





# Occupational stress levels among Indonesian nurses and midwives in Saudi Arabian healthcare settings: a comparative cross-sectional study

Akhir Fahrudin<sup>1\*</sup>, Slametiningsih Slametiningsih<sup>2</sup>, Dwi Setyorini<sup>3</sup>, and Sylvia Gusrina<sup>4</sup>

<sup>1</sup> Department of Research and Education, Indonesian National Nurses Association (INNA), Riyadh, Kingdom of Saudi Arabia

<sup>2</sup> Department of Nursing Psychiatric, Faculty of Nursing, Universitas Muhammadiyah Jakarta, Jakarta, Indonesia

<sup>3</sup> Department of Occupational Health and Safety, Batam Polytechnic, Riau, Indonesia

<sup>4</sup> Samarinda Community Health Center, Trauma Center, Samarinda, Indonesia

\*Correspondence: Akhir Fahrudin. Address: Indonesian National Nurses Association (INNA), Riyadh, Kingdom of Saudi Arabia (KSA). E-mail: [akhirfahrudin@mail.ugm.ac.id](mailto:akhirfahrudin@mail.ugm.ac.id)

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## ABSTRACT

**Introduction:** The increasing demand for Indonesian nurses and midwives in Saudi Arabia has not been thoroughly investigated, particularly concerning physiological, physical, and social environmental conditions. This study aimed to assess the occupational stress levels among Indonesian nurses and midwives working in Saudi Arabian healthcare settings.

**Methods:** This cross-sectional comparative study assessed occupational stress among Indonesian nurses and midwives working in Saudi Arabia using the Expanded Nursing Stress Scale (ENSS). A total of 166 respondents (85 nurses and 81 midwives) completed the survey from a professional WhatsApp group. A convenience sampling was attempted, and only those who voluntarily responded to the questionnaire were included. The primary dependent variable was occupational stress, while the independent variables included profession (nurse and midwife), age, sex, education level, workplace setting, marital status, and years of experience. The analytical tests used were Mann-Whitney and Kruskal-Wallis.

**Results:** Occupational stress among nurses (Mean = 109) and midwives (Mean = 107) was low in psychological, physical, and social environments. Workload was the most stressful factor for both nurses (Mean = 20.44) and midwives (Mean = 18.88). We found a significant difference in the level of stress based on their workplace ( $p = 0.038$ ) and educational background ( $p = 0.005$ ). There was no difference in the level of stress between nurses and midwives ( $p = 0.188$ ).

**Conclusions:** In comparison, either nurses or midwives have a low level of occupational stress, which is related to psychological, physical, and social environments based on ENSS tools. Therefore, optimal healthcare management and policy should be maintained and improved for migrant nurses and midwives to foster better, sustainable healthcare development in the future.

**Keywords:** Indonesian, nurse, midwife, Saudi Arabia, occupational stress

## Introduction

Globally, the International Council of Nursing (ICN) has observed a migration of healthcare professionals, particularly nurses, as a critical feature of transnational labor mobility, driven by the increasing demand for skilled health workers in high-income countries, facing demographic shifts, aging populations, and systemic workforce shortages (ICN, 2025). Within this global

context, Indonesian nurses have actively participated in international migration streams, contributing to healthcare delivery in destination countries while simultaneously enhancing their clinical competencies, cross-cultural adaptability, and professional networks (Efendi and Pradipta, 2025). Many Indonesian healthcare professionals, including nurses and allied health professionals, have chosen to pursue their careers in Europe and the Middle East. The concern of domestic

healthcare shortage, job matching, and the opportunity have increased the migration of nurses and other healthcare workers to developed countries (Raharto and Noveria, 2020).

The Indonesian Ministry of Health's data reveals that the number of healthcare professionals in the domestic sector, particularly nurses, holds the highest position, around 639,985, while midwives follow closely behind with 365,847 (MOH, 2024). Notably, the proportion of health professionals working abroad compared with that of domestic nurses is significantly lower than 5%. Moreover, the opportunity to work overseas increases yearly with various countries such as Taiwan, Japan, Saudi Arabia, and Singapore. In addition, United Arab Emirates (UAE), Kuwait and other countries followed (Kurniati *et al.*, 2020).

