

ORIGINAL RESEARCH

Multilevel Factors Influencing Nurses' Job Performance in Tertiary Hospitals of Northern Thailand: A New Normal Perspective



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Abstract

Background: Professional nurses' job performance is fundamental to delivering high-quality patient care, particularly in tertiary hospitals. In the post-COVID-19 era, tertiary hospitals in northern Thailand have faced increased patient care complexity, workforce shortages, greater technological demands, and persistent psychological stress among nurses. These changes highlight the importance of improving nurses' quality of work life and fostering spiritual leadership to create supportive organizational climates that sustain high performance. Although both individual- and group-level factors are known to influence nurses' job performance, their multilevel interplay in post-pandemic healthcare settings remains unclear.

Purpose: This study investigated the empirical validity of a hypothesized model of individual- and group-level factors influencing professional nurses' job performance in tertiary hospitals under the Ministry of Public Health in northern Thailand.

Methods: A predictive correlational design was used with multilevel structural equation modeling. Data were collected from 284 professional nurses working in tertiary hospitals in northern Thailand. At the individual level, quality of work life was specified as the independent variable, work engagement as the mediator, and job performance as the dependent variable. At the group level, spiritual leadership was specified as the independent variable, organizational climate as the mediator, and job performance as the dependent variable. Data were analyzed using Mplus version 8.8.

Results: The model demonstrated a good fit to the empirical data ($\chi^2/df = 1.25$, CFI = 0.95, RMSEA = 0.06, SRMR = 0.04). At the individual (within) level, quality of work life and work engagement had significant positive direct effects on nurses' job performance. Work engagement significantly mediated the relationship between quality of work life and job performance. The within-level model explained 71% of the variance in nurses' job performance. At the group (between) level, spiritual leadership and organizational climate had significant positive direct effects on nurses' job performance. Organizational climate also significantly mediated the relationship between spiritual leadership and job performance. The between-level model explained 95% of the variance in job performance.

Conclusion: Quality of work life and work engagement at the individual level, along with spiritual leadership and organizational climate at the group level, were significantly associated with nurses' job performance. Strengthening these factors may improve nurses' performance and support high-quality patient care in tertiary hospitals.

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1. Introduction

In an era of globalization, where social, economic, and technological changes continue to occur at a rapid pace in countries across the world, health systems globally are experiencing a paradigm shift (Frenk & Gómez-Dantés 2002). The COVID-19 pandemic has acted as a structural turning point, placing sudden and unprecedented strain on health systems and creating exceptional pressures on service delivery at a scale rarely experienced in modern history. There is now increased awareness of the necessity for resilient health systems, adaptable workforce management, and strong leadership to sustain quality care during crises (Haldane et al., 2021).

Pre-existing constraints in the health system have further strained acute and chronic care services in Thailand. These challenges highlight the urgent need for workforce preparedness and organizational resilience to enable effective responses and recovery from service disruptions (Tuangratananon et al., 2024; Yorsaeng et al., 2022). Against this post-pandemic context, nurses' work engagement has become increasingly important for sustaining workforce resilience and healthcare quality. High work engagement is closely associated with job performance, a healthy work environment, patient safety, and continuity of care during healthcare emergencies in Thailand (Nantsupawat et al., 2024). In addition, empirical research from Thailand showed that organizational climate and nursing leadership are two important aspects of strengthening unit resilience and ensuring that nurses can continue to perform under high workloads (Kaewpradit et al., 2023). Organizational-level factors, such as perceived organizational support and empowering leadership as critical job resources, have been found to significantly predict work engagement among nurses and patient safety outcomes (Luo et al., 2023).

Nursing services are the backbone of healthcare delivery at nearly every unit and department level because professional nurses comprise the largest workforce group in tertiary hospitals and ensure continuous, high-quality patient care. Nurses play a wide range of roles beyond bedside tasks, including those of care providers, coordinators, communicators, decision-makers, and patient advocates. In multifaceted healthcare systems, increasing acuity and workloads require nurses to engage in independent task-oriented functions while also playing a contextual role within interprofessional teams. In Thailand and abroad, supportive work environments for nurses, appropriate staffing, and high levels of nurse engagement are associated with lower burnout (Nantsupawat et al., 2024), higher job satisfaction (Ma et al., 2023), better intention to perform care (Wei et al., 2018), better perceived quality of patient care, fewer adverse events, and improved patient safety outcomes.

