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Factors Affecting Job Satisfaction Among Nurses at Sayang Rakyat Regional General Hospital in South Sulawesi Province, Indonesia

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ABSTRACT

Purpose: This study analyzes the relationship between work motivation, workload, work-related fatigue, and the physical and non-physical work environment and job satisfaction among nurses at Sayang Rakyat Regional General Hospital in South Sulawesi Province, Indonesia.

Research Method: This analytical, observational, quantitative study employed a cross-sectional design. A total of 116 respondents were recruited using total sampling. Data were collected using a structured questionnaire and analyzed using the chi-square test and multiple logistic regression with the backward method.

Results and Discussion: The reported bivariate results indicate that all five independent variables are associated with job satisfaction. In the final model, work motivation, work fatigue, and the non-physical work environment continued to show an independent association with job satisfaction, whereas workload and the physical work environment did not. Work motivation showed the strongest positive association among the variables retained in the model.

Implications: Hospital management needs to strengthen professional recognition, career development, burnout management, adequate recovery time, supportive supervision, communication, and teamwork. Longitudinal studies using validated instruments and objective environmental measurements are needed.

Originality: This study integrates psychological factors, job demands, fatigue, and the physical and social environment by distinguishing between the physical and non-physical work environments in the context of a regional hospital.

Keywords: job satisfaction; work motivation; workload; work-related fatigue; work environment.

1. Introduction

Hospitals are healthcare institutions expected to provide high-quality, effective, and patient-safety-oriented care. This care is delivered by both medical and non-medical staff, with nurses constituting the largest group of professionals who interact directly with patients 24 hours a day. This role makes nurses a critical component in the delivery of nursing care and the maintenance of healthcare service quality. Optimal nurse performance is linked to patient safety and satisfaction as well as the hospital's reputation. In contrast, suboptimal performance is associated with an increased risk of medical errors, patient complaints, and a decline in public trust in healthcare services (Handayani *et al.,* 2022). Therefore,

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nurses' job satisfaction is a strategic issue in hospital human resource management because it is linked to productivity, loyalty, service quality, and the sustainability of healthcare organizations (Mardiah, 2024).

The issue of nurses' job satisfaction has become increasingly critical amid nursing staff shortages and rising demand for healthcare services. Data from the World Health Organization indicate that the global number of nurses will reach nearly 30 million by 2025, yet the world still faces a shortage of approximately 5.8 million nurses. Approximately 78% of the world's nurses are concentrated in countries that account for only 49% of the global population, while the demand for nurses is projected to reach 36 million by 2030 (WHO, 2025). This disparity is linked to high workloads, the risk of burnout, and a decline in nurses' capacity to provide optimal care. Therefore, increasing the number of healthcare workers must be accompanied by human resource development and the creation of working conditions that support nurses' job satisfaction, particularly since nursing involves high workloads, emotional involvement, and critical decision-making (Rachmiana & Suryadi, 2025).

In the context of the Sayang Rakyat Regional General Hospital in South Sulawesi Province, nurses' job satisfaction requires management's attention. Nurses bear significant responsibility as frontline healthcare workers and face risks of exposure to disease, as well as work-related stress associated with their duties (Ramadhana *et al.,* 2024). Empirical evidence indicates that some nurses are dissatisfied with their work schedules. Furthermore, management's ability to negotiate and motivate nurses is considered suboptimal. Some nurses have not yet fully implemented the established nursing care models. This situation is reflected in complaints from nursing service users who feel dissatisfied with the care they receive (Djohan *et al.,* 2023). This phenomenon highlights the need to identify personal, job-related, and organizational factors associated with nurses' job satisfaction at this hospital.

Job satisfaction describes an emotional state that reflects a person's positive or negative feelings toward their work. Nurses with high job satisfaction tend to demonstrate greater organizational commitment and better performance, and can provide optimal care to patients. Conversely, low job satisfaction is associated with stress, burnout, and the intention to leave the organization (Ardiansyah & Kanisius, 2026). A study by Alrawahi *et al.,* (2020), citing the findings of Verma *et al.,* reported that 75.3% of healthcare workers were dissatisfied with their work environment, salary, promotions, and benefits, while relationships with supervisors and coworkers were sources of satisfaction. The study also explains that salary, promotions, training and development, and relationships with supervisors are the main factors contributing to job dissatisfaction among healthcare workers in eastern Ethiopia. However, since the study involved healthcare workers in general, applying its findings to the nursing population requires consideration of differences in job characteristics and organizational contexts.

Several studies have identified motivation as a factor associated with nurses' job satisfaction. Rewards, organizational support, recognition, and opportunities for self-development can enhance motivation while fostering nurses' positive perceptions of their work. However, Sulamdari (2025) found that motivation is not always the dominant factor, particularly when working conditions and job stress exert a stronger influence on nurses' psychological well-being. These differences indicate that the strength of the relationship between motivation and job satisfaction may depend on organizational characteristics and work conditions at each hospital.

Workload and job burnout are also important factors in explaining nurses' job satisfaction. A high patient load, limited healthcare staff, shift schedules, and demands for rapid service can increase nurses' physical and psychological strain. High workload is generally associated with low job satisfaction because it is accompanied by stress and fatigue. However, the strength of this relationship may vary

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when nurses are supported by effective work systems and a positive organizational environment (Ningtyas, 2026). Persistent physical, emotional, and mental fatigue can also reduce the quality of care and job satisfaction. Although burnout is associated with low job satisfaction, previous studies have more often treated it as a consequence of workload rather than as an independent factor analyzed alongside other organizational factors (Puspanegara *et al.,* 2023).

The work environment is another factor that shapes nurses' comfort and satisfaction. The physical work environment includes lighting, ventilation, cleanliness, noise, safety, and the adequacy of work facilities. Meanwhile, the non-physical work environment includes relationships among coworkers, communication with supervisors, organizational support, leadership, and work atmosphere. Both aspects can influence nurses' work effectiveness and psychological well-being. However, previous studies have generally examined only one aspect of the work environment; thus, the distinction between the physical and non-physical work environments as two independent constructs within a single model of nurses' job satisfaction remains limited (Siahaan, 2022).

Empirical evidence indicates that a combination of various factors shapes nurses' job satisfaction. Rahayu (2017) found that of 43 nurses at Sentra Medika Cikarang Hospital, 17 (39.5%) were dissatisfied and 26 (60.5%) were satisfied. Factors associated with job satisfaction included salary, workload, supervision, promotion opportunities, and human resource development. Tarigan *et al.,* (2022) also reported that performance, career development, supervision, salary, relationships with coworkers, and working conditions were significantly associated with the job satisfaction of practicing nurses. These findings indicate that job satisfaction is not determined by a single factor but by a combination of individual, job, and organizational characteristics.