Indonesian migrant nurses in their host country faced many issues, including culture shock, language barriers, environmental adjustment, and mental health concerns (Pradipta *et al.*, 2023). Moreover, to emphasize the autonomy, competence, and relatedness of migrant nurse experience, community support and networking from similar backgrounds need attention (Villamin *et al.*, 2025). Work-related stress, which has been commonly found in health workers, is closely related to the cause of illness in the workplace (Dewe and Cooper, 2020). However, this concern significantly impacted work stress issues, burnout at work, and intention to leave (Uswatin *et al.*, 2024).

The high domestic demand and shortage of health professionals have compelled Middle Eastern countries like Saudi Arabia to recruit more health workers from India, Malaysia, the Philippines, and other countries (Alluhidan *et al.*, 2020). The Indonesian National Nurses Association (INNA) in the Middle East reported that Saudi Arabia is still the premier destination for nurses and allied health professionals, according to the number of health professionals. Based on membership registration data by INNA in Saudi Arabia, 608 Indonesian nurses are working in Saudi Arabia, followed by Kuwait with 300 Indonesian nurses, the UAE with 105 Indonesian nurses, and Qatar with 53 Indonesian nurses. Furthermore, there is no data recorded explicitly for midwifery in Gulf countries except Saudi Arabia, based on the Indonesian Midwifery Association (IMA) data, with approximately 200-400 midwives working in primary and secondary care (Fahrudin, 2023).

The positive impact of the high demand for healthcare workers should be followed by improved mental health and well-being. An investigation related to the experiences of migrant nurses in diverse cultural settings identified that job workload, tension, and lack of support from colleagues were the most common traumatic occurrences for foreign nurses in Saudi Arabia (Al-Nusair and Alnjadat, 2022). Meanwhile, foreign nurses in Germany faced moderate burnout, which is related to

language proficiency, professional experience, and work-life balance (Roth *et al.*, 2021). In addition, a research study was also found among foreign nurses in Canada, Japan, Malaysia, Thailand, and the United States that showed the highest burnout level with exhaustion criteria was in Japan compared with other countries (Ohue *et al.*, 2021).

A research study conducted among Indonesian nurses in Saudi Arabia, which focused on departmental workload, found that critical areas within the hospital still contributed significantly to workload (Fahrudin, Setyorini and Saodah, 2024). Another study conducted at Al Sabah Hospital in Kuwait showed that Indonesian nurses experienced a moderate level of stress. Several factors contributed to work-related stress, including individual problems, work environment, and hospital management (Priyanto, Sukwika and Hasibuan, 2022). In Japan, where many Indonesian foreign healthcare workers were observed, it was found that the work environment is closely linked to culture shock. At the same time, adaptive adjustment and stress management are essential at work (Yektiningsih, Astari and Utami, 2021).

Knowing occupational stress among Indonesian foreign healthcare workers may influence the retention of Indonesian nurses in Saudi Arabia or their interest in seeking employment there. Nurses and midwives share similar roles and responsibilities in primary and tertiary care settings, while differing in secondary care, particularly scope of practice and workplace dynamics. In addition, there is a lack of research about occupational stress among Indonesian nurses and midwives in Saudi Arabia that used an online questionnaire. Research on occupational stress and work environment issues, whether quantitative or qualitative, is limited to nurses and midwives without comparing both healthcare professionals. The purpose of this study was to assess the relationship between occupational stress levels and sociodemographic data among Indonesian nurses and midwives in Saudi Arabian healthcare settings.

## Materials and Methods

### Study Design and Samples

This research was a cross-sectional design with a descriptive comparative approach. The research was conducted from July 1 to August 28, 2024. Data collection, analysis, and reporting were conducted from August 29 to September 20, 2024. A convenience sampling was applied, in which all 610 members, including 406 nurses and 204 midwives who working in Saudi Arabia, were invited to participate by completing a self-administered questionnaire through a WhatsApp group. A total of 166 respondents (85 nurses and 81 midwives) completed the questionnaire and were included in the analysis with a response rate of approximately 27.2%.