Effective risk management is key to ensuring quality care and patient safety. Enterprise-wide and workplace safety strategies, including systematic risk identification and mitigation, a supportive organizational climate, and a strong safety culture, enhance nurses' ability to deal with risks such as workplace violence and other hazards. Indeed, both Thai and international studies indicate that organizational support, leadership empowerment workflows, and job resources are three key contributors to nurses' work performance, as well as quality and patient safety outcomes (Luo et al., 2023; Nantsupawat et al., 2024). In addition, nursing leadership, most importantly, transformational and resonant styles, increases work engagement, risk awareness, and communication between teams and is associated with improved quality of care and safer patient outcomes (Kazín Ystaas et al., 2023; Parr et al., 2020). In Thailand, the nurses' self-leadership was positively correlated with their task and contextual performance (Wongbud et al., 2021), indicating that efforts to develop leaders at the organizational and unit levels could further enhance nursing services and the quality of care provided to patients.

However, a review of the existing literature indicates that, while the evidence base regarding factors that influence job performance is expanding rapidly, most studies have been limited to single-level analysis (Wongbud et al., 2021; Nantsupawat et al., 2024). Little work has been done to investigate such relationships using a multilevel approach in the context of tertiary hospitals in Thailand. The collective effect of work engagement, quality of work life, organizational climate, and spiritual leadership on nurses' job performance has not been sufficiently studied within the context of the post-pandemic healthcare environment. Understanding these multilevel relationships is essential for designing evidence-based interventions that strengthen workforce resilience, improve nurses' performance, and ensure the continuity and quality of patient care in the evolving healthcare environment.

In response to these gaps in the literature, this study developed and tested a multilevel structural equation model (MSEM) to examine the direct and indirect pathways through which individual- and group-level factors influence job performance among professional nurses. The findings are expected to further elucidate the key contributory factors and provide an evidence base for regulators to identify strategies to improve the quality of healthcare services provided by these practitioners. The conceptual framework posits that nurses' job performance is influenced by both individual- and group-level factors. At the individual level, the quality of work life affects job performance directly and indirectly through work engagement. At the group level, spiritual leadership affects job performance directly and indirectly through organizational climate. These hypothesized relationships were tested using MSEM.

2. Methods

2.1. Research design

This cross-sectional study aimed to identify the factors influencing the job performance of professional nurses in tertiary hospitals under the Ministry of Public Health in northern Thailand during the post-COVID-19 era. A cross-sectional design was appropriate for examining the associations among the study variables in the prevailing healthcare environment.

2.2. Setting and samples

The target population for this study was professional nurses employed in five tertiary hospitals in the northern region. Of these five hospitals, three were selected using simple random sampling by drawing lots. Respondents were professional nurses who had worked for at least one year, worked in inpatient wards of tertiary hospitals in the northern region, and consented to participate in the research. Following [Hair et al. \(2019\)](#), the required sample size was determined based on the minimum sample size for multivariate analysis. Specifically, the sample size should be at least 5–10 participants per observed variable. Because the structural equation model for variables affecting the job performance of professional nurses included 27 observed variables, the sample size was required to be greater than or equal to 270. To compensate for possible data loss, the researcher included an additional 5% of participants, so the final sample consisted of 284 participants. A multistage sampling procedure was employed to select the sample, as shown in [Figure 1](#).

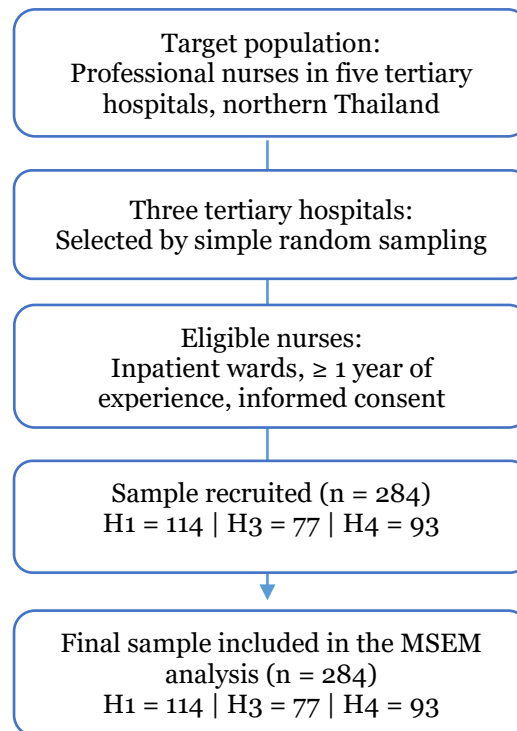


Figure 1. Flowchart of participant recruitment

2.3. Measurement and data collection

We adapted and used measurement instruments that were standardized tools previously developed and empirically verified. The items from these instruments were then mapped against the operational definitions prepared for this study. The items were subsequently revised and edited to be relevant to the context of the sample in this study. The final measurement instrument included three sections.

