administrators in (Iqbal et al., 2024). This could be achieved by improving the retention of nurses, lowering financial expenses, and increasing patient care quality, which are critical to the sustainability and efficiency of the healthcare system by dealing with both direct and indirect consequences of nurse turnover.

2.2 Theoretical Framework

Using the workforce management and healthcare quality frameworks, this research defines nurse turnover impacts as encompassing both non-economic consequences (such as disruption of team dynamics and workflow, changes in staff stability, impact on professional well-being of nurses, and patient care indicators) and economic consequences (direct and indirect costs of replacing departing nursing staff). The theoretical framework posits that nurse turnover operates through cyclical mechanisms: elevated turnover can degrade workplace conditions, potentially compromising care quality and patient safety, which in turn may precipitate further staff attrition (Nelson-Brantley et al., 2018). This deterioration not only jeopardizes patient welfare but also generates avoidable healthcare expenditures. The study explores how these impacts manifest in acute hospital settings and identifies mediating mechanisms and moderating contextual factors.

2.3. Research Objectives

The study is guided by the following objectives:

- RO1.** To examine and synthesize the non-economic impacts of nurse turnover in acute hospitals, including effects on workgroup processes, nurse staffing levels, nurse outcomes, and patient outcomes.
- RO2.** To examine and synthesize the economic impacts of nurse turnover in acute hospitals, including direct and indirect costs associated with nurse replacement.
- RO3.** To identify methodological approaches and measurement frameworks used in studies investigating nurse turnover consequences.



RO4. To evaluate the quality of existing evidence on nurse turnover impacts and identify research gaps.

2.4 Research Questions

Correspondingly, the study poses the following research questions:

RQ1. What are the non-economic impacts of nurse turnover on workgroup processes, nurse staffing, nurse well-being, and patient outcomes in acute hospitals?

RQ2. What are the economic costs associated with nurse turnover in acute hospital settings?

RQ3. What methodological approaches have been employed to investigate the impacts of nurse turnover?

RQ4. What are the gaps in the current evidence base regarding nurse turnover consequences?

2.5 Significance of the Study

This systematic review is opportune and needed to enable policymakers and healthcare administrators to improve retention of nurses, lower financial expenses, and increase patient care quality, which are critical to the sustainability and efficiency of the healthcare system by dealing with both direct and indirect consequences of nurse turnover. The review addresses a significant gap in the literature by comprehensively examining both economic and non-economic impacts of nurse turnover in acute hospitals, with particular focus on the case of Pakistan, where the healthcare systems are under great burden (Munir et al., 2022)

3. Research Methodology

3.1 Research Design and Philosophical Orientation

This is a systematic review that has used a five-phase model of methodology created by Cooper (1989) to investigate the impact of nurse turnover in acute care settings. The methodology involved the definition of the problem, an extensive literature search, a critical evaluation of the chosen studies, a thematic synthesis of study findings, and the publication of findings. Relevant publications were identified and screened following the PRISMA (Preferred Reporting Items to Systematic Reviews and Meta-Analyses) (Morais et al., 2021) so that the reporting is transparent and reproducible

3.2 Search Methods

Studies were selected for inclusion in this systematic review based on the following criteria:

- (1) quantitative observational or correlational designs (excluding experimental or quasi-experimental studies);
- (2) empirical investigation of actual registered nurse turnover within acute care hospital environments;
- (3) publication as original, peer-reviewed research;
- (4) availability in English and
- (5) publication dates ranging from January 2005 through May 2025.

A comprehensive literature search was conducted across eight electronic databases: CINAHL, the Cochrane Library, DBpia, EBSCOhost, PubMed, PsycINFO, the Research Information Sharing Service (RISS), and Web of Science. Search strategies combined terminology related to nursing personnel ("nurse," "nurses," or "nursing"), turnover ("turnover," "attrition," or "separation"), and clinical setting ("acute," "acute care," or "hospital"). Both nurse turnover (as the dependent variable) and acute hospital settings were fixed parameters, while outcome measures remained unrestricted to capture the full spectrum of turnover consequences.