Table 1: Distribution of Indonesian nurses and midwives in Saudi Arabia (N=166)

Variable	Category	Total (N=166)			
		Nurse (N=85)		Midwife (N=81)	
		n	%	n	%
Age	20-30	38	44.70	53	65.43
	31-40	16	18.82	26	32.10
	41-50	28	32.94	2	2.47
	>50	3	3.52	0	0.00
Sex	Male	22	25.88	0	0.00
	Female	63	74.11	81	100.00
Work experience	1-5	60	70.58	48	59.25
	6-10	14	16.47	28	34.56
	11-15	6	7.05	2	2.46
	>16	5	5.88	3	3.70
Workplace	Government	14	16.47	10	12.34
	Private	10	11.76	19	23.45
Marital status	Clinic	61	71.76	52	64.19
	Single	44	51.76	52	64.19
	Married	30	35.29	18	22.22
Education	Divorced	11	12.94	11	13.58
	Diploma	36	42.35	48	59.26
	Bachelor	49	56.65	33	40.74

### Variables and instruments

The independent variable was occupational stress, including physiological environment, physical environment, and social environment. In contrast, the dependent variable was nurses and midwives, including age, sex, education level, workplace setting, marital status, and years of experience. The Expanded Nursing Stress Scale (ENSS) was used as an instrument that was developed in an Indonesian version with *r*-values of 0.362 to 0.793 and a reliability of 0.956 Cronbach's Alpha (Harsono, 2024). The ENSS self-administered questionnaire consisted of 57 statements divided into nine sub-scales, and the scoring scale was a 5-point Likert scale, such as never (1), seldom (2), sometimes (3), often (4), and very usually (5). Each category is classified into different total score interpretations, such as low stress (0-19), moderate stress (20-39), and high stress (40-57) (Harsono, 2024).

### Data Analysis

Data were analyzed using STATA SE 16.1. The univariate analysis was conducted to describe the characteristics of nurses and midwives. To assess differences in occupational stress levels among groups, non-parametric tests were applied. The Mann-Whitney U test was used for comparisons between two groups, while the Kruskal-Wallis test was employed for comparisons involving more than two groups. These tests were chosen due to the non-normal data distribution of ENSS scores. All analyses focused on nurses and midwives working in Saudi Arabian healthcare settings.

### Ethical Considerations

This study was approved by the Medical and Health Research Ethics Committee of the Faculty of Medicine,

Public Health, and Nursing, Gadjah Mada University, number KE-FK-1244-EC-2024. The use of WhatsApp as a distribution tool was chosen due to its accessibility and wide usage among the target population. To protect participant confidentiality within the group context, the research invitation and questionnaire link were posted as a one-way broadcast message with private settings, rather than prompting broad discussion in the group. Participants were encouraged not to discuss or respond within the group based on informed consent through the survey link.

Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any consequences. The informed consent was included and presented at the beginning of the online questionnaire, which was distributed via Google Forms through a WhatsApp group. Participants were required to read and agree by selecting the digital informed consent before they could proceed with completing the survey. To ensure privacy and confidentiality, no personal identifiers were collected, with a statement not to submit more than once, and all responses were kept anonymous. To minimize duplication, the Google Form settings were configured to allow only one response per Google account, requiring participants to sign in before completing the survey.