The spiritual leadership questionnaire was developed based on [Fry's \(2003\)](#) theory and adapted from [Chairatanalerkdee and Chongvisal \(2024\)](#) for the Thai nursing context. The quality of work-life questionnaire was based on [Walton's \(1973\)](#) eight dimensions and adapted from the Quality of Nursing Work Life Scale–Thai Version ([Tubsoongnoen et al., 2024](#)). The work engagement questionnaire was based on [Schaufeli and Bakker's \(2003\)](#) Utrecht Work

Engagement Scale (UWES) and adapted from the Thai-validated UWES instrument (Aungsuroch et al., 2024). For organizational climate, the questionnaire was modified based on Stringer (2002) and Sein Myint et al. (2022). Finally, the job performance questionnaire was adapted from the frameworks of Greenslade and Jimmieson (2007) and Sangsrijan et al. (2024).

All five questionnaires were submitted to the experts for comprehensive evaluation. Five experts (one expert on measurement and evaluation, one research expert, two heads of nursing and hospitals, and a nursing administration instructor from the nursing department) reviewed the research instruments. Content validity was assessed based on three aspects: completeness of the content structure, the Index of Item–Objective Congruence (IOC), and clarity of language. The experts made suggestions for improvement, and subsequently, items with an IOC score of 0.5 or higher were selected. The questionnaires were subsequently modified according to the experts' suggestions. Three experts evaluated the questionnaires for content validity. The IOC values ranged from 0.67 to 1.00. Items with an IOC value below 1.00 were revised according to the experts' recommendations before the final version of the instruments was established.

Cronbach's alpha was used to determine the internal consistency of each questionnaire; therefore, a pre-test of reliability was conducted before the questionnaires were distributed to the sample group. Thirty professional nurses participated in the pre-test. The internal consistency of the variables used in this study was assessed using Cronbach's alpha, and all reliability coefficients ranged from 0.702 to 0.889, which is an acceptable range (Hair et al., 2019).

The mean scores were interpreted using a five-point Likert scale. The interpretive criteria for mean scores were divided into five levels based on a predetermined score range: a score of 4.50–5.00 (strongly agree), a score of 3.50–4.49 (agree), a score of 2.50–3.49 (moderately agree), a score of 1.50–2.49 (disagree), and a score of 1.00–1.49 (strongly disagree). Mean scores were interpreted at five levels (Best, 1981) according to their defined ranges.

The researchers obtained approval and permission to collect data from the Faculty of Nursing, Naresuan University, and the hospital director, and provided evidence of ethical approval for human research certified by a research ethics committee. After receiving approval for data collection, the researchers contacted nursing administrators by telephone to introduce themselves, clarify the research objectives, describe the sampling method, and seek permission for data collection, including distributing and collecting questionnaires. Participation was voluntary, and all participants were informed about the study and provided their informed consent before completing the questionnaires.

Participation in the survey was anonymous; no personally identifiable information was recorded, and all data were treated confidentially and used solely for research purposes. Participants were assured that their decision to participate or withdraw would not affect their care or standing in any professional program, and the researchers made efforts to minimize coercion or undue influence during the process. The researchers administered the questionnaires in person and gave the participants two weeks to complete them. Participants returned the completed questionnaires by post. The researchers supplied stamped, addressed envelopes for the return of the questionnaires. The response rate was 100%, with all 284 questionnaires returned and checked for completeness.

2.4. Data analysis

The general characteristics of the sample were described using frequency distributions, means, and percentages, with all analyses conducted using SPSS version 22.0. This descriptive analysis provided an overview of the participants' demographic and professional profiles, including age, gender, education level, and work experience.

