

ORIGINAL ARTICLE

Modeling the Relationship Between Work Environment, Workload, Patient Safety Culture, Job Satisfaction, and Missed Nursing Care Among Nurses: A PLS-SEM Approach

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ABSTRACT

Introduction: Failure to provide nursing care (MNC) is a failure to provide the necessary care to patients, which is influenced by the work environment, workload, patient safety culture, and job satisfaction. This study aims to evaluate the direct and indirect effects of these factors on MNC in the Inpatient Ward of Bhayangkara Setukpa Lemdiklat Polri Hospital, Sukabumi City. **Methods:** This study used a quantitative design and cross-sectional approach with 71 respondents selected through total sampling technique. Data were collected using questionnaires, including the Missed Nursing Care Survey (MISSCARE), and analyzed with SEM-PLS. **Results:** There is a significant positive effect of the work environment on MNC ($\beta=0.223$, $t=2.167$, $p=0.031$), a significant negative effect of workload ($\beta=-0.211$, $t=2.225$, $p=0.027$), a significant positive effect of patient safety culture ($\beta=0.307$, $t=2.910$, $p=0.004$), and a significant positive effect of job satisfaction ($\beta=0.249$, $t=1.967$, $p=0.050$) on MNC. **Conclusion:** These four factors significantly influence the incidence of MNCs, so hospital management and nursing staff must focus on improving the work environment, adjusting workloads, enhancing patient safety culture, and increasing job satisfaction to reduce MNCs and improve overall quality of patient care.

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INTRODUCTION

Hospitals are an integral part of medical organizations that play a role in providing comprehensive health services, including disease treatment, rehabilitation, and disease prevention (1). The success of a hospital can be assessed by its ability to provide quality health services, which is highly dependent on human resources, especially nurses and other medical personnel (2) Nurses play a vital role as a key component in determining the quality of healthcare services in hospitals (3).

The primary duty of nurses is to deliver secure nursing care to patients. Nursing care includes activities to assist patients in reducing frailty, preventing illness, and assisting in the recovery process without missing or delaying (Missed Nursing Care). MNC is a complex patient safety issue that is gaining attention among health academics worldwide (4). Therefore, it is

imperative to research the causative factors of MNC to design appropriate interventions, strengthen nursing professional practice, and improve job satisfaction (5). MNC refers to the omission of necessary elements of patient care, which can jeopardize patient safety and lead to adverse outcomes for the hospital (6). MNC is care that is not completed due to negligence (7). MNC as nursing care that is not provided at all, not performed fully, delayed, or ignored (8) existence of MNC is a significant issue that has the potential to reduce patient satisfaction levels, increase patient return rates, and have an impact on increasing mortality rates in some hospitals (9).

MNCs are a globally recognized threat to patient safety and health. MNCs occur in the United States, Turkey, and 12 other European nations when assessing individual requirements, basic needs, and designing interventions (10). Research in Stockholm, Sweden, during May-June 2020 showed MNC actions included turning the patient every two hours (76.35%), ambulation three times a day as planned (65%), oral care (52.6%), educating the patient and family (43.3%), and wound care (43.2%). In the Czech Republic in April-September 2020, the most

prevalent MNC indicators were ambulation three times a day as planned (36.3%), emotional support to the patient and family (22.8%), reversing the patient every two hours (16.3%), educating the patient (13.6%), and oral care (13%) (11).

In Indonesia, at the highest national referral type A hospitals, some of the nursing care that was frequently missed included installing bed barriers (35%), assessing the risk of falls per day (64%), making the bed (10%), involving the family in care (58%), active listening (60%), accompanying the patient (47%), positioning the head on the bed 15-30 degrees (77%), providing nutrition (76%), measuring fluid balance (72%), assisting urination (79%), assisting defecation (61%), assisting bathing (59%), dental care (74%), ROM activities (59%), providing pain management (69%), and incomplete nursing documentation (12). MNC events can have significant consequences for patients, caregivers, and hospitals. Impacts to patients include risk of falls, low satisfaction levels, likelihood of re-hospitalization within 30 days, risk of phlebitis, nosocomial infections, decubitus ulcers, extended periods of care, delays in discharge, and risk of physical disability and death. The impact on nurses includes dissatisfaction at work, a desire to resign, and a negative perception of the level of nursing care. For hospitals, MNC can result in increased costs related to extended hospitalization (13).