### Results

The demographic data was shown in Table 1. The largest age groups among nurses were 20-30 years old (44.70%), which was lower than that of midwives (65.43%). A higher proportion of midwives were unmarried (64.19%) compared to nurses (51.76%). In terms of gender, 100% of midwives were female, while 74.11% of nurses were female, showing a notable

Table 2: Occupational stress among nurses and midwives based on ENSS Total Score (N=166)

Profession	Frequency	Minimum Statistic	Maximum Statistic	Mean	Standard Deviation
Nurse	85	57	180	109	27.58
Midwife	81	63	186	107	28.32
Total	166				

Table 3: Occupational stress among nurses and midwives based on ENSS Sub-scale (N=166)

Category	Subscale	n	Nurse (n=85)		Midwife (n= 81)		All Subjects (n=166)	
			Mean	SD	Mean	SD	Mean	SD
Physiological environment	Death and dying	7	11.98	4.19	11.51	3.11	11.75 – 3.70	
	Uncertainty concerning treatment	7	17.24	5.24	17.44	5.52	17.34 – 5.36	
	Inadequate emotional preparation	3	5.96	2.29	6.16	2.13	6.06 – 2.21	
Physical environment	Workload	9	<b>20.44*</b>	6.57	18.88	5.98	19.67 – 6.32	
	Conflict with physician	5	8.73	2.75	8.15	2.59	8.45 – 2.68	
Social environment	Patient and their family	8	15.98	5.38	15.28	5.51	15.64 – 5.44	
	Problem relating to peers	6	11.61	4.00	11.63	3.98	11.62 – 3.98	
	Problem relating to supervisor	7	14.34	4.70	13.47	5.16	13.92 – 4.94	
	Discrimination	3	5.34	2.10	5.26	2.18	5.30 – 2.14	
	Total Questions	57						

**Moderate stress (20-39) \***

difference. Work experience differed slightly, with 70.58% of nurses having 1-5 years of experience, compared to 59.26% of midwives. Nurses held bachelor's degrees (56.65%), whereas the majority of midwives had a diploma (59.25%). As for workplace distribution, 71.76% of nurses and 64.19% of midwives reported being actively employed in healthcare facilities, with the figures showing a relatively similar trend.

The ENSS measurement for nurses and midwives is shown in [Table 2](#). The average score showed a low occupational stress level with a score of 109 (SD: 27.58), while midwives were around 107 (SD: 28.32). The level of work-related stress was categorized into low stress (57-114) for both nurses and midwives.

The analysis of occupational stress, specifically related to physiological, physical, and social

environment, based on the ninth sub-scale in [Table 3](#), found that both nurses and midwives were at a low level of stress with total score interpretations around 0-19 (Low Stress). In the physical category, nurses were classified into a moderate level of stress, especially on workload items (mean= 20.44).

[Table 4](#) shows the results of the non-parametric test analysis using the Mann-Whitney and Kruskal-Wallis tests to look at the differences in work-related stress based on demographic data. The analysis of occupational stress based on the ENSS score showed that there was a weak result of occupational stress among nurses and midwives ( $p=0.188$ ), while education ( $p=0.005$ ) and workplace ( $p=0.038$ ) had significant results among those criteria.

Table 4: Associations between occupational stress and sociodemographic data (N=166)

Demographic Data	Expanded Nursing Stress Scale (ENSS)			
	n	Mean	p-value	f
<b>Age (years)</b>			0.285	3.793
20-30	91	109.32		
31-40	42	113.69		
41-50	30	102.67		
>50	3	89.67		
<b>Length of Work (years)</b>			0.094	6.384
3-5 years	108	107.73		
6-10 years	42	113.38		
11-15 years	8	92.00		
>16 years	8	117.38		
<b>Workplace</b>			<b>0.038*</b>	6.536
Government hospital	24	120.95		
Private hospital	29	112.45		
Clinic	113	105.38		
<b>Marital status</b>			0.434	1.671
Single	96	108.54		
Married	48	110.96		
Divorced	22	105.73		
<b>Level of Education</b>			<b>0.005**</b>	12.228
Diploma	84	101.40		
Bachelor	82	116.51		
<b>Sex</b>			0.382	0.874
Male	22	113.18		
Female	144	108.21		
<b>Profession</b>			0.188	1.317
Nurse	85	110.80		
Midwife	81	106.83		

ENSS: Expanded Nursing Stress Scale. The Mann-Whitney Test was conducted for Sex and Profession. Kruskal-Wallis Test for other socio-demographic characteristics ( $P < 0.05$ ).

