

Influence of the Shifting Work Schedule on the Well-Being and Work Engagement of Staff Nurses

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Date Submitted:

March 18, 2026

Date Accepted:

June 21, 2026

Date Published:

August 06, 2026

DOI:

10.5281/zenodo.21811513

ABSTRACT

This study determined the influence of shifting work schedules on the well-being and work engagement of staff nurses in Level II hospitals in Quezon Province and developed enhanced scheduling guidelines based on the findings. A quantitative descriptive design incorporating survey, evaluative, comparative, and correlational approaches was used. The participants were 175 regular staff nurses from seven Level II hospitals selected through convenience sampling. Data were collected using a researcher-developed questionnaire that measured physical, emotional, social, and mental well-being and work engagement. Expert validation and pilot testing established good to excellent reliability across the domains (Cronbach's $\alpha = .808-.946$). Frequency, percentage, weighted arithmetic mean, Mann-Whitney U, Kruskal-Wallis H, Dunn-Bonferroni post hoc procedures, and

Spearman's rho were applied using SPSS. Nurses reported positive well-being, with emotional well-being receiving the highest mean ($M = 3.41$), followed by social ($M = 3.25$), mental ($M = 3.19$), and physical well-being ($M = 2.93$). Work engagement was high in the social ($M = 3.45$), mental ($M = 3.36$), and emotional domains ($M = 3.33$), while physical engagement was rated engaged ($M = 3.13$). No significant differences in well-being or engagement were found across age, sex, civil status, family income, length of experience, unit assignment, or 8- and 12-hour shifts. Several weak but significant positive relationships linked specific engagement and well-being domains. The findings indicate that nurse well-being and engagement are interconnected and support fair shift distribution, protected recovery periods, fatigue monitoring, collaborative scheduling, and experience-sensitive assignments through the proposed Enhanced Scheduling Guidelines for Nurses.

Keywords: *shifting work schedule, nurse well-being, work engagement, staff nurses, hospital scheduling, nursing management*

INTRODUCTION

Nursing requires sustained attention, physical endurance, emotional regulation, teamwork, and rapid clinical decision-making. Because hospitals provide uninterrupted care, staff nurses frequently work rotating schedules and either 8- or 12-hour shifts. These arrangements help maintain service continuity, yet extended or irregular working hours may reduce opportunities for sleep and recovery and can contribute to fatigue, burnout, cognitive errors, and poorer quality of life (Caruso, 2014; Di Muzio et al., 2019; Cunningham et al., 2022).

The effects of shift work extend beyond physical tiredness. In this study, well-being was examined through physical, emotional, social, and mental dimensions, while work engagement referred to physical effort, emotional connection, social participation, and mental focus in nursing practice. Work engagement is important because vigor, dedication, and absorption can influence nurses' performance, retention, and perceived quality of care (Pérez-Fuentes et al., 2018; Bogaert et al., 2014; Slåtten et al., 2022). When recovery is insufficient or work demands exceed available resources, both personal well-being and engagement may weaken.

Evidence on shift length is not entirely uniform. Longer or rapidly changing shifts have been associated with poorer sleep, fatigue, sickness absence, ill-being, and turnover intention, although some studies have not found direct increases in clinical errors (Banakhar, 2017; Djupedal et al., 2022; Jarrar et al., 2023; Santana et al., 2020). The effect of a schedule may therefore depend on workload, staffing, recovery time, individual circumstances, and the organizational resources available to nurses. Scheduling decisions should consequently consider not only coverage requirements but also health, work-life balance, and sustainable engagement.

In the Philippine hospital context, nurse shortages, migration, increasing patient demands, and high-acuity care can lead institutions to retain longer or rotating shift arrangements. Although an 8-hour schedule is commonly recommended, some hospitals use 12-hour shifts while maintaining required weekly working hours. This creates a practical need to examine whether nurses working under different schedules experience measurable differences in well-being and engagement and whether evidence-based scheduling practices can better support the workforce.