Several researches show that MNC is caused by several reasons, including work environment, workload, job satisfaction, and patient safety culture (14). A good work environment can create a comfortable work atmosphere, support each other, and minimize stress factors that can affect nurse performance (15). Excessive workload can cause fatigue and confusion in nurses, so that nursing tasks that are considered less important can be neglected (16). A poor patient safety culture can increase the risk of MNCs (17). Job satisfaction can motivate nurses to provide the best service to patients, while job dissatisfaction can lead to decreased motivation and service quality (18).

Bhayangkara Setukpa Lemdiklat Polri Hospital in Sukabumi is a type C hospital that has been operating since the Dutch colonial era in 1927. This hospital provides trauma center services with 24-hour medical facilities and specialists from various disciplines. Other healthcare services include Hemodialysis (HD) with a capacity of 10 beds, and Thalassemia services with a capacity of 13 beds. Data on the number of inpatients in 2023 shows an increase in the number of patient visits each month, with a total of 8,723 patients throughout the year. The high number of patient visits requires nurses to improve their work competencies, but the imbalance between the number of nurses and the number of patients can lead to MNCs. An internal survey revealed errors in patient care, including delays in nursing care that were passed on to the next shift.

The conceptual framework of this study is based on Kalisch's Missed Nursing Care Model, which identifies three main factors that contribute to MNC, namely human resources, material resources, and communication (19). In this study, the work environment, workload, and job satisfaction represent human resource factors. The work environment also includes aspects of material resources. Meanwhile, patient safety culture represents communication factors. Previous studies have used SEM-PLS to analyze factors that influence MNC. However, these studies were limited to one hospital and only covered narrow variables. To fill this gap, this study developed a more comprehensive SEM-PLS model to provide a broader and deeper understanding of the causes of MNC in Indonesian health facilities. This study aims to explore the direct and indirect effects of work environment, workload, patient safety culture, and job satisfaction on MNC incidents at Bhayangkara Setukpa Lemdiklat Polri Hospital, Sukabumi City. The following hypotheses were established based on the above discussion to study the influence of these four factors on MNCs. Figure 1 illustrates the hypothesized conceptual model.

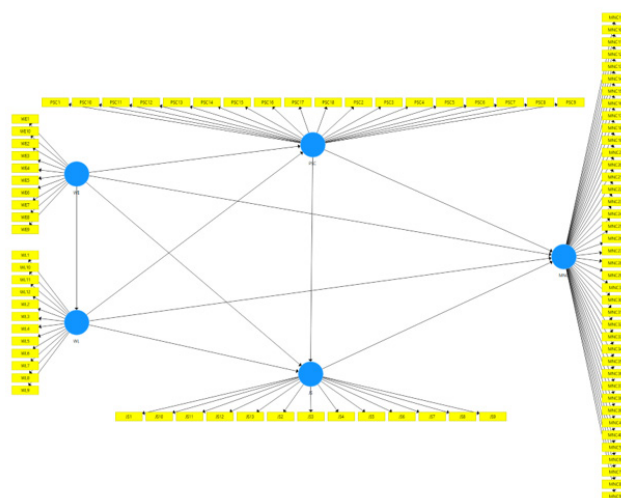


Figure 1: The Hypothesized Conceptual Model

MATERIALS AND METHODS

Study Design

This research is a quantitative study with a correlational study design and a cross-sectional approach. This study conducted among nurses in the Inpatient Ward of Bhayangkara Setukpa Lemdiklat Polri Hospital, Sukabumi City.

Participants

The population and sample in this study were all nurses in the inpatient ward of Bhayangkara Setukpa Lemdiklat Polri Hospital, Sukabumi City, totaling 71 nurses, obtained using total sampling technique. Inclusion criteria are nurses who have worked for at least one year and are available as respondents, while exclusion criteria are nurses who are on leave. Considering that the minimum sample size for research using SEM-PLS

analysis is 10 times the number of variables (which in this case is 50), 71 respondents already met the requirements (20).