\*  $p < 0.05$ , \*\*  $p < 0.01$



## Discussions

The findings from this research provide valuable insight into occupational stress levels among Indonesian nurses and midwives in Saudi Arabian healthcare settings. Statistical analysis showed that educational level and workplace settings were significantly associated with occupational stress. At the same time, other sociodemographic data, such as age, sex, marital status, profession, and years of experience, were not found to have a significant relationship with stress levels.

The majority of nurses and midwives were female, with an average work experience of three to five years. While nurses made up a slightly larger proportion of the sample than midwives, this reflected the distribution of those who voluntarily responded to the survey and not necessarily the broader population. Although internal data by INNA and IMA in Saudi Arabia estimate that there are approximately 600 Indonesian nurses and 400 midwives currently working in the country, the response rate was relatively lower among nurses (14%) compared to midwives (21%). Therefore, an observed difference in representation should be interpreted cautiously and does not necessarily reflect the actual proportions of health professionals. Notably, the respondents were predominantly nurses compared to midwives.

The employment opportunities in the Kingdom of Saudi Arabia have significantly influenced the migration of Indonesian nurses and midwives, particularly female healthcare professionals. According to the meeting about the Problematic of Indonesian Healthcare from the Law and Labor Perspective in Saudi Arabia, organized by the Indonesian Embassy in Riyadh on October 27, 2024, many healthcare facilities in Saudi Arabia tend to recruit more female nurses than male nurses based on work visa processing through the embassy. The requirements that recruit women rather than men have influenced female healthcare workers to work with basic documents, including a degree certificate, active licenses, an experience letter from the origin country, and verification documents from the company in the host country. Moreover, those requirements were aligned with sociodemographic data results that most Indonesian nurses in Saudi Arabia have a bachelor's degree in nursing. In contrast, most midwives held diplomas (Fahrudin et al., 2025).

The socio-demographic data showed that work areas such as private hospitals were to be the preferred workplace destination compared to government hospitals. Based on a meeting organized by the Indonesian Embassy in Riyadh in October 2024 about the Indonesian Healthcare from the Law and labor Perspective in Saudi Arabia, one of the main reasons why female healthcare professionals were easily able to obtain work visas for private healthcare facilities was that the processing time was typically faster. In contrast, government hospitals, while offering long-term stability,

often have stricter recruitment processes and requirements, making entry more challenging for foreign healthcare professionals. Although hospital type did not emerge as a statistically significant stressor, different expectations, job entry requirements, or organizational cultures may affect migrant workers to work in Saudi Arabia (Almansour et al., 2023).

Our findings found that sex, marital status, age, profession, and years of experience were not statistically significant predictors of occupational stress but remain relevant in shaping the professional landscape of Indonesian nurses and midwives in Saudi Arabian healthcare settings. However, intrinsic factors such as spirituality, safe work, and salary satisfaction were aspects that made them stay at work. In contrast, the extrinsic factors such as work environment, egalitarianism, and teamwork were significant in creating an organizational culture that places a high demand on foreign healthcare professionals to work in Saudi Arabia (Uswatin et al., 2024).

### Occupational stress on nurses and midwives

Indonesian midwives working in healthcare settings in Saudi Arabia reported relatively low levels of stress. However, the stress levels compared to those of nurses were not significantly different. This suggests both groups may be exposed to similar workplace conditions, challenges, and support systems. From the nine subscales explored in the questionnaire, most of the categories showed no significant impact on occupational stress among Indonesian midwives in Saudi Arabia, either in the psychological, physical, or social environment. In contrast, there was a substantial correlation between burnout and sociodemographic results among midwives in Saudi Arabia. The results showed that midwifery in hospital settings experienced high burnout levels (Alanazy and Aljohani, 2025).

The results overall showed some sociodemographic data associated with the level of stress, including education and workplace. Moreover, the analysis of data using the Mann-Whitney and Kruskal-Wallis tests found that occupational stress based on the ENSS score had a strong association with the level of education ( $p = 0.005$ ) and workplace ( $p = 0.038$ ). These findings suggest that higher educational attainment and specific workplace placements correlate with varying levels of stress. Additionally, organizational structure and professional classification systems significantly influence healthcare professionals, particularly in terms of psychological burden.

