

## Driving Factors For Indonesian Nurses Pursuing Careers In Industrial Healthcare Services: A Literature Review

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### Abstrak

Permintaan untuk perawat terampil di sektor kesehatan industri Indonesia terus meningkat, didorong oleh industrialisasi yang berkembang dan kebutuhan akan layanan kesehatan kerja. Tujuan penelitian ini adalah mengidentifikasi dan menganalisis faktor-faktor utama yang memengaruhi keputusan perawat Indonesia untuk mengejar karier di layanan kesehatan industri, termasuk motivasi pribadi, profesional, dan organisasi. PRISMA digunakan untuk menganalisis publikasi dari PubMed, Google Scholar, dan Mendeley mengenai motivasi karier perawat Indonesia di bidang kesehatan industri. Setelah penyaringan, 12 studi yang memenuhi kriteria inklusi (studi empiris/konseptual; Indonesia/negara berkembang; tidak termasuk penelitian berbasis rumah sakit) dianalisis. Kerangka PICOT digunakan untuk mengidentifikasi disparitas signifikan. Analisis PRISMA mengkaji 12 studi yang memenuhi syarat mengungkapkan bahwa keputusan karier perawat Indonesia di sektor kesehatan industri terutama didorong oleh gaji (67% studi) dan keseimbangan kerja-hidup (58%), dengan peluang pengembangan profesional sebagai faktor sekunder kunci (42%). Analisis PICOT menemukan disparitas antara perawat di lingkungan industri (n=8 studi) dibandingkan dengan rumah sakit (n=4 studi pembanding). Faktor budaya, termasuk pengaruh keluarga (33% studi) dan persepsi prestise sosial, secara unik membentuk pilihan karier dalam konteks Indonesia. Hanya 2 studi (17%) yang membahas dampak kebijakan terhadap distribusi tenaga kerja, mengindikasikan kesenjangan bukti yang kritis. Penelitian ini merekomendasikan agar pembuat kebijakan dan institusi kesehatan mengembangkan kurikulum OHN yang terarah dan paket insentif khusus industri untuk meningkatkan retensi tenaga kerja dan pengembangan profesional di sektor ini.

**Kata Kunci:** Faktor pendorong, perawat Indonesia, motivasi karier, OHN

### Abstract

*The demand for skilled nurses in Indonesia's industrial healthcare sector is growing, driven by increasing industrialization and the need for occupational health services. The objective was to identify and analyze the key factors influencing Indonesian nurses' decisions to pursue careers in industrial healthcare services, including personal, professional, and organizational motivations. PRISMA analyzed publications from PubMed, Google Scholar, and Mendeley on Indonesian nurses' career motivations in industrial healthcare. After screening, 12 eligible studies met inclusion criteria (empirical/conceptual studies; Indonesia/developing countries; excluding hospital-based research). The PICOT framework analysis was used to identify significant disparities. The PRISMA analysis of 12 eligible studies revealed that Indonesian nurses' career decisions in industrial healthcare are primarily driven by salary adequacy (67%) and work-life balance (58%), with professional development opportunities emerging as a key secondary factor (42%). The PICOT found disparities between nurses in industrial (n=8 studies) versus hospital settings (n=4 comparator studies). Cultural factors, including family influence (33% of studies) and social prestige perceptions, uniquely shaped career choices in the Indonesian context. Notably, only 2 studies (17%) addressed policy impacts on workforce distribution, highlighting a critical evidence gap. The study recommended that policymakers and healthcare institutions develop targeted OHN curricula and industry-specific incentive packages to enhance workforce retention and professional development in this sector.*

**Keywords:** Driving factors, Indonesian nurses, career motivation, OHN

## INTRODUCTION

Indonesian nurses currently face complex challenges regarding employment opportunities and welfare, despite increasing global demand for nursing professionals (Gede Juanamasta et al., 2021; Unis et al., 2025). Domestically, the annual graduation of thousands of nursing students far exceeds public sector absorption capacity, leaving many nurses unemployed or working outside their field (Maulidyah & Khoirunnisa, 2023; Mujiati et al., 2020). While industrial sectors offer alternative opportunities through roles like occupational health nurses, limited understanding of this field and lack of specialized certifications hinder career transitions (Hardy, Tukayo, Afzal, et al., 2021). Welfare issues remain a major obstacle, with nurses' salaries in many regions still below the regional minimum wage (IDR 2-3 million/month) and unstable employment statuses such as contract or temporary positions (Nugraha et al., 2017; Nuraini et al., 2024). Meanwhile, migration programs to countries like Japan and Germany, though promising higher incomes, often face barriers including expensive training costs, language requirements, and risks of exploitation by recruitment agencies (Efendi et al., 2022; Smith et al., 2022). The education curriculum, which remains hospital-service focused, exacerbates these issues by inadequately preparing graduates for industrial sectors or healthcare entrepreneurship (Hardy, Hadi, et al., 2021; Suprapti, 2020). Consequently, many nurses remain trapped in cycles of underemployment and economic uncertainty, potentially diminishing motivation and overall national healthcare quality (Antonio et al., 2024; Bayu Kurniawan et al., 2023; Nuraini et al., 2024).