Instrument

Respondents were asked to fill out a questionnaire about their characteristics, including age, gender, education, length of service, employment status, and marriage status. The MNC variable was measured using the standardized Missed Nursing Care (MISSCARE) questionnaire, which has been validated and proven reliable by Mehrabian (21), with a CVI value of 0.82 and Cronbach's alpha of 0.831-0.936. The survey included a background section that asked for general information about the respondents and their wards, followed by sections A and B. Section A covers 23 elements of nursing care, where respondents are asked to assess how often each element of nursing care is missed on a Likert scale with scores: 1 = never/rarely missed, 2 = rarely missed, 3 = occasionally missed, 4 = often missed, and 5 = always missed. Meanwhile, Section B investigated 17 reasons for the omission of nursing care. The reasons for the omission of nursing care were assessed on a Likert scale with scores of 1 = not a reason, 2 = minor reason, 3 = moderate reason, and 4 = significant reason. Higher scores indicate a higher perception of missed nursing care in Section A and more frequent reasons in Section B.

As for the variables of work environment, workload, patient safety culture, and job satisfaction, these were measured using questionnaires prepared and adapted to the field conditions by the researchers. The work environment questionnaire consisted of 10 questions with a 5-point Likert scale. The workload questionnaire consisted of 12 questions with a 4-point Likert scale. The work safety culture questionnaire consisted of 18 questions with a 5-point Likert scale. Finally, the job satisfaction questionnaire consisted of 13 questions that could be answered using a 4-point Likert scale. The validity test was conducted using the Pearson product moment formula, where all items from the 4 questionnaires obtained $p < 0.05$, so all questions were declared valid. The reliability test was conducted using Cronbach's Alpha analysis, where the work environment questionnaire obtained a value of 0.904 (very strong), workload with a value of 0.86 (strong), work safety culture with a value of 0.835 (strong), and job satisfaction with a value of 0.824 (strong). Therefore, all instruments were declared reliable.

The measurement model was evaluated using convergent validity, discriminant validity, and internal consistency criteria, whereas the structural model was evaluated using the coefficient of determination (R^2), predictive relevance (Q^2), effect size (f^2), and path coefficients. The detailed measurement and structural model results are presented in the Results section.

Data Analysis

Data were analyzed using IBM SPSS software version

29 for univariate analysis and SmartPLS 3.0. Univariate data were analyzed using frequency distribution and percentage. In order to answering the research questions, Structural Equation Model Partial Least Square (PLS-SEM) analysis was used with SmartPLS 3.0 software. Model suitability tests were conducted using Cronbach's alpha and composite reliability to assess construct reliability, while convergent and discriminant validity were evaluated. To test for possible multicollinearity of the data, a Variance Inflation Factor (VIF) test was conducted. Path coefficient (β), predictive relevance (Q^2), effect size (f^2), and coefficient of determination (R^2) were among the statistical tests used to evaluate the structural model. Following that, covariance linear relationships were established by performing causal routes between independent (exogenous) and dependent (endogenous) variables. The significance level considered in this study is 0.05.

Ethical Considerations

Ethical acceptance for this study was acquired from Sukabumi College of Health Sciences with ethical number No: 000548/KEP STIKES SUKABUMI/2024. This research was conducted in accordance with ethical norms, and there are no known risks associated with it. Throughout the research, each participant's confidentiality and anonymity were preserved, and they were given informed consent as a form of agreement to participate in the study.

RESULTS

Demographic Data

Table 1 indicates that most of the demographic of respondents aged 20-30 years as many as 45 people (63.4%), female gender as many as 49 people (69%), Diploma III Nursing education as many as 35 people (49.3%), working period 1-5 years as many as 39 people

Table 1: Characteristics of Respondents (n = 71)

Respondent Characteristics	n	%
Age		
20 - 30 years	45	63.4
>30 years	26	36.6
Gender		
Male	22	31.0
Female	49	69.0
Education		
Diploma III Nursing	35	49.3
Bachelor of Nursing	10	14.1
Ners	26	36.6
Length of Service		
1 - 5 years	39	54.9
>5 years	32	45.1
Employment Status		
PNS	1	1.4
Non-civil servants	70	98.6
Marriage Status		
Marry	45	63.4
Unmarried	26	36.6

(54.9%), non-civil servant employment status as many as 70 people (98.6%), and married status as many as 45 people (63.4%).