Inferential analysis was performed using MSEM to examine the factors influencing nurses' job performance in the new normal era at tertiary hospitals under the Ministry of Public Health in the northern region. MSEM was estimated using Mplus version 8.8. Interpretation focused on both model fit and path coefficients to identify the variables exerting direct or indirect effects on job performance. Model fit was evaluated using established criteria: chi-square (χ^2)/df ≤ 3 , Comparative Fit Index (CFI) ≥ 0.90 , Tucker-Lewis Index (TLI) ≥ 0.90 , Root Mean Square Error of Approximation (RMSEA) ≤ 0.08 , and Standardized Root Mean Square Residual (SRMR) ≤ 0.08 . Variables with statistically significant path coefficients ($p < 0.05$) were considered to have a meaningful direct or indirect influence on nurses' job performance.

The MSEM model comprised measurement and structural components. Ovals depicted latent variables, and rectangular boxes represented observed variables (i.e., indicators). In [Figure 2](#), each latent construct was measured using several observed variables. For instance, organizational climate was measured using organizational processes, organizational structure, internal social systems, and organizational technology, whereas spiritual leadership was measured through vision, hope, faith, and trust. This model distinguished between latent and observed variables in relation to SEM.

2.5. Ethical considerations

This study was approved by the Human Research Ethics Committee of Naresuan University (Ref. No. 425/2021; IRB No. P2-0246/2021). Once approval to collect data was obtained, the researchers introduced themselves and explained the participants' rights, including information about the purpose of the study, methods of data collection (i.e., anonymous questionnaires), and potential benefits of the research. All participants were verbally informed that their involvement in the study was completely voluntary and that they could make their own decisions without coercion, intimidation, or undue influence. Whether or not they chose to participate, their work remained unaffected. Evidence of informed consent was collected using signed consent forms. Data were collected and used confidentially, and the results were published in aggregate form to accomplish the study objectives.

3. Results

3.1 Characteristics of the participants

The sample comprised 284 professional nurses from three tertiary hospitals in Northern Thailand. Most participants were female (96.1%), held a bachelor's degree (91.2%), and had more than 10 years of work experience (60.2%). The mean age of the participants was 48.50 years (SD = 8.90). The characteristics of the participants are presented in [Table 1](#).

Table 1. Characteristics of the participants

Variables	Mean(SD)	Frequency (f)	Percentage (%)
Age (year)	48.50±8.90		
Gender			
Male		11	3.9
Female		273	96.1
Level of education			
Bachelor's degree		276	97.2
Master's degree		7	2.4
Doctoral degree		1	0.4
Marital status			
Married		157	55.3
Not married		127	44.3
Work experience (year)			
1–5		67	23.6
6–10		46	16.2
> 10		171	60.2

3.2 Descriptive statistics and preliminary analysis

Before conducting the multilevel structural equation modeling, descriptive statistics were examined. Professional nurses reported high levels of spiritual leadership ($M = 4.14$, $SD = 0.55$), work engagement ($M = 4.03$, $SD = 0.53$), organizational climate ($M = 4.00$, $SD = 0.53$), and job performance ($M = 4.42$, $SD = 0.41$). Quality of work life was also relatively high ($M = 3.89$, $SD = 0.53$). These findings indicate generally favorable perceptions of both individual- and organizational-level factors among the participants prior to multilevel analysis.

Internal consistency reliability and Pearson's correlations were also examined prior to the multilevel structural equation modeling. All constructs demonstrated acceptable to good internal consistency, with Cronbach's alpha coefficients ranging from 0.70–0.89. Significant positive correlations were observed among all study variables ($r = .260-.812$, $p < .01$), supporting the appropriateness of the subsequent multilevel structural equation modeling.

3.3 Multilevel structural equation modeling

The structural equation model demonstrated a good fit with empirical data. The model fit indices were as follows: $\chi^2/df = 1.25$, Comparative Fit Index (CFI) = 0.95, Tucker–Lewis Index (TLI) = 0.94, Root Mean Square Error of Approximation (RMSEA) = 0.06, and Standardized Root Mean Square Residual (SRMR) = 0.04, indicating an acceptable to good model fit (Table 2).