Although various factors related to nurses' job satisfaction have been studied, several limitations remain in this research. First, previous studies have generally focused on only one or two factors and thus have not provided a comprehensive picture of motivation, workload, work-related fatigue, and the work environment. Second, the relationship between motivation, workload, and job satisfaction has yielded results that are not entirely consistent across organizational contexts. Third, job fatigue is more often positioned as a consequence of workload. In contrast, physical and non-physical work environments have not been widely distinguished as independent constructs within a single model. Fourth, empirical evidence that simultaneously analyzes these five factors among nurses at the Sayang Rakyat Regional General Hospital in South Sulawesi Province remains limited. Thus, a more comprehensive, context-specific analytical model is needed to explain variations in nurses' job satisfaction without assuming causal relationships.

Based on these gaps, this study asks whether motivation, workload, work fatigue, the physical work environment, and the non-physical work environment are associated with nurses' job satisfaction, and which factor shows the strongest association with nurses' job satisfaction at Sayang Rakyat Regional General Hospital in South Sulawesi Province. This study aims to analyze the relationship between these five factors and job satisfaction and to identify the factor with the strongest association. The novelty of this study lies in integrating the five variables into a single analytical model, separating the physical and non-physical work environments as two independent constructs, and including work fatigue as an independent variable. This study also provides contextual empirical evidence from Sayang Rakyat Regional General Hospital, which has its own unique service characteristics, work schedules, and job demands.

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The remainder of this paper is organized as follows. Section 2 provides a literature review and hypothesis development. Section 3 presents the research method and design. Section 4 provides the results and discussion. Section 5 presents Concluding Remarks and Recommendations.

2. Literature Review and Hypothesis Development

2.1 *Job Satisfaction*

Job satisfaction is an affective and cognitive evaluation that reflects nurses' positive or negative feelings toward their work and work experiences. In this study, job satisfaction is defined as an overall assessment of the job, rather than as a collection of conditions analyzed simultaneously as independent variables. Therefore, workload, the physical work environment, the non-physical work environment, and motivation are not treated as indicators of job satisfaction. This distinction is necessary to avoid construct contamination and to ensure that relationships between variables do not arise from similarities in the content of the questions. In nursing practice, job satisfaction is important because nurses face physical, emotional, and professional demands and interact with patients on an ongoing basis. Satisfaction levels may also vary based on competence, self-efficacy, experience, and career stage. Nurses with moderate work experience are reported to have lower satisfaction than new nurses and those with long-term experience (Alshammari & Alenezi, 2023). Nursing education that builds competencies and prepares students for the workforce is also associated with nurses' job satisfaction in the first year after graduation (Koskinen *et al.,* 2023).

Nurses' job satisfaction is related to individual, job, and organizational characteristics, but these factors must be conceptually distinguished from the measurement of satisfaction itself. Kim *et al.,* (2024) indicate that factors related to job satisfaction may differ across generations: career growth and task value are more prominent for Generation Z nurses, whereas task value, reputation, and work environment are more prominent for Generation Y. Nursing managers' competencies in staff development, change management, supervision, and quality monitoring are also associated with job satisfaction and turnover intentions (Mirzaei *et al.,* 2024). A nurse's position within the organization's social network is associated with job satisfaction, organizational commitment, and organizational citizenship behavior (Liu *et al.,* 2023). Resilience is also associated with job satisfaction, perceptions of service quality, and the desire to leave the profession (Sihvola *et al.,* 2023). Job satisfaction has also been reported to mediate the relationship between career compromise and intention to leave the organization (Xie *et al.,* 2024). These findings confirm that job satisfaction is a distinct construct that must be measured consistently across all respondents using the same instrument, scoring rules, and outcome categories.

2.2 *Overview of Nursing*

Nurses are healthcare professionals who provide care to individuals, families, groups, and communities—whether healthy or ill—through a scientific, ethical, humanistic, and patient-safety-oriented approach. Nursing practice includes assessing patient needs, identifying nursing problems, planning and implementing interventions, evaluating outcomes, providing education, advocating for patients, coordinating care, and collaborating with other healthcare professionals. Nursing professionalism is determined not only by technical competence but also by compassion, responsibility, autonomy, adherence to the code of ethics, and continuous learning. This professionalism is

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multidimensional, dynamic, and tied to the cultural context in which care is provided (Cao *et al.,* 2023). Nursing competencies integrate knowledge, skills, actions, values, attitudes, clinical reasoning, communication, and the ability to meet ethical standards. The transition from education to clinical practice, therefore, requires support to help new nurses understand their roles, responsibilities, and professional competencies (Prosen & Ličen, 2023).

Based on education, competencies, and scope of practice, nurses can be categorized into vocational nurses, professional or registered nurses, and advanced practice nurses. Advanced practice nurses possess expert knowledge, the ability to make complex decisions, expanded clinical competencies, and roles in leadership, education, research, and evidence-based care (Chau *et al.,* 2022). Clarity regarding education, licensure, authority, and professional status is necessary to ensure accountability and prevent role conflicts (Wang *et al.,* 2024). Thus, graduates of the Diploma III in Midwifery program cannot automatically be classified as nurses simply because they work in a hospital. The status of the seven respondents with a midwifery background must be verified based on their job titles, professional registration, clinical authority, and compliance with the study's inclusion criteria. Nurses' performance is related to self-efficacy and professional attitudes (Cha & Lee, 2024), as well as organizational characteristics such as workload, facilities, recognition, supervision, leadership, and professional development (Daba *et al.,* 2024). Empowering leadership is also linked to motivation, job engagement, and burnout (Kohnen *et al.,* 2024). Professional organizations, in turn, support nurses' professional identity, solidarity, advocacy, ethical standards, and continuing education (Jackson, 2025).