Multicollinearity Test

According to Hair et al., researchers are advised to test for multicollinearity before testing the model; this is highly recommended. Multicollinearity is tested to detect whether two or more independent constructs have a very high correlation (20). If there are identical indicators among these constructs, multicollinearity will arise. Variance Inflation Factors (VIF) are used to detect multicollinearity. To assume that there is no multicollinearity among constructs, the VIF value must be less than five (< 5). In this study, there was no multicollinearity problem because the VIF values were less than five (WE = 2.530, WL = 2.160, PSC = 2.292, JS = 2.918).

Assessment Measurement Model

Cronbach's alpha and composite reliability were used to assess construct reliability, while convergent validity and discriminant validity were evaluated.

Construct Reliability

The outer loadings (absolute correction) must be greater than 50% (20), while Henseler, Ringle, and Sinkovics emphasize that the value must be 0.7 or higher (22). Construct reliability is measured by how well all assigned items represent the construct, and this is evaluated using Composite Reliability (CR) and Cronbach's alpha (CA) (23). The CR and CA values must be greater than 0.7 (23). Based on this study, the latent construct shows that all external loadings are above the acceptable value, as well as CR and CA (Table II).

Convergent Validity

Convergent validity is a collection of observation items that show correlations between responses obtained through various measurements representing the same construct. The Average Variance Extracted (AVE) technique is used to demonstrate convergent validity (24). The table above shows that the AVE for each latent variable is greater than the recommended value of 0.5%, which explains that each construct can explain more than half of the variance of its measurement items on average (23) (Table II).

Discriminant validity and structural model assessment

Table III presents the combined results for discriminant validity and structural model assessment. Based on the Fornell-Larcker criterion, the square root of AVE for most constructs was higher than the inter-construct correlations. However, the square root of AVE for missed nursing care (0.766) was slightly lower than its correlation with job satisfaction (0.773), indicating that discriminant validity between these two constructs should be interpreted with caution.

Table II: Reliability and Convergence Validity Results

Construct	Item	Loading	CA	CR	AVE
Work Environment	WE 1	0.855	0.956	0.962	0.716
	WE 2	0.869			
	WE 3	0.827			
	WE 4	0.839			
	WE 5	0.846			
	WE 6	0.934			
	WE 7	0.778			
	WE 8	0.806			
	WE 9	0.878			
	WE 10	0.819			
Workload	WL 1	0.853	0.974	0.977	0.777
	WL 2	0.914			
	WL 3	0.849			
	WL 4	0.877			
	WL 5	0.926			
	WL 6	0.912			
	WL 7	0.910			
	WL 8	0.815			
	WL 9	0.888			
	WL 10	0.872			
	WL 11	0.864			
	WL 12	0.889			
Patient Safety Culture	PSC 1	0.834	0.976	0.978	0.714
	PSC 2	0.866			
	PSC 3	0.856			
	PSC 4	0.839			
	PSC 5	0.884			
	PSC 6	0.879			
	PSC 7	0.809			
	PSC 8	0.864			
	PSC 9	0.887			
	PSC 10	0.849			
	PSC 11	0.821			
	PSC 12	0.832			
	PSC 13	0.829			
	PSC 14	0.845			
	PSC 15	0.836			
	PSC 16	0.837			
	PSC 17	0.793			
	PSC 18	0.850			
Job Satisfaction	JS 1	0.891	0.968	0.971	0.724
	JS 2	0.862			
	JS 3	0.835			
	JS 4	0.893			
	JS 5	0.886			
	JS 6	0.862			
	JS 7	0.850			
	JS 8	0.811			
	JS 9	0.865			
	JS 10	0.865			
	JS 11	0.834			
	JS 12	0.783			
	JS 13	0.813			
Missed Nursing Care	MNC 1	0.802	0.981	0.982	0.572
	MNC 2	0.757			
	MNC 3	0.769			
	MNC 4	0.779			
	MNC 5	0.787			
	MNC 6	0.791			
	MNC 7	0.757			
	MNC 8	0.734			
	MNC 9	0.740			
	MNC 10	0.772			
	MNC 11	0.755			
	MNC 12	0.802			
	MNC 13	0.779			
	MNC 14	0.767			
	MNC 15	0.766			
	MNC 16	0.758			
	MNC 17	0.768			
	MNC 18	0.762			
	MNC 19	0.764			
	MNC 20	0.765			
	MNC 21	0.765			
	MNC 22	0.760			
	MNC 23	0.797			
	MNC 24	0.718			
	MNC 25	0.758			
	MNC 26	0.808			
	MNC 27	0.736			
	MNC 28	0.721			
	MNC 29	0.739			
	MNC 30	0.725			
	MNC 31	0.722			
	MNC 32	0.770			
	MNC 33	0.740			
	MNC 34	0.747			
	MNC 35	0.798			
	MNC 36	0.751			
	MNC 37	0.722			
	MNC 38	0.723			
	MNC 39	0.722			
	MNC 40	0.731			