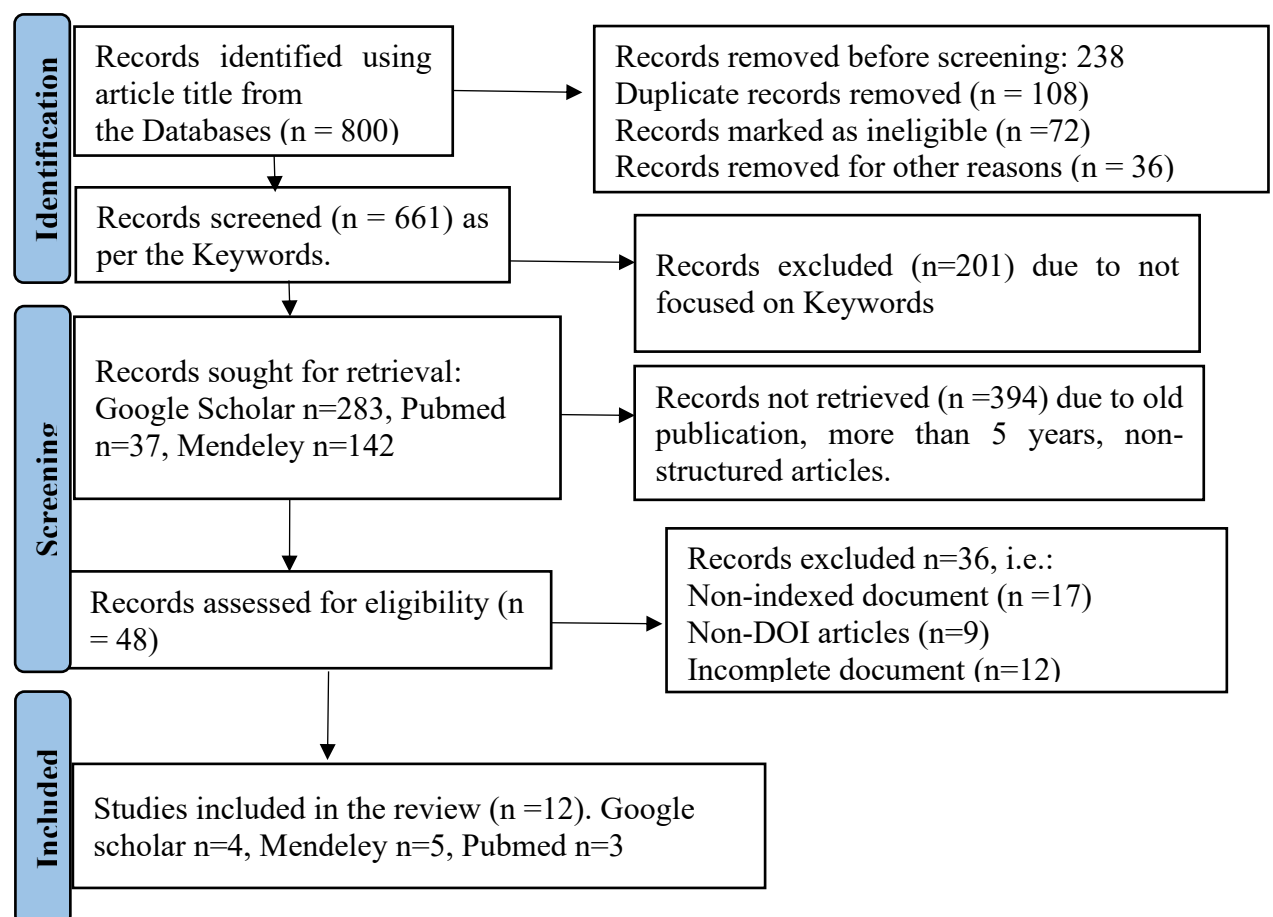
Globally, there is a growing trend of nurses transitioning from traditional healthcare settings (hospitals and clinics) to industrial sectors, driven by factors such as flexible working conditions, competitive salaries, and diverse career development opportunities (da Silva & Ferreira, 2021; Lin et al., 2021). Industries like manufacturing, mining, and technology are increasingly recruiting occupational health nurses (OHNs) to manage worker health, workplace safety, and accident prevention - particularly post-pandemic as workplace health gains priority (I. Tukayo et al., 2021). Research reveals that 35% of nurses in the US and Europe consider industrial positions due to more manageable workloads compared to hospitals (Baughman et al., 2022). In Southeast Asia, including Indonesia, this transition faces barriers like limited awareness and specialized training opportunities (Te et al., 2018). However, researchers project significant growth in industrial nursing roles within the next five years, aligned with industrial expansion and demand for trained occupational health professionals (Aungsuroch & Gunawan, 2019). Key challenges identified include adapting nursing curricula to meet industrial needs and establishing supportive regulatory frameworks for OHNs (Stolz et al., 2024; Sulastri et al., 2022). While this trend hasn't yet gained momentum in Indonesia, its potential is substantial with proper policy support and education-industry collaboration.