2.3 *Motivation*

Motivation is a psychological drive that directs a person's intensity, perseverance, and willingness to act consciously in achieving work goals. In the context of nursing, motivation is reflected in the willingness to provide care, achieve excellence, accept responsibility, develop competencies, and maintain professional commitment. Indonesia reportedly faces issues with healthcare workers' motivation stemming from a lack of attention to their well-being, limited staffing levels, and inequities in the distribution of healthcare resources (Pratiwi *et al.,* 2023). Poor working conditions and resource constraints have also been reported to be associated with low motivation and job satisfaction among nurses (Ayalew *et al.,* 2019). Recognition, praise, training, seminars, and career development opportunities can create a supportive environment that fosters nurses' motivation, enthusiasm, sense of responsibility, commitment, satisfaction, and performance (Hartono *et al.,* 2019). Findings by Juita and Waloyo (2026) further indicate that stronger work motivation is associated with enthusiasm, a proactive attitude, and productivity, while career development opportunities support improvements in employees' skills and commitment. However, if supervision and the work environment are analyzed as separate constructs, these conditions should be treated as organizational factors related to motivation rather than used directly as indicators of motivation.

The Two-Factor Theory distinguishes motivator factors—such as achievement, recognition, responsibility, involvement, advancement, and growth—from hygiene factors—such as status, security, salary, supervision, policies, and working conditions (Herzberg, 1966). This distinction must be applied consistently so that motivation is not measured using indicators of supervisory support, environmental conditions, facilities, or work relationships—which are already covered by the work environment variable. In this study, motivation should be limited to intrinsic drives, such as the need for achievement, willingness to take on responsibility, perseverance, self-development, and pride in work

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accomplishments. Meanwhile, supervision, managerial support, facilities, and the organization's physical and social conditions are treated as distinct external constructs. This limitation reduces overlap between motivation and the work environment while clarifying the interpretation of each variable's relationship with job satisfaction. Because the study design is cross-sectional, motivation is not identified as a cause or determinant of job satisfaction. The analysis can only indicate the presence or absence of a relationship and the strength of the association between motivation and job satisfaction at the time of data collection.

2.4 *Workload*

A nurse's workload consists of all activities and the time spent providing direct and indirect nursing care while on duty in a unit (Martyastuti *et al.,* 2019). Workload assessment may take into account the number of patients and their level of dependency, length of stay, type and frequency of procedures, time required to complete procedures, and the availability of nursing staff. The assigned workload must align with the nurse's physical and psychological capacity (Basalamah *et al.,* 2021). The volume of work, documentation requirements, basic patient care, and additional tasks are linked to fatigue, performance, and the quality of care (Siallagan, 2022). Saputri and Fauzan (2026) also indicate that a higher workload is associated with increased work-related stress and decreased psychological well-being; therefore, the management of job demands must take into account staff resources and recovery capacity. Nevertheless, workload must be treated as an independent construct and should not be re-included as an indicator of job satisfaction. This distinction is crucial because using workload items across both constructs can lead to measurement overlap and create statistical relationships that reflect similar questions rather than actual empirical relationships.

Workload can be distinguished into quantitative and qualitative loads. Quantitative workload relates to the number of tasks, patient monitoring, job variety, contact intensity, and nursing staff shortages (Martyastuti *et al.,* 2019). Qualitative workload arises when the complexity of job demands exceeds cognitive or technical resources, such as caring for critically ill patients, making rapid decisions, responding to patients' families, and carrying out medical delegation (Hidayat & Sureskiarti, 2020). Objective measurements can be conducted through work sampling, time-and-motion studies, and daily logs (Nursalam, 2014), while perceptual measurements may include targets, work conditions, time use, and job standards (Fatimah, 2021; Putera, 2021). The categories of heavy (13–25), moderate (26–38), and light (39–52) cannot be applied unless the instrument, number of items, scoring direction, response range, and scoring procedures are identical to those in Nursalam (2014). If such equivalence cannot be demonstrated, workload scores should be analyzed on a continuous scale or categorized solely according to the guidelines of the original, validated instrument, rather than according to midpoint divisions created by the researcher.

2.5 *Work-Related Fatigue*

Work-related fatigue is a condition characterized by a decline in physical and mental capacity following work-related activities, resulting in reduced stamina, concentration, motivation, productivity, and task performance. This condition is also understood as the body's protective mechanism to prompt individuals to stop or reduce their activities before further impairment occurs (Lendombela *et al.,* 2017; Suma'mur, 2017). Symptoms of fatigue can be either objective or subjective, ranging from reduced responsiveness and accuracy to complaints of tiredness that may subside after rest (Tarwaka *et al.,* 2010).

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Fatigue may also be accompanied by boredom, irritability, anxiety, cynicism, apathy, despair, and helplessness (Rompas, 2018). Based on its form, fatigue can be physical, pathological, or psychological-emotional, while based on its duration, it can be classified as acute or chronic. In this study, work-related fatigue must be distinguished from workload: workload refers to job demands, whereas fatigue refers to the response or condition experienced by nurses.

Work-related fatigue is associated with both internal and external factors. Internal factors include age, gender, health status, nutritional status, psychological condition, and work attitude (Suryaningtyas, 2017). Advancing age is associated with changes in physiological capacity, while psychological issues, monotonous work, and non-ergonomic work postures can exacerbate fatigue complaints (Suma'mur, 2009). External factors include length of service, physical and mental demands, the shift system, lighting, and noise. Long working hours may be associated with burnout, while shift work is associated with changes in circadian rhythm. Inadequate lighting can increase eye strain, whereas noise is associated with impaired concentration and physiological stress. Although workload may be related to fatigue, the two variables should not use the same items. Fatigue instruments must measure the symptoms or reduced capacity experienced by nurses, not the number of patients, the volume of tasks, supervision, or the quality of the work environment. The categorization of fatigue levels must also follow the guidelines of the original, validated instrument and be applied identically to all respondents.

2.6 *Physical Work Environment*

The physical work environment refers to the overall material and spatial conditions surrounding the workplace that are directly or indirectly related to employees' job performance. These conditions include the workspace, lighting, temperature, ventilation, noise, layout, cleanliness, safety, and the adequacy of work facilities (Sedarmayanti & Pd, 2001). An adequate physical environment is associated with comfort, safety, and work effectiveness, whereas inadequate conditions can lead to fatigue, stress, and low job satisfaction (Robbins, S.R. & Judge, 2019). In hospital care, the physical environment is crucial because nurses work under high demands for concentration, precision, mobility, and safety. Adequate facilities, comfortable spaces, sufficient lighting, and safe conditions support the delivery of patient care (Af *et al.,* 2025). However, the physical work environment should be limited to conditions that can be physically observed or perceived and does not include motivation, supervision, managerial support, or intercolleague relationships.