Accordingly, this study determined the demographic profile of staff nurses in selected Level II hospitals in Quezon Province, assessed their physical, emotional, social, and mental well-being and work engagement, tested differences according to personal and work-related characteristics, and examined relationships between the two major constructs. The findings served as the basis for Enhanced Scheduling Guidelines for Nurses intended to promote healthier working conditions, sustained engagement, and safe patient care.

Literature Review

Shift Work, Fatigue, and Nurse Health

Shift work alters normal sleep-wake patterns and may reduce the quality and duration of recovery. Nurses exposed to rotating schedules, long workdays, quick returns, or repeated night duty may experience sleep disruption, fatigue, reduced cognitive performance, and greater intention to leave (Djupedal et al., 2022; Cunningham et al., 2022). Working hours and overtime have also been associated with adverse nurse outcomes and reduced mental health or engagement (Son et al., 2019; Watanabe & Yamauchi, 2018). Systematic evidence has further associated extended shifts with health concerns and job dissatisfaction, demonstrating that schedule length and pattern are important occupational factors in nursing (Banakhar, 2017).

The consequences of fatigue can affect both nurses and patients. Shift-related sleep deprivation, workload, stress, and workflow interruptions have been identified as factors associated with medication errors and patient-safety risks (Di Muzio et al., 2019). Jarrar et al. (2023) likewise linked longer working duration with anxiety, depression, fatigue, sleepiness, poorer perceived quality of care, and intention to leave. These findings support scheduling approaches that limit excessive hours, provide predictable recovery time, and monitor fatigue-related incidents.

Multidimensional Well-Being of Nurses

Well-being is a multidimensional condition rather than a single measure of happiness or satisfaction. Ruggeri et al. (2020) and Rodrigues et al. (2020) emphasized that quality of life and well-being include several interrelated domains, while the Neuman Systems Model explains how physiological, psychological, sociocultural, and environmental stressors affect system stability (Ahmadi & Sadeghi, 2017). In nursing, physical health, emotional regulation, social support, and mental clarity are essential because they influence nurses' ability to respond safely to demanding clinical situations.

Work characteristics may shape these domains differently. Nurses in high-acuity units face substantial physical and emotional demands, and workload, inadequate staffing, and repeated exposure to critical events can increase stress (Bolado et al., 2024). Work-life imbalance may also affect personal relationships and happiness among nurses (Rony et al., 2023). Supportive scheduling, adequate rest, access to wellness resources, and reasonable workload distribution are therefore relevant organizational strategies for maintaining holistic nurse well-being.

Work Engagement in Nursing Practice

Work engagement is commonly characterized by energy, dedication, absorption, and meaningful involvement in work. In nursing, engagement can be expressed through active participation in patient care, emotional commitment, teamwork, communication, clinical reasoning, and continued professional learning. High engagement is associated with favorable nurse outcomes and better perceptions of care quality (Bogaert et al., 2014; Kim & Seo, 2021).

Engagement is influenced by both personal and job-related resources. Emotional support from supervisors and coworkers can strengthen positive emotions, organizational citizenship, and engagement (Pohl et al., 2022). Studies have also connected engagement with motivation, intention to stay, experience, and supportive practice environments (Alhadidi et al., 2023; Alkorashy & Alanazi, 2023). These findings suggest that engagement is not sustained by personal commitment alone; it is also shaped by fair schedules, manageable demands, social support, and opportunities for professional growth.

Scheduling Resources and Organizational Support

The Job Demands–Resources model proposes that demanding work conditions consume energy, while organizational and personal resources promote motivation and engagement. Applied to nursing schedules, long shifts, night work, high patient acuity, and staffing shortages function as demands, whereas fair workload allocation, supervisory support, rest opportunities, autonomy, and schedule predictability operate as resources (Tummers & Bakker, 2021). A balance between these conditions can help explain why similar shift lengths may produce different experiences across hospitals.