Table III: Discriminant Validity and Structural Model Assessment

Panel A. Discriminant validity: Fornell-Larcker criterion					
Construct	JS	MNC	PSC	WE	WL
JS	0.851				
MNC	0.773	0.766			
PSC	0.699	0.761	0.845		
WE	0.722	0.749	0.685	0.846	
WL	-0.701	-0.713	-0.599	-0.641	0.881

Panel B. Structural model assessment		
Endogenous construct	R	Q
Job Satisfaction (JS)	0.657	0.462
Missed Nursing Care (MNC)	0.744	0.386
Patient Safety Culture (PSC)	0.513	0.358
Workload (WL)	0.411	0.304

Note. JS = Job Satisfaction; MNC = Missed Nursing Care; PSC = Patient Safety Culture; WE = Work Environment; WL = Workload; R² = coefficient of determination; Q² = predictive relevance. Values in bold on the diagonal in Panel A represent the square root of AVE for each construct.

The structural model assessment showed that the model explained 41.1% of the variance in workload, 51.3% of the variance in patient safety culture, 65.7% of the variance in job satisfaction, and 74.4% of the variance in missed nursing care. The R² values indicated weak to moderate explanatory power, with missed nursing care approaching a substantial level of explained variance. The Q² values for all endogenous constructs were greater than zero, ranging from 0.304 to 0.462, indicating that the model had acceptable predictive relevance.

Direct and Indirect Effect Analysis

The standardized β value in multiple regression analysis is similar to the path coefficient in Smart-PLS. The bootstrapping procedure is performed to estimate the t-statistic and confidence interval, because PLS does not require specific distribution assumptions. In addition, path analysis or hypothetical relationships between latent indicators are used to test significant relationships in internal path models and to test research hypotheses using PLS-SEM.

Table IV shows the results of the path coefficient assessment, where there is a significant direct effect of the work environment on workload ($\beta=-0.614$, $t=9.457$, $p=0.000$), the work environment on patient safety culture ($\beta=0.512$, $t=4.260$, $p=0.000$), the work environment on job satisfaction ($\beta=0.317$, $t=2.871$, $p=0.004$), the work environment on MNC ($\beta=0.223$, $t=2.167$, $p=0.031$), workload on patient safety culture ($\beta=-0.271$, $t=2.199$, $p=0.028$), workload on job satisfaction ($\beta=-0.326$, $t=3.030$, $p=0.003$), workload on MNC ($\beta=-0.211$, $t=2.225$, $p=0.027$), patient safety culture on job satisfaction ($\beta=0.286$, $t=2.508$, $p=0.012$), patient safety culture on MNC ($\beta=0.307$, $t=2.910$, $p=0.004$), and job satisfaction on MNC ($\beta=0.249$, $t=1.967$, $p=0.050$).