The physical work environment can include facilities directly related to employees, such as desks, chairs, equipment, and workspaces, as well as general conditions such as lighting, noise, color, space for movement, temperature, and safety. Lighting must be sufficient and non-glare to support precision and workplace safety. Noise needs to be controlled because it affects concentration, communication, and comfort. Color schemes and spatial arrangements can foster psychological comfort, while safety systems must be supported through equipment protection, access control, and organizational readiness (Marliani *et al.,* 2023). In assessments, items related to the physical environment should focus on facility conditions, spatial comfort, cleanliness, ventilation, lighting, noise, temperature, and safety. Items regarding recognition, leadership, cooperation, or management attention should be excluded because they fall under the non-physical environment or motivational context. Physical work environment scores should also not be directly categorized as "good" or "bad" based on a midpoint without clear instrument guidelines or empirical evidence.

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2.7 *Non-Physical Work Environment*

The non-physical work environment refers to the social, relational, and psychological conditions arising from workplace interactions within an organization. This construct encompasses the quality of relationships among coworkers, supervisor-subordinate relationships, communication, teamwork, respect, conflict resolution, and the social atmosphere in the workplace (Af *et al.,* 2025). In healthcare, the non-physical environment is important because nurses need to coordinate and collaborate with fellow nurses and other healthcare professionals. Good interpersonal relationships are associated with reduced work stress and more coordinated patient care (Marliani *et al.,* 2023). Although supervisor support and work relationships may be related to motivation, both are classified as characteristics of the non-physical environment rather than as indicators of intrinsic motivation. Conversely, performance, perseverance, responsibility, and self-development remain within the motivation construct. This distinction is necessary to minimize construct contamination and clarify the meaning of each variable's relationship with job satisfaction.

The non-physical work environment can be disrupted by ineffective supervision, a lack of feedback, uncommunicated organizational changes, frustration, and disputes. Conflict can hinder communication and team cohesion, but it can also serve as a means of problem-solving when managed constructively (Mukaromah & Marselina, 2023). Indicators of the non-physical work environment can focus on harmonious relationships among coworkers, mutually respectful relationships between supervisors and subordinates, communication, and cooperation that supports the effective and efficient completion of tasks (Marlius & Sholihat, 2022). Excessive workload and time constraints are not used as indicators of the non-physical environment because both fall under workload. Similarly, lighting, ventilation, noise, temperature, and facility amenities are classified as part of the physical work environment. Measurements of the non-physical environment must use items that do not overlap with constructs such as motivation, workload, or job satisfaction. If scores are to be categorized as "good" or "less than good," the category thresholds must be derived from validated instrument guidelines and applied consistently to all respondents, rather than determined by arbitrarily splitting the midpoint without justification.

2.8 *An Islamic Perspective*

Islam regards cooperation and social responsibility as essential components of work that is oriented toward the common good. This principle is reflected in Surah Al-Ma'idah [5]: 2: "Wa ta'āwanū 'alal-birri wat-taqwā, wa lā ta'āwanū 'alal-iśmi wal-'udwān, wattaqullāh, innallāha syadīdul-'iqāb." This means, "And help one another in righteousness and piety, and do not help one another in sin and aggression. Fear Allah; indeed, Allah's punishment is severe." This verse contains a command to foster collaboration in righteousness and piety, as well as a prohibition against cooperating in actions involving sin, injustice, or aggression. In the context of nursing practice, the principle of ta'āwun can be understood as a moral foundation for nurses to help one another, share responsibilities fairly, ensure patient safety, and foster professional collaboration without compromising service standards and ethics.

The application of this principle concerns both individual and organizational responsibilities in providing humane care. Nurses are required to carry out their duties with integrity, respect patients, maintain confidentiality, and work together to achieve the common good. Hospital management must also establish a fair division of labor, provide a safe physical environment, foster mutually respectful working relationships, and prevent actions that harm healthcare workers or patients. This perspective is

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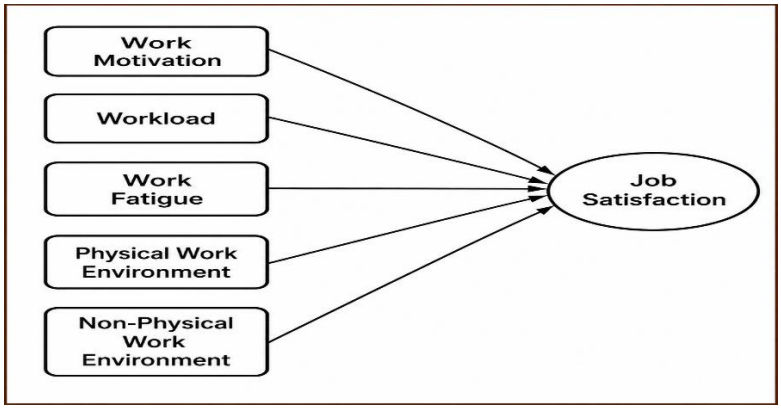
not intended to establish a statistical or causal relationship between religious teachings and job satisfaction, but rather serves as a normative foundation that reinforces the importance of collaboration, fairness, responsibility, and a supportive work environment. These principles are relevant to nurses' intrinsic motivation in fulfilling their duties, the proportional management of workloads, the prevention of burnout, and the creation of a suitable physical and non-physical work environment. Thus, Q.S. Al-Ma'idah [5]: 2 provides an ethical framework for professional collaboration in nursing care; however, the measurement of each research construct must still follow distinct operational definitions and scientific instruments.

2.9 *Conceptual Framework and Research Hypotheses*

The conceptual framework conceptually explains the relationships among the research variables, the connections between the respective theories, and the relationships between two or more independent variables and the dependent variable. The conceptual framework diagram is as follows:

Figure 1. Research Model



A research hypothesis is a tentative answer to a research question formulated as a question. The hypotheses used in this study are:

- ***H1:*** *There is a relationship between work motivation factors and job satisfaction among nurses at Sayang Rakyat Regional General Hospital.*
- ***H2:*** *There is a relationship between workload and job satisfaction among nurses at Sayang Rakyat Regional General Hospital.*
- ***H3:*** *There is a relationship between work-related fatigue and job satisfaction among nurses at Sayang Rakyat Regional General Hospital.*
- ***H4:*** *There is an association between physical work environment factors and job satisfaction among nurses at Sayang Rakyat Regional General Hospital.*
- ***H5:*** *There is an association between non-physical workplace factors and job satisfaction among nurses at Sayang Rakyat Regional General Hospital.*

3. Research Method

This study employed a quantitative approach using an analytical observational method and a cross-sectional design. This design was used to analyze the relationships among work motivation, workload,

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work-related fatigue, the physical and non-physical work environments, and nurses' job satisfaction. All variables were measured during the same period; therefore, the study results indicate statistical associations and are not intended to establish temporal or causal relationships. The study was conducted at Sayang Rakyat Regional General Hospital in South Sulawesi Province from June to July 2026. The study population comprised all practicing nurses at the hospital, totaling 116 individuals. The sample was determined using the total sampling technique, so that all members of the population were included as respondents. Primary data were obtained through a questionnaire, while secondary data—including the number and characteristics of the nurses—were obtained from hospital records. Respondent eligibility was determined based on their status as active practicing nurses during the study period.