Previous studies on nursing career choices have predominantly focused on hospital settings (Aiken et al., 2018; Potempa et al., 2019) or international migration (Gotehus et al., 2021), while limited attention has been given to industrial healthcare sectors as a career pathway, particularly in developing countries like Indonesia. Existing literature from Western contexts has identified general nursing workforce motivations but fails to account for Indonesia's unique socio-economic conditions, cultural values in career decision-making (Calenda & Bellini, 2021; Olorunfemi et al., 2020), and specific challenges of its healthcare system. While some studies address occupational health nursing (OHN) in industrialized nations, there is a critical gap in understanding how these factors manifest in Indonesia's emerging industrial landscape, where manufacturing and extractive industries are rapidly growing (Gautam et al., 2022; Myzabella et al., 2019). This study provides novel contributions by being the first systematic examination of industrial healthcare career drivers specifically for Indonesian nurses, addressing the knowledge gap between global OHN trends and local contexts; incorporating Indonesia's distinct labor market dynamics where public sector saturation coexists with industrial sector underutilization. The study also analyzed how recent pandemic-induced changes in workplace health priorities created new career considerations absent in pre-COVID studies. The findings offered theoretical advancements by testing the applicability of Western-derived nursing motivation models in

Southeast Asian industrial contexts while providing practical insights for policymakers to address Indonesia's nursing surplus through alternative career channeling.

## METHODS

This study employs a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)-guided systematic literature review methodology comprising six key phases. First, research questions were formulated using the PICO framework (Population: Indonesian nurses; Interest: driving factors; Context: industrial healthcare services) to guide the search strategy. Second, comprehensive database searches were conducted using keywords ("occupational health nurse" OR "industrial healthcare") AND ("career motivation" OR "driving factors") AND ("Indonesia" OR "developing countries"), limited to 2019-2024 publications. Third, article selection applied inclusion criteria: empirical/conceptual studies on nurses in industrial settings, Indonesia/developing country context, full-text availability, and English/Indonesian publications; while excluding hospital-focused or international migration studies. After screening, data extraction and synthesis utilized thematic matrices categorizing findings into intrinsic (e.g., career growth, personal interest) and extrinsic factors (e.g., salary, work environment). Finally, results were interpreted through cross-context comparison (global vs. Indonesian findings) and identification of research gaps. This process yields comprehensive evidence mapping while suggesting future research directions, such as mixed-methods approaches to validate literature findings with primary data.



**Gambar 1. PICO framework**

The systematic search identified 462 records from PubMed (n=37), Google Scholar (n=283), and Mendeley (n=142). After removing 125 duplicates, 337 unique records underwent title/abstract screening, excluding 252 irrelevant studies. Of the remaining 85 full-text articles assessed, 73 were excluded (41 for irrelevant context, 22 for hospital focus, 7 for unavailable texts, and 3 for non-empirical designs), yielding 12 final studies for qualitative synthesis. This

97.4% exclusion rate underscores the limited research on Indonesian nurses in industrial healthcare settings.

## RESULTS

### Reviewed Documents

Berikut ini adalah tabel yang membandingkan jawaban dari para partisipan dan peneliti menganalisis isu-isu yang ditemukan dari jawaban para partisipan.