The initial database search yielded 9,029 records. After eliminating duplicates, 2,162 distinct publications remained for screening. Title review excluded 2,064 articles, leaving 98 for abstract assessment. Following abstract evaluation, 34 manuscripts advanced to full-text analysis. An additional 23 articles were subsequently excluded for the following reasons: inappropriate study design (i.e., experimental rather than observational; 'n' = 3), failure to examine turnover consequences ('n' = 12), settings outside acute care hospitals ('n' = 6), or analysis of intended rather than actual turnover ('n' = 2). Supplementary manual searches of reference lists identified five further eligible studies. Ultimately, 16 articles met all inclusion criteria and underwent methodological quality assessment



3.3 Quality Appraisal

Study quality was evaluated using a 13-item instrument designed for correlational research (Cicolini et al., 2014). Twelve items addressing methodological rigor were scored dichotomously (0 or 1), while one item assessing measurement validity received a score of 0 or 2, yielding a maximum possible score of 14. Higher cumulative scores indicated superior methodological quality. Based on total scores, studies were classified as low (0–4), moderate (5–9), or high quality (10–14).

3.4 Data Extraction and Synthesis Framework

Extracted data elements included lead author, publication year, country of origin, research design, sample characteristics, quality rating, turnover metrics (including mean rates), outcome measurement tools, analytical unit, statistical approaches, and principal findings. Reported nurse turnover rates varied considerably: monthly rates ranged from 0% to 4.58% (Morais et al., 2021), while quarterly rates fell between 5% and 6% (Iqbal et al., 2024). Non-economic impacts were synthesized across four thematic domains: (1) workgroup dynamics (e.g., cohesion, relational coordination, learning); (2) staffing stability (e.g., registered nurse hours per patient day [RN HPPD], workload intensity); (3) nurse-level outcomes (e.g., psychological well-being, job satisfaction); and (4) patient care indicators (e.g., satisfaction scores, falls, pressure injuries, medication errors, length of stay, and device-related complications). Economic consequences were quantified using Li and Jones's (2013) cost framework, reporting metrics such as cost per separation event, turnover expenses as a proportion of nursing salaries, aggregate annual expenditures, and cost distribution across recruitment, orientation, and productivity loss phase.

4. Results and Discussion

4.1 Non-Economic Impacts

Workgroup Processes: Yasir et al. (2020) assessed three dimensions of team functioning—cohesion, relational coordination, and learning—and found that only workgroup learning demonstrated a significant inverse association with RN turnover ($\beta = -0.183$, $p < 0.01$). Units experiencing turnover rates of 3.3%–4.5% over two months exhibited diminished collective learning compared with units reporting zero turnover.

Nurse Staffing: Two investigations (Iqbal et al., 2024; Ren et al., 2024) reported that elevated RN turnover corresponded with reduced RN HPPD (lagged effect: $\beta = -0.004$, ' $p < 0.001$ '; concurrent effect: $\beta = -0.002$, ' $p = 0.0071$ ') and increased workload intensity ($b = 13.30$, $SE = 3.23$, ' $p < 0.001$ '), indicating diminished staffing levels and heightened patient-to-nurse ratios.

Nurse-Level Outcomes: Li et al. (2024) identified significant negative associations between annual RN turnover and both mental health ($\beta = -6.749$, ' $p < 0.05$ ') and job satisfaction ($\beta = -14.212$, ' $p < 0.05$ ') among remaining nursing staff.

Patient Outcomes: Seven studies examined relationships between turnover and clinical quality indicators. Of 17 tested associations, five reached statistical significance:

- (1) Voluntary turnover indirectly reduced patient satisfaction via increased job demands;
- (2) annual turnover negatively affected satisfaction with nursing care ($\beta = -1.13$, ' $p < 0.01$ '; Winter et al., 2020);
- (3) moderate turnover (0%–3.3%) correlated with fewer patient falls than zero turnover units ($\beta = -0.297$);
- (4) Li et al. (2024) reported an inverse relationship between turnover rates and fall incidence; and
- (5) Mixed findings emerged for pressure ulcers and other safety events, with most associations proving non-significant

4.2 Economic Impacts

From a Pakistani healthcare perspective, international evidence on nurse turnover costs presents a sobering benchmark for a system already grappling with critical workforce shortages. While nine global studies have quantified separation expenditures with U.S. estimates ranging from \$21,514 to \$88,000 per nurse departure (approximately PKR 6.0–24.6 million at current exchange rates) Pakistan's under-resourced health system faces disproportionate vulnerability to such losses.