Table 2. Model fit indices

Fit Index	Value	Recommended Cutoff
χ^2 (Chi-square)	86.903	$p = 0.096$ (ns)
χ^2/df (Chi-square/ degrees of freedom)	1.25	< 3.00
CFI (Comparative Fit Index)	0.95	≥ 0.95
TLI (Tucker–Lewis Index)	0.94	≥ 0.90
RMSEA (Root Mean Square Error of Approximation)	0.06	≤ 0.06
SRMR (Standardized Root Mean Square Residual)	0.04	≤ 0.08

Structural model analysis revealed that both individual- and group-level factors significantly influenced job performance. At the individual level, quality of work life and work engagement had significantly positive direct effects on job performance. Quality of work life showed the strongest direct effect ($\beta = 0.63$, $p < 0.01$), followed by work engagement ($\beta = 0.52$, $p < 0.01$). Additionally, Quality of work life also had a significant positive direct effect on work engagement ($\beta = .70$, $p < .01$) and a significant positive indirect effect on job performance through work engagement ($\beta = .36$, $p < .01$). Its total effect on job performance was approximately ($\beta = .99$, $p < .01$). The individual-level variables collectively explained 71% of the variance in job performance (Table 3).

At the group level, organizational climate and spiritual leadership also had significant positive effects on job performance. Organizational climate had a direct effect ($\beta = 0.50$, $p < 0.05$), while spiritual leadership had a direct effect ($\beta = 0.48$, $p < 0.01$). Moreover, spiritual leadership indirectly affected job performance through organizational climate ($\beta = 0.68$, $p < 0.01$). Its estimated indirect effect on job performance through organizational climate was ($\beta = 0.34$, $p < 0.01$), yielding an estimated total effect of ($\beta = 0.82$, $p < 0.01$). The group-level variables accounted for 95% of the variance in job performance (Table 3).

Table 3. Influence coefficients of the multilevel structural equation model of professional nurses' job performance

Level	Independent variables	Dependent variable	Direct effect	Indirect effect	Total effect
Group-level	Organizational climate	Job performance of professional nurse	0.50*	-	0.50*
	Spiritual leadership	Job performance of professional nurse	0.48**	-	0.48**
	Spiritual leadership	Organizational climate	0.68**	0.34**	0.82**
Individual-level	Work engagement	Job performance of professional nurse	0.52**	-	0.52**
	Quality of work life	Job performance of professional nurse	0.63**	0.36**	0.994**
	Quality of work life	Work engagement	0.70**	-	0.70**

Notes. * Statistically significant at $p < .05$; ** statistically significant at $p < .01$.

Overall, the findings indicate that both individual- and group-level factors play a significant role in influencing the job performance of professional nurses in tertiary hospitals in the new normal context, as presented in Figure 2.