Data collection was conducted in person after the researchers obtained research permission from the Master's Program in Public Health and Sayang Rakyat Regional General Hospital in South Sulawesi Province. Prospective respondents received an explanation regarding the study's objectives, procedures, benefits, confidentiality of information, voluntary participation, and the right to withdraw from the study without consequences. Willing respondents were asked to sign an informed consent form after the explanation and then completed the questionnaire independently within 10–15 minutes. Returned questionnaires were checked to ensure the completeness and consistency of responses. Respondent identities were not included in the analysis database, and all information was used solely for research purposes.

The research instrument consisted of a closed-ended questionnaire comprising 56 statements to measure six constructs. Job satisfaction and work fatigue were each measured using 10 statements, while work motivation, workload, and the physical and non-physical work environments were each measured using 9 statements. The questionnaire was developed by adapting indicators from the primary sources listed in Table 1. All statements used a four-point scale with scores ranging from 0 to 3. The scoring direction for each item was standardized before summing the scores so that higher scores reflect higher levels of the construct. Scores for variables with nine items range from 0 to 27, while scores for variables with 10 items range from 0 to 30. Categorization was performed using score thresholds established prior to analysis and applied identically to all respondents.

To prevent construct overlap, job satisfaction was limited to nurses' evaluations of rewards, self-development, leadership, interpersonal relationships, working hours, and work rules; workload was no longer included as an indicator of satisfaction. Motivation was limited to recognition, responsibility, self-development, career opportunities, and job fit. Support from supervisors and the work environment were not used as indicators of motivation because they were already covered within the non-physical and physical work environment constructs. This determination followed the separation of motivator and hygiene factors in the Two-Factor Theory (Herzberg, 1964) as well as the empirical references for each construct.

Data were processed using Microsoft Excel and IBM SPSS Statistics through the stages of editing, coding, scoring, data entry, and cleaning. Checks were performed to ensure that each respondent had a single job satisfaction score, which was used consistently across all cross-tabulations and regression analyses. Univariate analysis presented respondent characteristics and variable distributions in terms of frequency and percentage. Bivariate analysis used the chi-square test at a 5% significance level, while Fisher's exact test was used when the expected frequency requirement was not met. Multiple logistic regression was used to assess the simultaneous relationship between the five independent variables and job satisfaction. Model building was performed stepwise using the backward

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method, which involves removing the variable with the largest p-value at each step. Model reporting included the number of observations, the reference category, regression coefficients, standard errors, Wald statistics, p-values, adjusted odds ratios, 95% confidence intervals, a multicollinearity check, and model fit statistics.

Table 1. Research Variables and Measures

Variable	Code	Indicator	Measurement	Primary References
Job satisfaction	KK	Compensation or benefits; opportunities for professional development; leadership qualities; interpersonal relationships; working hours; and work policies	10 statements; score 0–30; somewhat dissatisfied = 0–15 and satisfied = 16–30	Alshammari dan Alenezi (2023); Kallerhult Hermansson *et al.,* (2024)
Work Motivation	MK	Recognition; trust and responsibility; professional development; career opportunities; and job fit	9 statements; score 0–27; low = 0–13 and high = 14–27	Herzberg (1964); Hartono *et al.,* (2019)
Workload	BK	Goals; work conditions; time constraints; work standards; and the utilization of skills and talents	9 statements; score 0–27; low = 0–13 and high = 14–27	Nursalam (2017); Martyastuti *et al.,* (2019)
Work-related fatigue	KL	Physical fatigue; mental fatigue; feelings of exhaustion; decreased motivation; and decreased productivity	10 statements; score 0–30; low = 0–15 and high = 16–30	Suma'mur (2009); Tarwaka (2010)
Physical work environment	LKF	Space; lighting; temperature; ventilation; noise; layout; cleanliness; safety; and facilities	9 statements; score 0–27; poor = 0–13 and good = 14–27	Robbins *et al.,* (2022); Af *et al.,* (2025)
Non-physical work environment	LKNF	Colleague relationships; relationships with supervisors; communication; teamwork; organizational support; and work environment	9 statements; score 0–27; poor = 0–13 and good = 14–27	Af *et al.,* (2025)

4. Results and Discussion

4.1 Analysis Results

4.1.1 *Respondent Characteristics*

The characteristics of the respondents in this study included age, gender, marital status, working hours, length of service, and highest level of education at Sayang Rakyat Regional General Hospital in South Sulawesi Province. The D-III Midwifery degree represents the highest level of education recorded in personnel data. These seven respondents were included in the study population based on their assignment status as operational staff, not because the D-III Midwifery degree is considered equivalent to a nursing degree. Based on Table 2, the majority of respondents were aged 31–40 years, totaling 61 people (52.6%), while the smallest age group was those over 50 years old, comprising 5 people (4.3%). The majority of respondents were female (92, 79.3%), and 87 (75.0%) were married. Regarding work patterns, 91 respondents (78.4%) worked 8–9 hours per day. Most respondents also had 1–5 years of work experience—83 individuals (71.6%)—indicating a predominance of staff with limited experience.

Advances in Economics & Financial Studies
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Based on highest level of education, the largest group consisted of D-III Nursing graduates, totaling 52 respondents (44.8%), followed by Registered Nurses at 42 respondents (36.2%) and S-1 Nursing graduates at 15 respondents (12.9%). Seven respondents (6.0%) were recorded as having a D-III in Midwifery, while there were no respondents whose highest level of education was a Master's degree (S-2) in Nursing or Health Sciences. Overall, the respondents were predominantly women aged 31–40 years, married, working 8–9 hours per day, with 1–5 years of work experience, and holding a D-III in Nursing as their highest level of education.