The results of the assessment of the indirect effect coefficient are as follows: work environment on patient safety culture through workload ($\beta=0.174$, $t=2.208$,

Table IV: Path Coefficient Result

Path Relationship	Hypothesis	Original Sample (O)	T Statistics (O/ST-DEV)	p-value	Decision
WE $\rightarrow$ WL	H1	-0.641	9.457	0.000	Supported
WE $\rightarrow$ PSC	H2	0.512	4.260	0.000	Supported
WE $\rightarrow$ JS	H3	0.317	2.871	0.004	Supported
WE $\rightarrow$ MNC	H4	0.223	2.167	0.031	Supported
WL $\rightarrow$ PSC	H5	-0.271	2.199	0.028	Supported
WL $\rightarrow$ JS	H6	-0.326	3.030	0.003	Supported
WL $\rightarrow$ MNC	H7	-0.211	2.225	0.027	Supported
PSC $\rightarrow$ JS	H8	0.286	2.508	0.012	Supported
PSC $\rightarrow$ MNC	H9	0.307	2.910	0.004	Supported
JS $\rightarrow$ MNC	H10	0.249	1.967	0.050	Supported
WE $\rightarrow$ WL $\rightarrow$ PSC	H11	0.174	2.208	0.028	Supported
WE $\rightarrow$ WL $\rightarrow$ JS	H12	0.209	2.912	0.004	Supported
WE $\rightarrow$ WL $\rightarrow$ MNC	H13	0.136	2.257	0.024	Supported
WE $\rightarrow$ PSC $\rightarrow$ JS	H14	0.246	1.964	0.050	Supported
WE $\rightarrow$ PSC $\rightarrow$ MNC	H15	0.157	2.186	0.029	Supported
WE $\rightarrow$ JS $\rightarrow$ MNC	H16	0.288	2.612	0.009	Supported
WE $\rightarrow$ WL $\rightarrow$ PSC $\rightarrow$ JS	H17	-0.281	2.503	0.015	Supported
WE $\rightarrow$ WL $\rightarrow$ PSC $\rightarrow$ MNC	H18	0.308	2.795	0.006	Supported
WE $\rightarrow$ WL $\rightarrow$ JS $\rightarrow$ MNC	H19	0.283	2.560	0.012	Supported
WE $\rightarrow$ PSC $\rightarrow$ JS $\rightarrow$ MNC	H20	2.010	2.095	0.039	Supported
WE $\rightarrow$ WL $\rightarrow$ PSC $\rightarrow$ JS $\rightarrow$ MNC	H21	0.250	1.968	0.046	Supported
WL $\rightarrow$ PSC $\rightarrow$ JS	H22	-0.290	2.512	0.010	Supported
WL $\rightarrow$ PSC $\rightarrow$ MNC	H23	-0.304	2.757	0.007	Supported
WL $\rightarrow$ JS $\rightarrow$ MNC	H24	-0.285	2.572	0.008	Supported
WL $\rightarrow$ PSC $\rightarrow$ JS $\rightarrow$ MNC	H25	-0.247	1.965	0.049	Supported
PSC $\rightarrow$ JS $\rightarrow$ MNC	H26	0.204	2.218	0.034	Supported

$p=0.028$), work environment on job satisfaction through workload ($\beta=0.209$, $t=2.912$, $p=0.004$), the work environment on MNC through workload ($\beta=0.136$, $t=2.257$, $p=0.024$), the work environment on job satisfaction through patient safety culture ($\beta=0.246$, $t=1.964$, $p=0.050$), the work environment on MNC through patient safety culture ($\beta=0.157$, $t=2.186$, $p=0.029$), work environment on MNC through job satisfaction ($\beta=-0.288$, $t=2.612$, $p=0.009$), work