Research on work schedules recommends attention to shift sequence, recovery time, staff preferences, workload, and transparency. Compliance with schedule recommendations can reduce unnecessary strain, while organizational support and safe staffing can strengthen work quality and retention (Lee & Jeong, 2021; American Nurses Association, 2023). The present study therefore treated scheduling as a management practice that could be enhanced through evidence-based guidelines responsive to well-being and engagement rather than as a simple allocation of duty hours.

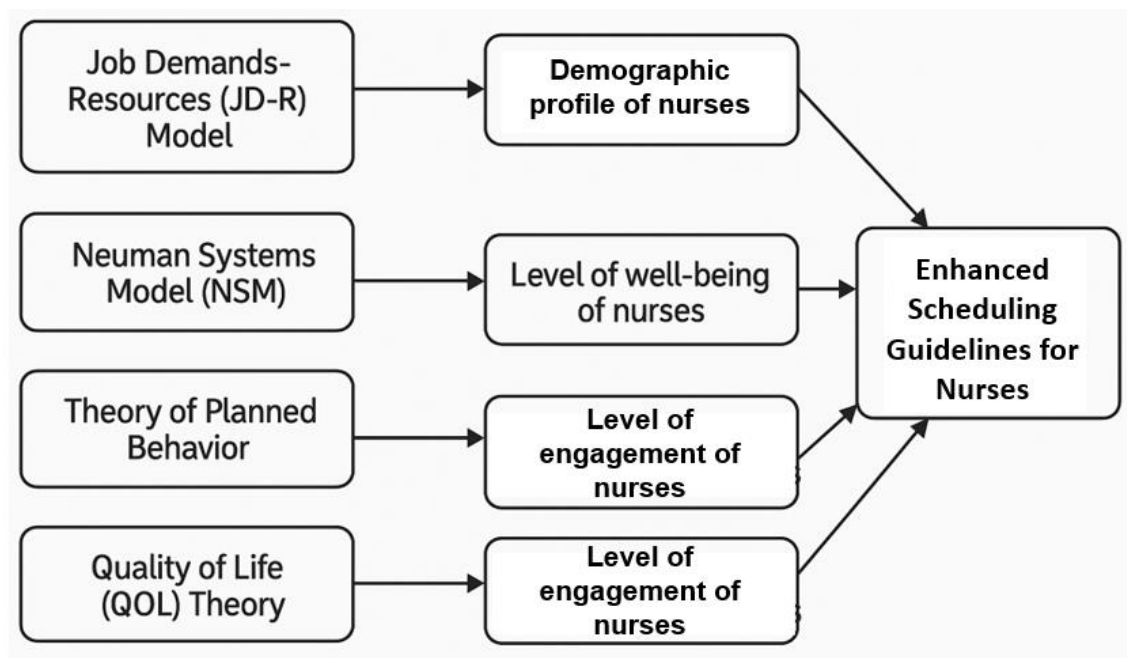


Figure 1. *Theoretical Paradigm Showing the Influence of the Shifting Work Schedule on the Well-Being and Work Engagement of Staff Nurses*

METHODS

Research Design

The study employed a quantitative descriptive design incorporating descriptive-survey, descriptive-evaluative, descriptive-comparative, and descriptive-correlational approaches. The survey component described the participants' demographic and work-related characteristics. The evaluative component assessed physical, emotional, social, and mental well-being and work engagement. Comparative procedures tested differences across profile groups, while the correlational component determined relationships between well-being and engagement. The design involved no manipulation of the participants' work schedules.

Research Locale

The study was conducted in seven Level II hospitals in Quezon Province, Philippines. Level II hospitals provide departmentalized clinical services and specialized facilities, including intensive care and diagnostic support. These institutions were selected because their staff nurses worked in general wards and special areas under 8- or 12-hour shifting schedules, providing the setting required to examine the study variables.