Table 2. Characteristics of Respondents at Sayang Rakyat Regional General Hospital, South Sulawesi Province

Respondent Characteristics	Frequency (n)	Percentage (%)
Age		
≤30 years old	33	28.4
31–40 years old	61	52.6
41–50 years old	17	14.7
>50 years old	5	4.3
Total	116	100.0
Gender		
Man	24	20.7
Woman	92	79.3
Total	116	100.0
Marital status		
Not yet married	28	24.1
Getting Married	87	75.0
Divorce	1	0.9
Total	116	100.0
Hours worked per day		
6–7 hours	18	15.5
8–9 hours	91	78.4
10–11 hours	3	2.6
≥12 hours	4	3.5
Total	116	100.0
Length of service		
1–5 years	83	71.6
6–10 years	12	10.3
>10 years	21	18.1
Total	116	100.0
Highest Level of Education		
D-III Nursing	52	44.8
S-1 Nursing	15	12.9
Profesi Ners	42	36.2
S-2 Nursing/Health	0	0.0
D-III Midwifery	7	6.0
Total	116	100.0

Source: *Primary data, 2026.*

4.1.2 *Bivariate analysis*

A bivariate analysis using the chi-square test was conducted to determine the relationships between work motivation, workload, work-related fatigue, the physical work environment, the non-physical work

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Volume 4, Issue 3 (2026). 489-510
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environment, and job satisfaction among nurses at Sayang Rakyat Regional General Hospital in South Sulawesi Province.

Table 3. Relationship Between Independent Variables and Nurses' Job Satisfaction

Variable	Category	n	Not satisfied, n (%)	Satisfied, n (%)	Value p	Description
Work Motivation	Low	35	24 (68.6)	11 (31.4)	<0.001	Significant
	Height	81	22 (27.2)	59 (72.8)		
Workload	Low	35	18 (51.4)	17 (48.6)	0.030	Significant
	Height	81	23 (28.4)	58 (71.6)		
Work-related fatigue	Height	35	19 (54.3)	16 (45.7)	0.001	Significant
	Low	81	17 (21.0)	64 (79.0)		
Physical work environment	Low	35	17 (48.6)	18 (51.4)	0.002	Significant
	Good	81	15 (18.5)	66 (81.5)		
Non-physical work environment	Low	35	12 (34.3)	23 (65.7)	0.001	Significant
	Good	81	6 (7.4)	75 (92.6)		

Source: *Primary data, 2026.*

Note: Percentages are calculated based on the number of respondents in each variable category. A relationship is considered significant if p < 0.05.

Based on Table 3, all independent variables were significantly associated with nurses' job satisfaction. Regarding work motivation, 72.8% of nurses with high motivation reported satisfaction, whereas only 31.4% of those with low motivation did. The chi-square test yielded a p-value of < 0.001, indicating a significant association between work motivation and job satisfaction. These findings indicate that nurses with high work motivation tend to have higher job satisfaction.

Workload was also significantly associated with job satisfaction (p = 0.030). However, the data distribution showed that the proportion of nurses who felt satisfied was higher in the high-workload group (71.6%) than in the low-workload group (48.6%). These findings suggest that a high workload in this study does not necessarily lead to low job satisfaction. This condition may be related to professional achievement, responsibility, recognition, organizational support, or the meaning nurses derive from their work. Nevertheless, the direction of this relationship must be interpreted carefully and adjusted in accordance with the coding system for workload categories.

Regarding the work fatigue variable, 79.0% of nurses with low fatigue reported satisfaction, whereas only 45.7% in the high-fatigue group reported satisfaction. A p-value of 0.001 indicates a significant relationship between job fatigue and job satisfaction. Thus, nurses experiencing low job fatigue tend to have higher levels of job satisfaction than those experiencing high job fatigue.

The physical work environment is significantly related to job satisfaction (p = 0.002). A total of 81.5% of nurses who rated their physical work environment as good reported being satisfied, whereas among those who rated it as poor, 51.4% reported being satisfied. These results indicate that good conditions regarding room layout, lighting, temperature, ventilation, noise levels, cleanliness, safety, spatial arrangement, and work facilities are associated with increased comfort and job satisfaction among nurses.

The non-physical work environment was also significantly associated with job satisfaction (p = 0.001). The highest satisfaction rate was found among nurses who rated their non-physical work environment as good, at 92.6%, while in the "less than good" category, the rate was 65.7%. These findings indicate that harmonious relationships with coworkers and supervisors, effective

Advances in Economics & Financial Studies
Volume 4, Issue 3 (2026). 489-510
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OPEN ACCESS
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communication, teamwork, organizational support, and a conducive work atmosphere are associated with high job satisfaction among nurses. Overall, a good non-physical work environment was associated with the highest proportion of job satisfaction, while low work motivation was associated with the highest proportion of dissatisfaction.

4.1.3 *Multivariate analysis*

Multivariate analysis was conducted using multiple logistic regression with the backward method to identify variables independently associated with nurses' job satisfaction. The variables included in the initial model were those showing a significant association in the bivariate analysis ($p < 0.05$), namely work motivation, workload, work-related fatigue, the physical work environment, and the non-physical work environment. In the backward method, variables with the highest p-values were progressively removed until a final model containing only significant variables was obtained.

Table 4. Results of Multiple Logistic Regression Analysis Using the Backward Method

Stage	Variable	p-value	Exp(B)/AOR	Description
Step 1	Work Motivation	0.001	5.347	Significant
	Workload	0.979	1.020	Not significant
	Work-related fatigue	0.069	0.265	Not significant
	Physical work environment	0.886	0.899	Not significant
	Non-physical work environment	0.074	5.389	Not significant
Step 2	Work Motivation	0.001	5.347	Significant
	Work-related fatigue	0.009	0.269	Significant
	Non-physical work environment	0.063	5.424	Not significant
Step 3 (final model)	Work Motivation	0.001	5.204	Significant
	Work-related fatigue	0.009	0.269	Significant
	Non-physical work environment	0.018	4.934	Significant

Source: *Primary data, 2026.*

Note: *AOR = adjusted odds ratio; a relationship is considered significant if $p < 0.05$.*

In the first step, only work motivation showed a significant association with job satisfaction ($p = 0.001$; AOR = 5.347). Workload ($p = 0.979$), work fatigue ($p = 0.069$), the physical work environment ($p = 0.886$), and the non-physical work environment ($p = 0.074$) did not show a significant association. Using the backward method, variables that did not meet the criteria were considered for gradual removal from the model.