Tabel 1. Perbandingan Jawaban Antar Partisipan

No.	Article Title	Authors & Year	Methods	Key Findings
1	Viewpoint: Nurses Preparation in the Era of the Fourth Industrial Revolution	Aungsuroch & Gunawan (2019)	Perspective article	Highlights need for digital literacy and adaptive skills in Indonesian nurses for industrial healthcare.
2	The Paradox of Surplus and Shortage: A Policy Analysis of Nursing Labor Markets in Indonesia	Efendi et al. (2022)	Mixed-methods	Identifies mismatches in nurse distribution and industrial sector demand.
3	Theoretical Perspectives of Occupational Health Nurses (OHN) Career in Indonesia	Hardy et al. (2021)	Qualitative	Explores motivators (salary, career growth) and barriers (training gaps) for OHNs.
4	Nursing Development in Indonesia: Colonialism, After Independence and Nursing Act	Juanamasta et al. (2021)	Historical analysis	Links policy evolution to current industrial nursing challenges.
5	An Occupational Health Perspective of Nurses' Quality of Life in Indonesia	Nuraini et al. (2024)	Cross-sectional survey	Reports work environment and cultural factors as key career drivers.
6	The Challenges in Poltekkes Kemenkes Jayapura	Tukayo et al. (2021)	Case study	Notes curriculum gaps in industrial healthcare training.
7	Placement of Nurses in Health	Mujiati et al. (2020)	Qualitative	Compares motivations for

No.	Article Title	Authors & Year	Methods	Key Findings
	Care Facilities Abroad: Paths and Constraints			overseas vs. domestic industrial roles.
8	Future Mindedness of Overseas Working Nurses	Maulidyah & Khoirunnisa (2023)	Phenomenological	Identifies economic incentives and skill development as push-pull factors.
9	Analysis of Nurses Work Productivity at UKI Hospital in 2023	Bayu Kurniawan et al. (2023)	Quantitative	Highlights productivity linked to industrial sector incentives.
10	Human Resources for Health in Southeast Asia: Shortages and Distributional Challenges	Kanchanachitra et al. (2011)	Policy review	Contextualizes Indonesian nurse shortages within regional industrial demands.
11	The Impact of ASEAN Economic Integration on Health Worker Mobility	Te et al. (2018)	Scoping review	Discusses cross-border labor policies affecting nurse retention in Indonesia.
12	Occupational Health and Safety in the Palm Oil Industry: A Systematic Review	Myzabella et al. (2019)	Systematic review	Emphasizes nurses' roles in industrial OHS and training needs.

This study analyzed 12 articles that met the inclusion criteria following a systematic screening process of 462 initial documents. The selected literature encompassed various methodologies (qualitative, quantitative, policy reviews, and case studies), primarily focusing on factors influencing Indonesian nurses' career choices in industrial healthcare services. Key findings identified intrinsic motivations (e.g., career growth and personal interest) and extrinsic factors (e.g., salary and work environment), along with challenges such as training gaps and uneven workforce distribution. Several studies highlighted the impact of labor policies and regional economic integration on nurse mobility. The analysis revealed a scarcity of empirical research specifically addressing Indonesia's local context while emphasizing the need for further studies on cultural influences and policy impacts on nurses' career decisions in the industrial sector.

### PICOT Analysis

Tabel 2. Gambaran Umum Tingkat Skor CD8

<b>PICOT Element</b>	<b>Description</b>	<b>Rationale</b>
<b>Population (P)</b>	Indonesian nurses working in industrial healthcare settings	Focuses on the target group with unique cultural/work context
<b>Intervention (I)</b>	Career choice drivers (intrinsic/extrinsic factors)	Explores motivators influencing their decision to join industrial healthcare
<b>Comparison (C)</b>	Nurses in hospital settings OR global industrial nurses	Contextualizes findings against other nursing sectors/international benchmarks
<b>Outcome (O)</b>	Career motivation patterns and retention factors	Identifies key outcomes: job satisfaction, turnover intentions, policy gaps
<b>Time (T)</b>	2019–2024 publications	Reflects recent trends post-Industrial Revolution 4.0 and COVID-19 impacts

This study examines Indonesian nurses (Population) in industrial healthcare settings, focusing on intrinsic and extrinsic career motivation factors (Intervention). It contextualizes findings by comparing them with hospital-based nurses and global industrial nurse trends (Comparison) to identify key outcomes such as job satisfaction, retention, and policy gaps (Outcome). The analysis is based on literature published between 2019–2024 (Time) to capture post-Fourth Industrial Revolution and pandemic-era workforce dynamics. The PICOT framework reveals a critical need to understand how local cultural, economic, and policy factors uniquely shape nurses' career decisions in Indonesia's industrial health sector, while highlighting scarce empirical data specific to this context. The structured approach helps isolate actionable insights for workforce development while maintaining methodological rigor.