Participants and Sampling Technique

The participants were 175 regular staff nurses from seven hospitals, with 25 nurses represented from each participating institution. Convenience sampling was used. Eligible respondents were currently employed as regular staff nurses in a Level II hospital. The original plan involved 200 nurses from eight hospitals, but one hospital declined participation, resulting in the final sample of 175.

Research Instrument

A researcher-developed questionnaire based on the reviewed literature and studies served as the principal instrument. Part I gathered age, sex, civil status, family monthly income, length of experience, unit assignment, and shifting schedule. Part II contained 32 items measuring physical, emotional, social, and mental well-being, while Part III contained 32 items measuring the corresponding domains of work engagement. Both substantive parts used four-point response scales.

Three experts—one nurse educator and two nursing service administrators with clinical and research expertise—validated the questionnaire. It was pilot-tested among 20 nurses comparable to the intended respondents. Cronbach's alpha values were .833 for physical, .808 for emotional, .888 for social, and .918 for mental well-being. Reliability coefficients for physical, emotional, social, and mental engagement were .912, .933, .946, and .908, respectively, indicating good to excellent internal consistency.

Data Gathering Procedure

Permission was secured from the Graduate School and the medical and nursing directors of the participating hospitals. After approval, the researcher personally distributed the questionnaires and explained the study's purpose, procedures, and voluntary nature. Data gathering occurred from September to October 2024. Completed questionnaires were retrieved, reviewed, encoded, tabulated, and prepared for statistical analysis.

Data Analysis

Frequency and percentage described the profile variables, while weighted arithmetic means summarized the well-being and engagement indicators. Shapiro–Wilk and Levene tests guided the selection of nonparametric procedures. Mann–Whitney U tests were used for two-group comparisons, Kruskal–Wallis H tests for variables with three or more groups, and Dunn–Bonferroni post hoc comparisons when warranted. Spearman's rho determined relationships between well-being and work-engagement domains. Statistical analysis was completed using Microsoft Excel and SPSS at the .05 significance level.

Ethical Consideration

The study observed the Data Privacy Act of 2012. Participants received information regarding the study's objectives, confidentiality safeguards, voluntary participation, and right to withdraw without penalty. Informed consent was obtained before questionnaire administration. Identifying information was removed or altered, responses were reported in aggregate form, and electronic data were kept in secure files accessible only to the researcher. Personal information and responses were scheduled for permanent deletion after completion of the study and final analysis.

RESULTS AND DISCUSSION

Profile of the Staff Nurses

The respondents were predominantly younger nurses: 128 (73.14%) belonged to the 21–35-year age group and 47 (26.86%) to the 36–65-year group. Women comprised 120 (68.57%) of the sample. Detailed results showed that 85 (48.57%) were single and 90 (51.43%) were married. Almost half earned ₱35,000–₱50,000 monthly, 82 (46.86%) had 6–10 years of experience, 143 (81.71%) worked in special areas, and 98 (56.00%) followed an 8-hour schedule. The age, sex, and income patterns reflect broader workforce trends described in nursing literature (Barchielli et al., 2021; Woo et al., 2022; Sibuea et al., 2024). The concentration of nurses in special areas reflects the staffing requirements of critical-care services, while the presence of both shift patterns confirms that scheduling practices varied across the participating hospitals.

Table 1. *Demographic and Work-Related Profile of the Respondents*

Variable	Category	n	%
Age	21–35 years	128	73.14
Age	36–65 years	47	26.86
Sex	Female	120	68.57
Sex	Male	55	31.43
Civil status	Single	85	48.57
Civil status	Married	90	51.43
Family monthly income	Below ₱35,000	74	42.29
Family monthly income	₱35,000–₱50,000	84	48.00
Family monthly income	Above ₱50,000	17	9.71
Length of experience	Below 5 years	39	22.29
Length of experience	6–10 years	82	46.86
Length of experience	11 years and above	54	30.86
Unit assignment	General ward	32	18.29
Unit assignment	Special area	143	81.71
Shift length	8 hours	98	56.00
Shift length	12 hours	77	44.00