environment on job satisfaction through workload and patient safety culture ($\beta=-0.281$, $t=2.503$, $p=0.015$), work environment on MNC through workload and patient safety culture ($\beta=0.308$, $t=2.795$, $p=0.006$), work environment on MNC through workload and job satisfaction ($\beta=0.283$, $t=2.560$, $p=0.012$), work environment on MNC through patient safety culture and job satisfaction ($\beta=2.010$, $t=2.095$, $p=0.039$), work environment on MNC through workload, patient safety culture, and job satisfaction ($\beta=0.250$, $t=1.968$, $p=0.046$), workload on job satisfaction through patient safety culture ($\beta=-0.290$, $t=2.512$, $p=0.010$), workload on MNC through patient safety culture ($\beta=-0.304$, $t=2.757$, $p=0.007$), workload on MNC through job satisfaction ($\beta=-0.285$, $t=2.572$, $p=0.008$), workload on MNC through patient safety culture and job satisfaction ($\beta=-0.247$, $t=1.965$, $p=0.049$), patient safety culture on MNC through job satisfaction ($\beta=0.204$, $t=2.218$, $p=0.034$). Figure 2 illustrates the measurement model test.

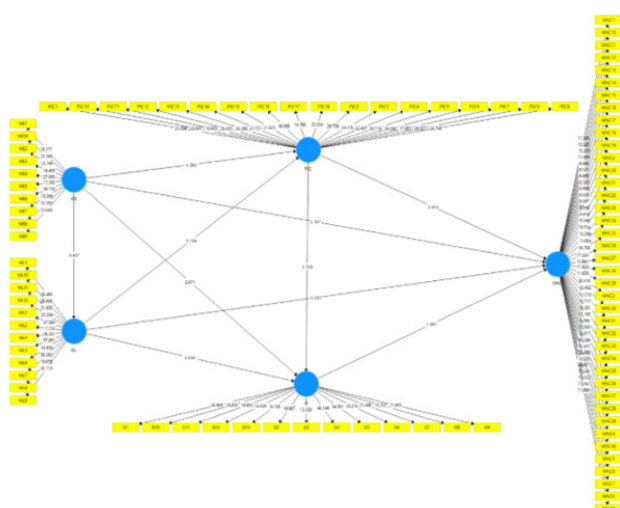


Figure 1: Measurement Model Test

DISCUSSION

According to this model, there is a significant relationship between the work environment, workload, patient safety culture, and job satisfaction with incidents of MNC. This study is in line with Mainz et al. (29), who stated that an inadequate work environment contributes to the occurrence of MNC. Putri et al. (30) also stated that heavy workloads cause nurses to have limited time, thereby increasing the occurrence of MNC. In addition, Putra et al. (31) explained that a good patient safety culture reduces the risk of MNC. This study is supported by Zhang et al. (32), who state that job satisfaction has a significant meaning in influencing MNC.

There is an influence of the work environment on the occurrence of MNC. An unsupportive work environment, such as staff shortages, inadequate facilities, and poor communication between teams, can increase the frequency of MNC (33). A stressful and disorganised

environment can prevent nurses from meeting all patient needs in a timely manner, which ultimately contributes to an increased risk to patient safety (13). The study's findings demonstrate that the workload coefficient's tendency toward MNC is negative. The measuring strategy used in this study should be used to interpret this result, as higher MNC scores suggest that nursing care actions are either rarely or never missed. Consequently, a larger workload is linked to lower MNC scores, indicating a higher chance of missing nursing care, according to the negative coefficient. This outcome supports the hypothesis that an overwhelming workload reduces nurses' time, energy, and cognitive resources, raising the possibility of incomplete or postponed nursing activities. This result, however, is in contrast to other earlier research that found a positive correlation between MNC and workload (34). Variations in MNC scoring direction, measuring tools, and contextual elements like staffing trends, workload distribution, and organizational support could all account for the disparity. Increased workload naturally exhibits a positive correlation with MNC in studies where higher MNC scores indicate more frequent missing care (35). On the other hand, the current study's inverse scoring results in a negative coefficient while expressing the same substantive meaning—that is, that an excessive workload raises the possibility of nursing care being missed. One significant result of nursing practice is job satisfaction, which has an impact on the standard of patient care. Increased nurse motivation and engagement are linked to higher job satisfaction, which makes it possible to complete nursing tasks more thoroughly and promptly (36). According to the grading system used, higher MNC scores suggest that nursing care is rarely or never missed. In this study, work satisfaction was positively correlated with MNC scores. Therefore, rather than a rise in missing nursing care, higher work satisfaction indicates better completion of nursing care. This result lends credence to the idea that job satisfaction enhances nurse performance and care quality.