In the second step, work motivation continued to show a significant association with job satisfaction ($p = 0.001$; AOR = 5.347). Work fatigue also became significant with a p-value of 0.009 and an AOR of 0.269. Meanwhile, the non-physical work environment was not significant at the 5% level ($p = 0.063$; AOR = 5.424). Changes in significance values across steps indicate that a variable's relationship may change after other variables are controlled for or removed from the model.

In the final model, work motivation, work fatigue, and the non-physical work environment were significantly associated with job satisfaction. Nurses with high work motivation are 5.204 times more likely to feel satisfied than nurses with low work motivation after controlling for work fatigue and the non-physical work environment ($p = 0.001$; AOR = 5.204). Thus, work motivation is the variable with the strongest positive association with job satisfaction in the final model.

Work fatigue had an AOR of 0.269 ($p = 0.009$). This means that nurses with high work fatigue were 0.269 times as likely to feel satisfied as nurses with low work fatigue. In other words, high work

Advances in Economics & Financial Studies
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OPEN ACCESS
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fatigue was associated with a 73.1% reduction in the likelihood of job satisfaction after controlling for other variables.

The non-physical work environment was also significantly associated with job satisfaction (p = 0.018; AOR = 4.934). Nurses who rated their non-physical work environment as good were 4.934 times more likely to feel satisfied than nurses who rated their non-physical work environment as poor, after controlling for work motivation and work-related fatigue. Meanwhile, workload and the physical work environment were not retained in the final model because they did not show a significant independent association after being analyzed alongside other variables.

The final model indicates that high job motivation, low job fatigue, and a good non-physical work environment are factors independently associated with nurses' job satisfaction. Job motivation was the dominant variable, as indicated by the highest AOR of 5.204.

4.2 Discussion

4.2.1 *The Relationship Between Work Motivation and Job Satisfaction Among Nurses*

The reported results indicate that work motivation is associated with nurses' job satisfaction, both in the bivariate analysis and after controlling for other variables. This association can be explained by the role of intrinsic motivation in shaping nurses' perceptions of their work. A sense of pride in the profession, a sense of responsibility, a sense of accomplishment, success in helping patients, and opportunities to develop competencies can make the job seem meaningful. This sense of meaning helps nurses maintain their enthusiasm, initiative, and professional commitment when dealing with rotating shifts, documentation, and interprofessional coordination. In this interpretation, support from leadership and the work environment are not treated as indicators of motivation because both are included within the construct of the non-physical work environment. This distinction is necessary to ensure that the relationship between motivation and satisfaction is not artificially created due to overlap in the measurement content. These findings support the Two-Factor Theory, which identifies achievement, recognition, responsibility, the work itself, and growth as motivating factors related to job satisfaction (Herzberg, 1964). These results align with those of Mandjar and Turangan (2023), who found a positive relationship between motivation and job satisfaction. Conversely, Kurniawan and Nurohmah (2022) reported that intrinsic motivation was not significantly associated when organizational justice and the work environment were more prominent. This discrepancy suggests that the relationship between motivation and satisfaction may depend on job design, opportunities for growth, and organizational characteristics. However, if comparative studies do not specifically involve nurses, their applicability is limited because nursing work entails distinct clinical, emotional, and patient-safety demands.

4.2.2 *The Relationship Between Workload and Job Satisfaction Among Nurses*

Workload showed an association with satisfaction in the reported bivariate analysis but was not retained in the multivariate model. The bivariate pattern showing a higher proportion of satisfied respondents in the high-workload group runs counter to common assumptions and should be interpreted with caution. This pattern may indicate that job demands within one's competence are perceived as challenges that provide a sense of accomplishment. However, this pattern could also stem from the scoring direction, categorization boundaries, or indicator overlap. Therefore, substantive explanations should not be offered until it is confirmed that high scores truly indicate high workload and that a single satisfaction category is used consistently throughout the analysis. Conceptually, the Job Demands–Resources Model

Advances in Economics & Financial Studies
Volume 4, Issue 3 (2026). 489-510
DOI: https://doi.org/10.60079/aefs.v4i3.1035
OPEN ACCESS
e-ISSN: 2985-7562

explains that the relationship between job demands and well-being depends on available resources, such as autonomy, teamwork, facilities, and organizational support. Handayani *et al.,* (2024) found a relationship between workload and job satisfaction among nurses, while Ulfasari *et al.,* (2023) reported a similar relationship among healthcare workers. The reported multivariate results are consistent with those of Febriyanti and Satrya (2025), who found that workload was not an independent predictor after other organizational factors were accounted for. However, studies of general healthcare workers or non-nursing populations are not readily comparable. The elimination of workload from the final model does not prove that workload is unimportant, as the relationship may be mediated by fatigue or influenced by correlations with other working conditions.

4.2.3 *The Relationship Between Work Fatigue and Job Satisfaction Among Nurses*

The reported results indicate that work-related fatigue is negatively associated with job satisfaction and was retained in the final model. This relationship can be explained by the fact that physical fatigue reduces nurses' energy and stamina. In contrast, mental and emotional fatigue are associated with decreased concentration, patience, and motivation, as well as reduced quality of professional interactions. Shift work, limited recovery time, documentation requirements, patient monitoring, and rapid decision-making can exacerbate the imbalance between demands and available resources. Under these conditions, nurses may evaluate their work experiences less positively. Fatigue must be distinguished from workload: workload refers to job demands, whereas fatigue is the physical and psychological response to various demands. These findings support the Job Demands–Resources Model, which explains that prolonged demands can deplete energy when not balanced by adequate resources and recovery time. The Two-Factor Theory can also explain these results, as working conditions that do not support recovery can cause dissatisfaction (Herzberg, 1964). Cesilia and Kosasih (2024) demonstrated that workload and fatigue are related to nurses' ability to perform their duties. However, a cross-sectional design cannot determine whether fatigue precedes dissatisfaction or whether less satisfied nurses are more likely to report fatigue. Therefore, these findings indicate an association, not evidence, that fatigue causes low job satisfaction.