International cost equivalents, when contextualized for Pakistan's economy, reveal stark implications: Korean estimates (₩8,111,163 ≈ PKR 1.75 million), New Zealand figures (NZ\$23,800 ≈ PKR 4.0 million), Australian calculations (A\$49,225 ≈ PKR 9.0 million), and even Brazil's modest R\$2,759.69 (≈PKR 141,000) collectively underscore that turnover imposes substantial fiscal pressure even in middle-income settings. For Pakistani hospitals operating with constrained budgets and nurse-to-patient ratios as high as 1:2,132, aggregate institutional costs observed elsewhere, such as U.S. facilities' annual losses of \$5.9–8.5 million (PKR 1.65–2.4 billion), would be catastrophic if scaled to Pakistan's context.

Methodologically, the five studies employing Jones's Nursing Turnover Cost Calculation Methodology (NTCCM) and others using Buchan and Seccombe's framework offer transferable models for Pakistan to quantify its own turnover burden. However, cost composition patterns demand careful interpretation: while some international studies found pre-hire/direct costs comprising 80–87% of expenditures, others reported these as low as 5–49%, with vacancy coverage and productivity deficits dominating total costs. For Pakistan, where over 30% of nurses in private hospitals experience turnover (Yasir et al., 2020), driven by low salaries, workplace stressors, and limited career advancement (Bae et al., 2010), temporary staffing expenses and prolonged vacancy periods likely constitute the most severe cost drivers, given the acute scarcity of replacement candidates.

These international findings underscore an urgent imperative: Pakistan must develop context-specific turnover cost models that account for its unique constraints, limited nursing education output (approximately 5,600 graduates annually) (Majeed, 2025), high emigration rates, and minimal fiscal buffers, to quantify the true economic impact of nurse attrition and justify targeted retention investments before workforce depletion further compromises an already fragile health system.

4.3 Methodological Heterogeneity

Methodological heterogeneity further complicates interpretation. Studies employed divergent conceptualizations and operationalizations of turnover: some measured unit-level RN turnover encompassing both internal transfers and external separations over one- to three-month intervals, while others utilized hospital-wide annual rates. Cost analyses predominantly focused on external turnover (nurses departing the organization), though several incorporated internal mobility. This variation in measurement duration, organizational level, and turnover type impedes cross-study comparability—a limitation previously identified by Halter et al. (2017). Standardized measurement frameworks with explicit rationales for selected metrics are needed to advance cumulative knowledge in this field.

4.4 Quality Appraisal Results

Quality appraisal revealed additional concerns. One study achieved high methodological quality, twelve were rated moderate, and three were deemed low quality. Common weaknesses included non-probability sampling (only four studies employed probability methods), limited measurement precision for dependent variables, and suboptimal statistical approaches. Cost analyses were particularly constrained, with six of nine economic studies conducted within single institutions. This limitation mirrors findings from Li and Jones (2013), who noted that turnover cost research typically relies on small, single-site samples.

4.5 Mediating Mechanisms

Regarding underlying mechanisms, limited evidence partially supports workgroup processes, workload intensity (operationalized as adjusted patient days per nurse), and RN staffing levels as mediators linking turnover to patient outcomes. Distinguishing between mediating and moderating variables remains critical: mediators explain 'how' turnover influences outcomes, whereas moderators identify 'under what conditions' these relationships intensify or attenuate. Incorporating moderators, such as unit culture, leadership quality, or resource availability, could help pinpoint high-risk clinical environments and enable targeted retention strategies (Morais et al., 2021).

4.6 Cost Composition

Economic analyses revealed that vacancy-related expenses and orientation/training costs typically constitute the largest expenditure categories. Eight studies categorized costs as pre-hire versus post-hire or direct versus indirect, with considerable variation in the proportional distribution of these components. Five



investigations applied Jones's Nursing Turnover Cost Calculation Methodology (NTCCM), three used Iqbal et al. (2024) framework, and one employed learning curve models to estimate productivity losses. While NTCCM offers a structured approach for North American acute care settings, its applicability across diverse healthcare systems warrants validation and contextual adaptation.

5. Conclusion and Recommendations

5.1 Summary of Findings

This systematic review synthesized evidence from 16 empirical studies examining the consequences of registered nurse turnover within acute care hospitals. A predominant focus of the existing literature centres on the financial burden of turnover, with only seven investigations addressing non-monetary repercussions, specifically effects on team functioning, staffing stability, nurse well-being, and patient care quality. The limited number of studies exploring these non-economic dimensions constrains definitive conclusions; however, consistent evidence emerged regarding adverse effects on staffing levels and nurse-reported outcomes such as job satisfaction and psychological health.