Workload is an important factor that mediates the relationship between the work environment and MNC. An unsupportive work environment, such as limited resources, an unbalanced number of staff, or high time pressure, can increase nurses' workload. Excessive workload makes nurses feel overwhelmed and less able to perform their duties effectively. This can lead to some aspects of care that should be provided being missed, such as repositioning the patient to prevent pressure sores or timely administration of medication (37). Patient safety culture also plays a significant mediating role. In a work environment that has a strong patient safety culture, every team member feels responsible for ensuring that all aspects of patient care are carried out safely and appropriately (38). However, if the culture of safety is not well internalized, then MNC is more probable. Nurses working in a culture that is less supportive of patient safety may feel that it is acceptable to overlook

some aspects of care, especially under time pressure and high workloads (39). Nurses' job satisfaction also plays a role in mediating the effect of the work environment on MNC. Nurses who are satisfied with their jobs, including aspects such as rewards, recognition, and good working relationships with colleagues, tend to be more committed to providing the best care (40). In contrast, nurses who are dissatisfied with their working conditions may be less motivated and pay less attention to important details in patient care, thus raising the risk of MNC (41).

Patient safety culture plays a role in mediating the relationship between workload and MNC. A strong safety culture encourages nurses to always prioritize safety in every nursing action. However, high workloads can hinder the implementation of this safety culture. When patient safety culture weakens due to high workloads, the risk of MNC increases (42). Job satisfaction also plays an important role in mediating the relationship between workload and MNC. Nurses who are fulfilled with their occupation tend to be more motivated and enthusiastic in carrying out their duties (43). Job satisfaction may serve as a buffer between workload and MNC. When nurses are satisfied with their jobs, they may be better able to manage high workloads (44). They can be more efficient in managing time and resources, and more resilient in the face of stress. In contrast, nurses who are dissatisfied with their jobs may feel more tired and less motivated, making them more prone to MNC (45).

Job satisfaction acts as a significant mediator in the relationship between patient safety culture and MNC. With a good safety culture in place, nurses feel more secure and supported, which increases their job satisfaction. This high job satisfaction, in turn, contributes to a decrease in the incidence of MNC. Satisfied nurses are more likely to pay attention to details, adhere to procedures, and prioritize patient safety in their every action (46).

The assessment of factors affecting MNC in this study was based on the MNC Model developed by Kalisch et al. (47). This model explains that MNC is the result of a complex interaction between work environment factors, workload, resource availability, and nurses' internal values and processes. In this context, the work environment and patient safety culture act as antecedents that can facilitate or hinder the implementation of nursing care, while job satisfaction influences nurses' internal processes in making care priority decisions. An imbalance between job demands and available resources can increase the likelihood of MNC, which ultimately impacts the quality of service and patient safety.

This research has some restrictions, such as the utilization of a cross-sectional design, which limits the capability to draw definite conclusions about the causal relationship between the variables studied, although path analysis

was used to describe the direction and strength of the relationship between variables. In addition, data was collected through questionnaires, which may have led to response bias, where nurses may have provided answers that they deemed most appropriate or expected. This research was also carried out in one hospital, so the results may not be generalizable to a wider setting. Nevertheless, the researchers have attempted to ensure the validity of the instrument and confirm respondents' understanding of the content of the questionnaire to minimize the potential for misinterpretation.

CONCLUSION

This study shows that the work environment, workload, and patient safety culture have direct and indirect effects on MNC incidents, while job satisfaction has a direct effect on MNC incidents. These findings confirm that MNC is a multifactorial phenomenon influenced by organizational and individual factors. Hospitals are advised to improve their nursing management systems through workload distribution, continuous training, and strengthening nurses' time management and task prioritization skills to reduce MNC incidents. Further research is recommended using a longitudinal design to confirm causal relationships and consider other variables such as nurse characteristics and teamwork, as well as applying a mixed method to strengthen understanding of the factors that influence MNC.

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