4.2.4 *The Relationship Between the Physical Work Environment and Nurses' Job Satisfaction*

The physical work environment was associated with job satisfaction in the reported bivariate analysis but was not retained in the multivariate model. Substantively, lighting, ventilation, temperature, cleanliness, safety, noise control, spatial layout, and facilities are related to nurses' ability to work safely, carefully, and efficiently. Inadequate conditions can increase discomfort and fatigue. However, when basic facilities are relatively evenly distributed, variations in the physical environment may not be substantial enough to show an independent association after accounting for motivation, fatigue, and the non-physical environment. The relationship between the physical environment and satisfaction may also occur indirectly through comfort and reduced fatigue, but this mechanism was not tested in this study. These findings align with the Two-Factor Theory, which classifies working conditions as hygiene factors. Poor physical conditions may be associated with dissatisfaction, but adequate conditions do not always lead to intrinsic satisfaction (Herzberg, 1964). The bivariate results are consistent with those of Af *et al.,* (2025), who found an association between the physical environment and hospital staff satisfaction. Meanwhile, the exclusion of this variable from the final model is consistent with Natania and Martha (2023). Such comparisons should be limited if the subjects of the previous study were not

Advances in Economics & Financial Studies
Volume 4, Issue 3 (2026). 489-510
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OPEN ACCESS
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nurses, as exposure to the physical environment and safety demands may differ. The exclusion of this variable also does not mean that facilities and safety can be ignored, as both remain prerequisites for the delivery of nursing care.

4.2.5 *The Relationship Between the Non-Physical Work Environment and Nurses' Job Satisfaction*

The non-physical work environment was positively associated with job satisfaction and retained in the final model. Harmonious relationships, open communication, teamwork, fair supervision, organizational support, and an atmosphere of mutual respect can foster psychological safety. These conditions are important because nursing care depends on coordination among nurses and collaboration with other health professions. A supportive social environment facilitates information exchange, problem-solving, sharing work-related stress, and conflict management. Conversely, poor communication and a lack of support can increase psychological stress. However, care must be taken to ensure that non-physical environmental indicators do not overlap with motivational indicators, so that the associations found are not simply due to common items across the instruments. These findings support the Two-Factor Theory, which identifies interpersonal relationships, supervision, and organizational policies as hygiene factors that help prevent dissatisfaction (Herzberg, 1964). These findings can also be explained through Self-Determination Theory, particularly the need for relatedness, which makes nurses feel accepted and part of the organization. These results are consistent with Af *et al.,* (2025), who demonstrated a relationship between the non-physical environment and hospital employee satisfaction. However, the comparability of these findings is limited because the study's respondents were not exclusively nurses. The inclusion of the non-physical environment in the model indicates that the quality of work relationships is an important resource; however, the cross-sectional design does not allow for the conclusion that the non-physical environment directly enhances satisfaction.

4.2.6 *Variables with the Strongest Association with Nurses' Job Satisfaction*

In the final reported model, work motivation had the highest AOR and was interpreted as the variable with the strongest positive association with job satisfaction. These findings indicate that achievement, responsibility, meaningfulness of work, recognition, and opportunities for growth are associated with nurses' positive evaluations of their jobs. However, the term "dominant factor" was not used because it could imply a causal relationship. Furthermore, the difference in AORs between motivation and the non-physical work environment is relatively small, while the 95% confidence intervals have not been reported. Without confidence intervals, the accuracy of the estimates and the differences in the strength of these two associations cannot be assessed with certainty. Interpretation also depends on the reference category and the consistency of coding for each variable. Theoretically, these results support the Two-Factor Theory, which identifies achievement, recognition, responsibility, the work itself, and growth as sources of intrinsic satisfaction (Herzberg, 1964). Self-Determination Theory also explains that motivation flourishes when the needs for competence, autonomy, and relatedness are met. Consequently, hospitals can strengthen fair compensation, career paths, ongoing training, nurse involvement in decision-making, work arrangements that support recovery, and teamwork. These approaches must be implemented in an integrated manner because motivation, burnout, and the non-physical work environment are interrelated in the work experience. However, these recommendations should be understood as practical implications based on associations, not as interventions proven to increase job satisfaction.

Advances in Economics & Financial Studies
Volume 4, Issue 3 (2026). 489-510
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5. Concluding Remarks and Recommendation

This study analyzed the relationships between work motivation, workload, work fatigue, and the physical and non-physical work environment and job satisfaction among nurses at Sayang Rakyat Regional General Hospital in South Sulawesi Province. The study employed a quantitative, observational, analytical approach with a cross-sectional design and involved practicing nurses through total sampling. Data were collected using a questionnaire and analyzed through univariate analysis, chi-square tests, and multiple logistic regression. Based on the reported model, work motivation, work fatigue, and the non-physical work environment remained associated with job satisfaction after accounting for other variables. Work motivation showed the strongest positive association among the variables retained in the final model, whereas job fatigue showed an inverse relationship with job satisfaction. Workload and the physical work environment did not show independent associations after being analyzed together with other variables. These findings indicate associations within the hospital under study and do not establish a cause-and-effect relationship.

Theoretically, this study demonstrates that nurses' job satisfaction is related to the interaction between intrinsic motivation, physical and mental conditions, and the quality of social relationships within the organization. The novelty of this research lies in the simultaneous testing of five job factors, the distinction between physical and non-physical work environments, and the treatment of work fatigue as a construct distinct from workload. In practical terms, hospital management can direct human resource policies to strengthen recognition of achievements, clarify career development, offer education and training opportunities, and involve nurses in decision-making. These policies need to be complemented by adequate scheduling and recovery time, a proportional distribution of workloads, facility maintenance, open communication, teamwork, and fair supervision. These recommendations are based on statistical associations and require further evaluation before they can be used to assert the effectiveness of an intervention.

This study has limitations because its cross-sectional design cannot establish temporal sequence or causal relationships. The use of self-report questionnaires also introduces perceptual and methodological biases, while objective measurements of lighting, temperature, ventilation, and noise have not confirmed physical environmental conditions. Conducting the study at a single hospital limits the generalizability of the findings to hospitals with different organizational characteristics. Additionally, score categorization may reduce information variability and should be based on validated instrument guidelines. Future research is recommended to use a longitudinal or mixed-methods design, involve multiple hospitals, utilize instruments with documented construct validity and reliability, and combine questionnaires with objective environmental measurements. Subsequent models could also consider compensation, leadership style, organizational culture, work stress, work-life balance, and career development to provide a more comprehensive explanation of nurses' job satisfaction.

Statement of Use of Generative AI

During the preparation of this work, the author used generative artificial intelligence tools to support the scientific writing process. Grammarly was used to check grammar, refine writing style, and improve clarity in scientific writing. All interpretations, analyses, and conclusions presented in this study are the sole responsibility of the author.

Volume 4, Issue 3 (2026). 489-510
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