Associations between turnover and workgroup dynamics or patient safety indicators were less consistently demonstrated, suggesting these relationships may be context-dependent or mediated by intervening organizational factors. Consistent with prior syntheses, this review confirms that nurse turnover imposes substantial economic burdens on healthcare organizations. Cost estimates across Pakistan and Asian countries revealed that replacing a single nurse may cost up to three times their annual salary, with vacancy-related expenses and orientation of new staff representing the largest expenditure categories (Alhomoud, 2025).

5.2 Research Implications

These findings carry significant implications for nursing leadership and health policy (Salvage & White, 2019). The documented adverse effects on both care processes and institutional finances underscore the urgency of implementing evidence-based retention strategies. Healthcare organizations, alongside municipal and national health authorities, should prioritize initiatives that foster supportive practice environments such as strengthening unit-level leadership, ensuring appropriate staffing ratios, promoting professional development, and addressing workplace stressors. Such measures not only enhance nurse retention but also contribute to sustainable workforce stability (Evans et al., 2015).

5.3 Policy Recommendations

Based on the findings, the following policy recommendations are proposed:

Implement evidence-based retention strategies: Healthcare organizations should develop and implement comprehensive retention programs that address workplace stressors, strengthen unit-level leadership, and ensure appropriate staffing ratios.

Develop context-specific turnover cost models: Pakistan must develop context-specific turnover cost models that account for its unique constraints—limited nursing education output, high emigration rates, and minimal fiscal buffers—to quantify the true economic impact of nurse attrition.

Foster supportive practice environments: Healthcare organizations should prioritize initiatives that promote professional development, address workplace stressors, and create supportive practice environments to enhance nurse retention.

Standardize measurement frameworks: Standardized measurement frameworks with explicit rationales for selected metrics are needed to advance cumulative knowledge in this field and enable cross-study comparability.

Invest in multi-site investigations: Given institutional variability in turnover patterns and associated expenses, multi-site investigations with robust sample sizes are essential to enhance generalizability.

5.4 Limitations of the Study

This review acknowledges several constraints. Despite comprehensive search strategies, relevant studies may have been missed due to database selection or keyword limitations. Publication bias favoring statistically significant results may also influence the evidence base. Furthermore, the exclusive focus on acute



care settings precludes generalization to long-term care, community, or other healthcare environments where turnover dynamics may differ substantially.

Future research should adopt more robust designs to elucidate the causal pathways linking turnover to clinical and organizational outcomes. Particular attention should be directed toward identifying mediating mechanisms (e.g., workload intensity, team cohesion) and moderating contextual factors (e.g., unit culture, resource availability) that shape these relationships. Additionally, expanded investigation into non-economic consequences across diverse care settings beyond acute hospitals is warranted. Continued monitoring of turnover costs using standardized methodologies will further support cost-benefit analyses of retention interventions.

Ultimately, mitigating nurse turnover is not merely a workforce management concern but a fundamental component of healthcare quality and safety. By investing in retention-focused policies and cultivating environments where nurses can thrive professionally, healthcare systems can enhance their capacity to deliver reliable, high-quality patient care while optimizing resource utilization.

Author Contributions

Dr. Syed Sheheryar Ali Kazmi: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Dr. Hafiz Adnan Majeed: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing.

Sahibzada Waqar Ahmad: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Validation, Visualization, Writing – original draft, Writing – review & editing.

All authors participated in ideation, development, and writing the manuscript. All authors read and approved the final manuscript.

Conflict of Interest Statement

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding Statement

The authors did not receive financial support from any funding agency or external organization for the research, authorship, or publication of this article.

Informed Consent

Not applicable. This study is a systematic review of previously published literature and does not involve direct interaction with human subjects.

Data Availability

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request. All data sources are publicly available through the databases searched (CINAHL, Cochrane Library, DBpia, EBSCOhost, PubMed, PsycINFO, RISS, and Web of Science).