Level of Well-Being

The nurses strongly agreed that they experienced emotional well-being ($M = 3.41$), the highest among the four domains. Social ($M = 3.25$), mental ($M = 3.19$), and physical well-being ($M = 2.93$) were rated positively. The comparatively lower physical score suggests that the bodily demands of nursing and limited recovery opportunities remain important concerns even when nurses report generally favorable emotional and social functioning. This pattern is consistent with evidence that shift work and occupational fatigue can affect sleep, energy, and physical health (Caruso, 2014; Cunningham et al., 2022).

Table 2. *Summary of the Level of Well-Being of Nurses*

Domain	Mean	Interpretation
Physical	2.93	Agree
Emotional	3.41	Strongly Agree
Social	3.25	Agree

Mental	3.19	Agree
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Level of Work Engagement

Work engagement was strongest in the social domain ($M = 3.45$), followed by mental ($M = 3.36$) and emotional engagement ($M = 3.33$), all interpreted as highly engaged. Physical engagement was rated engaged ($M = 3.13$). These findings indicate that the nurses remained socially connected, cognitively involved, and emotionally committed to their work despite the demands associated with hospital schedules. The results align with studies describing engagement as a product of professional commitment, supportive relationships, and meaningful involvement in patient care (Pohl et al., 2022; Kim & Seo, 2021).

Table 3. *Summary of the Level of Work Engagement of Nurses*

Domain	Mean	Interpretation
Physical	3.13	Engaged
Emotional	3.33	Highly Engaged
Social	3.45	Highly Engaged
Mental	3.36	Highly Engaged

Differences According to Demographic and Work-Related Characteristics

Mann–Whitney U and Kruskal–Wallis H tests found no significant differences in any well-being or work-engagement domain when the respondents were grouped according to age, sex, civil status, family monthly income, length of experience, unit assignment, or shift length. For shift length specifically, well-being p-values ranged from .68 to .82, while engagement p-values ranged from .27 to .91. Thus, nurses working 8- and 12-hour schedules reported statistically comparable levels across the measured domains. The findings do not establish that the two schedules are equivalent in every circumstance; rather, within this sample, shift length alone did not explain variation in well-being or engagement. Organizational resources, staffing, workload, and recovery practices may be more influential than demographic characteristics or nominal shift duration (Tummers & Bakker, 2021; Lee & Jeong, 2021).

Table 4. *Summary of Group Differences in Well-Being and Work Engagement*

Grouping Variable	Well-Being	Work Engagement
Age	Not significant	Not significant
Sex	Not significant	Not significant
Civil status	Not significant	Not significant
Family monthly income	Not significant	Not significant
Length of experience	Not significant	Not significant
Unit assignment	Not significant	Not significant
Shift length (8 vs. 12 hours)	Not significant	Not significant

Relationships Between Well-Being and Work Engagement

The correlation analysis showed selective, positive relationships between the constructs. Physical engagement was significantly related to physical well-being ($r_s = .18$, $p = .01$) and mental well-being ($r_s = .21$, $p = .01$). Social engagement was related to emotional well-being ($r_s = .20$, $p = .01$) and mental well-being ($r_s = .27$, $p < .01$). Mental engagement was related to emotional well-being ($r_s = .19$, $p = .01$) and social well-being ($r_s = .29$, $p < .01$). The coefficients were weak or very weak, indicating that engagement and well-being are connected but not interchangeable. The relationships nevertheless support the JD–R perspective that energy, supportive interactions, and cognitive involvement can operate together in sustaining employees' functioning (Tummers & Bakker, 2021; Slåtten et al., 2022).