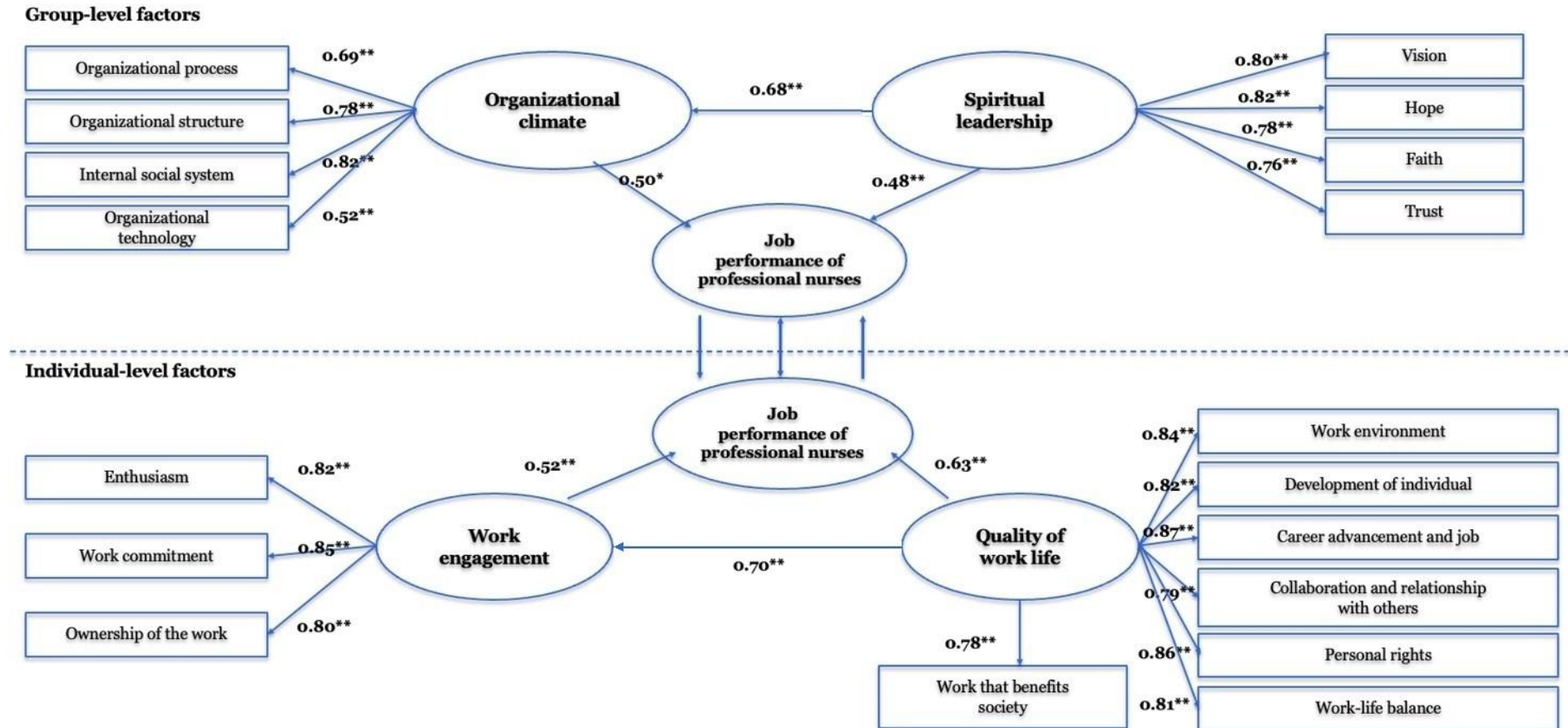


Figure 2. A multilevel structural equation model of factors influencing job performance of nurses in the new normal era in tertiary hospitals in northern Thailand

4. Discussion

This study examined the factors influencing the job performance of professional nurses in the new normal era at tertiary hospitals in northern Thailand. The results showed that job performance was significantly related to both individual- and group-level variables, consistent with prior research on the multilevel determinants of work outcomes in healthcare settings.

4.1 Individual-level factors

Work engagement (WE) and quality of work life (QWL) directly and significantly affect nurses' job performance (JP). This aligns with studies showing that a higher QWL fosters greater organizational commitment. [Alzamel et al. \(2020\)](#) found that QWL significantly influences organizational commitment, which mediates turnover intention, while [Pasinringi and Sari \(2020\)](#) linked work environment, professional pride, and development to commitment and performance.

Hospitals' team-oriented structures foster closer social ties ([Rasmussen et al., 2020](#)), and teamwork is central to patient safety and healthy nursing environments ([Bragadóttir et al., 2023](#)). Positive collegial relationships are associated with greater commitment, satisfaction, and motivation ([Kangasniemi et al., 2024](#)). QWL also has a significant direct positive effect on performance. Schedule autonomy and flexibility support work-life balance; notably, over 87% of nurses ranked self-scheduling among their top preferred arrangements ([Gray et al., 2023](#)). Satisfaction and flexible conditions are negatively associated with burnout, and improving autonomy, interpersonal interactions, and workload helps sustain the workforce ([Liu et al., 2022](#)). Adequate staffing prevents overwork and burnout, and protective practices, such as flexible scheduling and supportive leadership, are linked to lower burnout among shift workers ([Qtait et al., 2025](#)).

A Thai study on QWL among eastern-region nurses found that environmental conditions strongly shaped work outcomes ([Rohmayanti & Wijayanti, 2023](#); [Sibuea et al., 2024](#)). Working conditions are key predictors of healthcare outcomes and turnover intention ([Havaei et al., 2023](#)), whereas safe and empowering environments support patient wellness ([Mabuda et al., 2022](#)). Work-life balance affects nurses' well-being, satisfaction, families, and care quality; an imbalance leads to chronic stress, burnout, absenteeism, and turnover ([Nurumal et al., 2025](#)). Supervisor support strengthens the use of work-family policies and improves well-being and performance ([Sáenz-Álvarez et al., 2024](#)), and work-life balance programs improve attitudinal outcomes, with learning goal orientation as a key mediating pathway ([Zhong et al., 2023](#)).