In line with these findings, a recent policy by the Saudi Commission for Health Specialties (SCFHS) released a policy framework recognizing that Master's and Doctor's degree holders are nurse senior specialists and consultants. In contrast, a Bachelor of Nursing degree with over five years of experience will be classified as a specialist. Conversely, another professional classification

based on educational backgrounds will lead to the position of technician or healthcare assistant (Fahrudin, 2025). Similarly, in midwifery, professional classification is assigned based on academic qualifications, such as technician and specialist.

The implication of this classification was evident in our dataset, that nurses with higher education qualifications (e.g., master's degrees) were more frequently assigned to managerial levels. In contrast, nurses and midwives holding bachelor's and diploma qualifications were mainly assigned to clinical roles within primary and secondary healthcare facilities, including obstetrics and gynecology departments, outpatient departments, and general services. These findings suggest that both educational background and workplace setting influence role differentiation between managerial and clinical in workplace settings. Workplace-related factors, such as healthcare workforce shortage, work overload, and inadequate pay, have been documented as contributors to occupational stress in the workplace settings (Alruwaili *et al.*, 2022). Our findings diverged from previous international research, especially foreign nurses and midwives in Japan and Switzerland. The majority of Swiss healthcare workers had higher traumatic stress than Japanese nurses and midwives. However, the implications of examining the relationship between working conditions and psychological burden were different (Oe *et al.*, 2018).

Furthermore, when examining specific ENSS sub-scales, physical workload stress was reported at a moderate level among nurses, while midwives generally experienced lower stress in this domain. This points to potential roles-based differentiation in physical demand, possibly shaped by task assignments in different workplace settings. In addition, socio-demographic factors and factors associated with occupational stress must be continually addressed by health policymakers to reduce workload in various healthcare settings. Furthermore, emotional intelligence training, resilience-building projects, and creating an enabling workplace are the focuses of institutions to enhance and develop the levels of job satisfaction and well-being (Abualruz *et al.*, 2024).

In conclusion, this research finds that occupational stress among migrant Indonesian nurses and midwives was shaped by educational levels and work placement, while age, sex, marital status, and years of experience were not significantly affected by occupational stress. However, further research, especially longitudinal studies and qualitative studies, is needed to unpack these dynamic issues and guide policy development aimed at promoting healthcare workers' well-being, especially those foreign healthcare providers.

This study has a limitation, such as the number of participants that was not fill out the questionnaire, and the samples may not reach the maximum number of

participants based on the population. Additionally, the convenience sampling method, which may introduce self-selection bias, and the self-questionnaire through a WhatsApp group may affect the sample size of the respondents. These factors may limit the results and ability to analyze factors associated with occupational stress. Furthermore, response bias may occur when interpreting the results of a study based on the questionnaire used, and the findings do not generate causal comparisons and relationships.

## Conclusion

Nurses and midwives working in Saudi Arabian healthcare settings experienced low levels of stress. There was a significant association between the level of education and workplace that affected occupational stress, while other sociodemographic data were not substantial to work-related stress. Furthermore, optimal healthcare management and policy should be maintained and improved for better sustainable healthcare development in the future. A further study on exploring occupational stress among foreign nurses with different methods and samples is recommended to manage and improve well-being for better health issues among healthcare professionals in Saudi Arabia, including nurses and midwives, as well as other healthcare professional with different work field.

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## Availability of data and materials

The dataset analyzed during the current study are available from the corresponding author on reasonable request. Access to the data is subject to ethical approval.

## Authors' contributions

Akhir Fahrudin contributed to the conceptualization, design of methods, and supervision. Slametinarsih contributed to methodology, formal analysis, and supervision. Dwi Setyorini contributed to review, editing, and literature review. Sylvia Gusrina contributed to data collection, literature analysis, and critical revision.

## Declaration of Interest

The authors declare no conflict of interest in this research.

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