Table 5. *Significant Relationships Between Work Engagement and Well-Being Domains*

Work-Engagement Domain	Well-Being Domain	r_s	p	Interpretation
Physical engagement	Physical well-being	.18	.01	Significant

Physical engagement	Mental well-being	.21	.01	Significant
Social engagement	Emotional well-being	.20	.01	Significant
Social engagement	Mental well-being	.27	<.01	Significant
Mental engagement	Emotional well-being	.19	.01	Significant
Mental engagement	Social well-being	.29	<.01	Significant

Enhanced Scheduling Guidelines for Nurses

The proposed guidelines translated the findings into scheduling practices that protect recovery while maintaining staffing flexibility. Priority areas included limiting excessive 12-hour assignments, avoiding back-to-back long shifts, protecting breaks and rest days, rotating critical-area assignments, supporting newly employed nurses, monitoring fatigue and physical strain, using gradual and transparent shift rotation, and involving nurses in team-based schedule planning. These strategies respond to the relatively lower physical well-being and physical engagement scores and to the observed interdependence between engagement and well-being.

Table 6. *Selected Components of the Enhanced Scheduling Guidelines for Nurses*

Area	Recommended Practice
Shift length	Prioritize 8-hour shifts in critical units; limit 12-hour shifts; avoid back-to-back long duties; provide mandatory breaks.
Rest and recovery	Provide two consecutive rest days where feasible, extended recovery after night duty, and compensatory rest for overtime or emergency responses.
Unit assignment	Rotate nurses between high-stress and general units, distribute workload according to acuity, and provide additional support during high-demand periods.
Experience level	Provide flexible scheduling, mentorship, lighter initial workloads, regular well-being checks, and recovery days for newly employed nurses.
Shift rotation	Use gradual changes between day and night duty, avoid abrupt schedule changes, rotate weekends and holidays equitably, and review patterns monthly.
Collaborative scheduling	Use shared digital schedules, obtain staff preferences, support transparent shift swaps, and monitor morale, engagement, fatigue, and patient-care outcomes.

The study was limited to seven Level II hospitals, convenience sampling, cross-sectional measurement, and self-reported responses. One hospital declined participation, and the findings may not represent all nurses or hospital types. The statistical associations also do not establish causation. These limitations should be considered when applying the guidelines or extending the findings to other settings.

CONCLUSION

Staff nurses in the participating Level II hospitals generally demonstrated positive well-being and sustained work engagement. Emotional well-being was the strongest well-being domain, while social engagement received the highest engagement rating. Physical well-being and physical engagement were comparatively lower, indicating that physical workload and recovery remain important areas for nursing management. The absence of significant group differences suggests that the measured well-being and engagement experiences were broadly shared across demographic categories, unit assignments, and 8- and 12-hour schedules within the sample.

Specific well-being and engagement domains were weakly but significantly related, showing that nurses' physical energy, emotional balance, social interaction, and cognitive involvement are interconnected. The study contributes evidence for managing schedules as an organizational resource rather than merely a staffing arrangement. The Enhanced Scheduling Guidelines for Nurses provide a practical framework for fair shift

allocation, protected rest, experience-sensitive support, workload monitoring, and collaborative scheduling to sustain nurse health, engagement, and safe practice.

Recommendation

Hospital and nursing administrators should adopt, pilot, and regularly evaluate the Enhanced Scheduling Guidelines, with particular attention to high-acuity units, consecutive long shifts, rest after night duty, fatigue-related incidents, workload distribution, and the needs of nurses in their early years of practice. Nurses should be involved in schedule planning and feedback, while wellness, debriefing, mentorship, and peer-support initiatives should be integrated into staff-development programs. Professional organizations may use the findings to strengthen scheduling standards and capacity-building programs for nurse leaders.

Future studies should use larger probability samples across different hospital levels and regions, compare specific rotation patterns, and incorporate objective indicators such as sleep, absenteeism, overtime, turnover, and patient-safety outcomes. Longitudinal, qualitative, or mixed-method studies may provide deeper evidence on how schedule predictability, staffing adequacy, personal preference, and recovery time shape nurses' well-being and engagement over time.

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