QWL had a significant direct positive effect on job performance and an indirect effect through work engagement. QWL elements—fair remuneration, safety, participatory climate, and teamwork—foster job satisfaction, pride, and professionalism, thereby driving performance. Conversely, imbalance produces stress, absenteeism, and errors in the workplace. These findings are consistent with [Al-Dossary \(2022\)](#) on QWL, loyalty, and performance in Saudi hospitals; [Limpsurapong et al. \(2022\)](#) on commitment and performance in Thai community hospitals; and [Thangkratok et al. \(2021\)](#) on work-life balance and quality of life among Thai nurses. Overall, supportive healthcare environments strengthen nurses' commitment and performance.

4.2 Group-level factors

Organizational climate has a significant direct positive effect on job performance, consistent with evidence that supportive environments enhance employee performance ([Shahnavazi et al., 2021](#)). [Dollard and Bakker's \(2010\)](#) concept of Psychosocial Safety Climate (PSC) shows that management commitment to worker well-being improves conditions and engagement; positive PSC is linked to productivity and low absenteeism, while negative PSC raises stress and dissatisfaction. [Medina-Garrido et al. \(2017\)](#) found that flexible employment indirectly affects performance through well-being, and [Inoue et al. \(2023\)](#) showed that PSC reduces psychological distress and increases engagement, partly mediated by reduced job demands and increased job resources such as control, support, and reward. These findings underscore the importance of a conducive work environment for nurses' commitment and performance.

Spiritual leadership had a significant direct positive effect on job performance and an indirect effect through organizational climate, indicating that it fosters performance by building a supportive, collaborative environment. In northern Thailand, this can be understood through Lanna Buddhist cultural values—compassion (*metta*), mutual respect, harmony, and community interconnectedness—which shape nurses' professional relationships and collective responsibility.

(Guptarak et al., 2020; Stone et al., 2016). Post-pandemic, leaders who conveyed a shared vision, hope, and trust strengthened commitment and teamwork, and thus both individual and collective performance. These findings highlight the importance of spiritual leadership and a supportive organizational climate in promoting nurses' job performance.

5. Implications and limitations

The findings showed that all individual-level factors (work engagement and quality of work life) and group-level factors (organizational climate and spiritual leadership) had significant positive direct effects on professional nurses' job performance in tertiary hospitals under the Ministry of Public Health in northern Thailand during the new normal. These findings can guide hospital administrators toward more effective management—encouraging flexible engagement, reducing burnout, and building psychologically safe workplaces—to enhance patient care quality and reduce turnover intentions. They also support public health policies on spiritual leadership training and nursing curricula adapted to post-COVID-19 challenges.

This study had several limitations. The sample was limited to 284 professional nurses from three tertiary hospitals in northern Thailand, which limits the generalizability of the findings to other hospital levels and regions. Although cross-sectional, data collection spanned December 2022 to July 2024, a period of considerable change in healthcare policy, workforce availability, and organizational practice during post-COVID-19 recovery; these temporal shifts may have influenced the perceptions of the study variables. Therefore, the findings should be interpreted with caution regarding causality. Longitudinal studies are recommended to examine how these factors evolve over time. Additionally, the model included only variables in the conceptual framework; other potentially influential factors—organizational culture, regional sociocultural characteristics, personality traits, and psychological resilience—were not examined and should be incorporated in future research for a more comprehensive understanding of nurses' job performance.

6. Conclusion

The study's findings indicated that the multilevel structural equation model demonstrated a good fit to the empirical data. Individual- and group-level factors were significantly associated with nurses' job performance. At the individual level, work engagement and quality of work life had statistically significant direct effects on job performance. At the group level, organizational climate and spiritual leadership had significant direct effects on job performance, while spiritual leadership also indirectly influenced job performance through organizational climate. These findings suggest that improving nurses' job performance may require integrated strategies addressing both individual- and group-level factors. Healthcare administrators should consider increasing work engagement and quality of work life while fostering a positive organizational climate and promoting spiritual leadership in healthcare settings.

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Author contribution

J. R. conceived the study, analyzed the data, and drafted the manuscript. P. B. assisted with data analysis and provided technical support. All authors have reviewed and approved the final version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

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Declaration of Generative Artificial Intelligence (AI)

During the preparation of this manuscript, the author(s) used ChatGPT (OpenAI) to assist with language refinement, clarify wording, and check the consistency of citations and reference formatting. After using this tool, the author(s) reviewed, verified, and edited all AI-assisted content as needed and took full responsibility for the accuracy and integrity of the final manuscript.

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