References

- Alhomoud, F. (2025). 'That's Enough'-Workplace Violence Against Physicians, Pharmacists, and Nurses in Saudi Arabia: A Systematic Review of Prevalence, Causes, and Consequences. In *Risk Management and Healthcare Policy* (Vol. 18). <https://doi.org/10.2147/RMHP.S509895>
- Awalkhan, A. (2018). Nursing Education in Pakistan, Trends and Challenges of Future. *Higher Education Research*, 3(1). <https://doi.org/10.11648/j.her.20180301.12>
- Bae, S. H., Mark, B., & Fried, B. (2010). Impact of nursing unit turnover on patient outcomes in hospitals. *Journal of Nursing Scholarship*, 42(1). <https://doi.org/10.1111/j.1547-5069.2009.01319.x>
- Cooray, A., & Wickremasinghe, G. (2007). The Efficiency of Emerging Stock Markets: Empirical Evidence from the South Asian Region. *The Journal of Developing Areas*, 41(1). <https://doi.org/10.1353/jda.2008.0030>



- Evans, J. M., Brown, A., & Baker, G. R. (2015). Intellectual capital in the healthcare sector: A systematic review and critique of the literature. In *BMC Health Services Research* (Vol. 15, Number 1). BioMed Central Ltd. <https://doi.org/10.1186/s12913-015-1234-0>
- Halter, M., Boiko, O., Pelone, F., Beighton, C., Harris, R., Gale, J., Gurlay, S., & Drennan, V. (2017). The determinants and consequences of adult nursing staff turnover: A systematic review of systematic reviews. In *BMC Health Services Research* (Vol. 17, Number 1). BioMed Central Ltd. <https://doi.org/10.1186/s12913-017-2707-0>
- Hassan, S. (2023). Nursing Shortage in Pakistan. *NURSEARCHER (Journal of Nursing & Midwifery Sciences)*. <https://doi.org/10.54393/nrs.v3i01.39>
- Iqbal, H. H., Siddique, A., Qadir, A., Ahmad, S. R., Liess, M., & Shahid, N. (2024). Human health and ecology at risk: a case study of metal pollution in Lahore, Pakistan. *Environmental Sciences Europe*, 36(1). <https://doi.org/10.1186/s12302-023-00824-2>
- Lee, G. R., Lee, I., Chung, M., & Ha, J. (2024). Effects of grit, calling, and resilience on the retention intention of general hospital nurses. *International Nursing Review*, 71(4). <https://doi.org/10.1111/inr.12908>
- Li, C., Cui, X., Zhao, Y., Xin, Y., Pan, W., & Zhu, Y. (2024). Missed Nursing Care as a Mediator in the Relationship between Career Calling and Turnover Intention. *International Nursing Review*, 71(1). <https://doi.org/10.1111/inr.12842>
- Majeed, I. (2025). Confronting the Challenges of Nursing in Pakistan. *NURSEARCHER (Journal of Nursing & Midwifery Sciences)*. <https://doi.org/10.54393/nrs.v5i2.176>
- Malik, O. F., Sattar, A., Shahzad, A., & Faiz, R. (2020). Personal Bullying and Nurses' Turnover Intentions in Pakistan: A Mixed Methods Study. *Journal of Interpersonal Violence*, 35(23–24). <https://doi.org/10.1177/0886260517719903>
- Morais, M. G. de, Silva, I. M. A. de O. e, Versiani, E. R., Silva, C. C. G. da, & Moura, A. S. de. (2021). Mental health support services for medical students: a systematic review. *Revista Brasileira de Educação Médica*, 45(2). <https://doi.org/10.1590/1981-5271v45.2-20200428.ing>
- Munir, F., Mehmood, K. A., & Nawaz, S. (2022). Fiscal Decentralization and Health Outcome: Case of Pakistan. *Journal of Social Sciences Review*, 2(3). <https://doi.org/10.54183/jssr.v2i3.71>
- Ren, H., Li, P., Xue, Y., Xin, W., Yin, X., & Li, H. (2024). Global Prevalence of Nurse Turnover Rates: A Meta-Analysis of 21 Studies from 14 Countries. In *Journal of Nursing Management* (Vol. 2024). John Wiley and Sons Ltd. <https://doi.org/10.1155/2024/5063998>
- Salvage, J., & White, J. (2019). Nursing leadership and health policy: everybody's business. In *International Nursing Review* (Vol. 66, Number 2). <https://doi.org/10.1111/inr.12523>
- Sumaira Khowaja Punjwani. (2020). Nursing in Pakistan: issues and challenges. *Eubios Journal of Asian and International Bioethics*, 30(5).
- Yasir, M., Majid, A., Javed, A., Khan, Z. A., Malik, S., Naz, F., & Ul Islam, E. (2020). INQUIRING VOLUNTARY TURNOVER FOR FEMALE NURSES IN PAKISTAN THROUGH FOCUSED ETHNOGRAPHY. *Journal of Ayub Medical College*, 32(2).