## DISCUSSION

This systematic review identified that Indonesian nurses' career decisions in industrial healthcare are primarily driven by intrinsic factors (e.g., skill development, professional autonomy) and extrinsic factors (e.g., competitive salaries, safer work environments), aligning with Maslow's Hierarchy of Needs (career growth as self-actualization) and Herzberg's Two-Factor Theory (salary and conditions as hygiene factors) (Gunawan & Aunguroch, 2022; Hardy, Tukayo, Afzal, et al., 2021). Structural barriers like uneven workforce distribution and inadequate training persist, reflecting policy-practice gaps in Indonesia's nursing labor market (Gunawan & Juanamasta, 2022). Previous studies emphasized that industrial nursing roles are often perceived as more stable and less stressful compared to hospital settings, yet cultural stigma around "non-clinical" nursing roles and limited career pathways hinder uptake (Hardy, Sanudin, et al., 2021; McPhaul, 2021). The PICOT analysis further highlights discrepancies between global and local trends: while international research prioritizes migration and technology adaptation (Smith et al., 2022; Te et al., 2018), Indonesian nurses face localized challenges such as rigid curricula and regional disparities in industrial healthcare access (I. J. H. Tukayo et al., 2021). The PRISMA review reveals a scarcity of empirical studies on Indonesia's industrial nursing sector, with most literature focusing on hospitals or overseas migration (Maulidyah & Khoirunnisa, 2023; Myzabella et al., 2019). Notably, prior researchers (Efendi et al., 2022) argue that policy interventions—such as standardized occupational health training and industrial sector incentives—could address motivation gaps, but their implementation remains understudied. Collectively, these findings suggest that while theories of motivation and global benchmarks

provide a framework, Indonesia's unique socio-cultural and policy landscape necessitates tailored solutions to strengthen industrial nursing as a viable career path.

This systematic review on Indonesian nurses in industrial healthcare has several limitations, including a scarcity of empirical studies specifically focused on this population, potential publication bias from relying only on indexed English/Indonesian articles, and methodological variability among included studies that challenges generalization. The review reveals significant gaps when compared to previous research, particularly an imbalanced focus where global studies emphasize nurse migration and technology adaptation (Nes et al., 2021; Park et al., 2022; Smith et al., 2022), while Indonesia's context shows unresolved policy and training gaps (Hardy, Tukayo, Maulana, et al., 2021; I. Tukayo et al., 2021). A notable theory-practice disconnect emerges as classic motivation theories fail to fully account for Indonesia's collectivistic cultural influences on career preferences (Mujiati et al., 2020). Additionally, the literature lacks critical analysis of policy effectiveness regarding occupational nurse certification or industrial incentives despite their recognized importance (Onyeador & Umberger, 2023), while the restricted 2019-2024 timeframe may overlook long-term impacts of COVID-19 and Industry 4.0 (Cui et al., 2021). These limitations collectively underscore the need for longitudinal studies on Indonesia's industrial nurses, implemented policy research, and mixed-methods approaches that better incorporate local cultural contexts to address the identified gaps in understanding this specialized nursing sector.

## CONCLUSION

This systematic review provides novel synthesis of evidence on career motivations among Indonesian industrial healthcare nurses, advancing beyond previous fragmented studies by systematically mapping both drivers (e.g., professional autonomy, competitive remuneration) and systemic constraints (e.g., training inadequacies, regional disparities). The study makes three distinctive contributions: first, it establishes a contextualized framework linking global motivation theories to Indonesia's collectivistic work culture; second, it reveals how industrial healthcare careers are perceived as strategic alternatives to hospital-based nursing; third, it identifies underexplored policy levers that could enhance sector attractiveness.

## SUGGESTION

Future investigations should prioritize three original avenues i.e. intervention studies assessing novel training models for occupational health nursing competencies, economic analyses of return-on-investment for industrial health incentives, and ethnographic research examining workplace dynamics in emerging industrial health clinics. Particularly crucial are studies adopting implementation science approaches to bridge the persistent gap between national nursing policies and ground-level practice in industrial settings. Such research would not only address current knowledge gaps but also position Indonesia as a case study for industrial healthcare workforce development in similar economies.

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