




Nursing Professional Commitment as a Mediator of the Relationship Between Work Environment and Missed Nursing Care Among Nurses: A Cross-Sectional Analysis

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Abstract

Introduction: Nursing care plays a pivotal role in promoting patient well-being and optimizing health outcomes. The nursing profession is characterized by its commitment to delivering high-quality care to patients.

Objective: The purpose of the study was to explore the role of nursing professional commitment as a mediator between the work environment and missed nursing care.

Methods: A cross-sectional analysis study “STROBE guideline” used an online structured questionnaire to collect data. It was conducted on a sample of 813 nurses who worked at seven governmental hospitals in Egypt, in the hospital wards, operating rooms, intensive care unit (ICU) or outpatient clinics, during a 4-month period from April to August 2022. Researchers used Characteristics of nurses, Nursing Work Index-Revised, Nursing Professional Commitment Scale, and MISSCARE Questionnaire to collect the data. Structural equation modeling by AMOS was used for testing nursing professional commitment as a mediator between the work environment and missed nursing care. Nurses’ professional commitment was used as a mediator between work environment and missing nursing care.

Results: The working environment has a direct impact of -0.175 , an indirect impact of -0.139 , and a total impact of -0.314 . Furthermore, professional commitment has a direct impact of -0.421 . Additionally, when the working environment increases by 1, professional commitment increases by 0.33. Similarly, when the working environment increases by 1, missed care decreases by 0.175. Moreover, when professional commitment, as a mediating factor, increases by 1, missed care decreases by 0.421.

Conclusion: In conclusion, the findings of this study highlight the significant role of professional commitment as an intermediary factor between the working environment and missed nursing care. According to these results, it is necessary to formulate and implement intervention strategies to improve nurses’ professional commitment and working environment, which is the key to reducing their missed nursing care.

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Introduction

Nursing care plays a pivotal role in promoting patient well-being and optimizing health outcomes. It encompasses a broad range of activities aimed at meeting the physical, emotional, and psychosocial needs of patients (Hessels et al., 2019). However, in the complex healthcare environment, instances of missed nursing care (MNC) have been reported, raising concerns about the potential impact on patient outcomes (Albsoul et al., 2019).

The nursing profession is characterized by its commitment to delivering high-quality care to patients (García-Moyano et al., 2019). The work environment in which nurses operate plays a crucial role in shaping their ability to provide comprehensive and effective care. Within this context, understanding the role of nursing professional commitment as a potential mediator between the work environment and MNC is vital for promoting patient safety and quality nursing practice (Lake et al., 2017).

MNC refers to the failure to provide essential care interventions that should have been delivered to patients (Andersson et al., 2022). These omissions can occur due to a variety of reasons, including staffing shortages, heavy workload, time constraints, lack of resources, inadequate communication, and other systemic factors (Chiappinotto et al., 2022). Regardless of the underlying causes, MNC has been associated with adverse consequences for patients, healthcare providers, and healthcare organizations (Nahasaram et al., 2021).

The nursing working environment encompasses the physical, organizational, and psychosocial factors that impact nurses' ability to provide high-quality, comprehensive care. Within this context, the relationship between the nursing working environment and MNC has garnered significant attention in recent years (Ulrich et al., 2019).

The nursing working environment encompasses several dimensions, including workload, nurse–patient ratios, staffing levels, leadership and management support, teamwork and collaboration, communication, resources, and autonomy. These factors can directly or indirectly influence the occurrence of MNC. For example, high workload and inadequate staffing levels can lead to time constraints and hinder nurses' ability to complete all necessary care tasks. Similarly, poor communication and lack of support can contribute to gaps in care provision (White et al., 2020).

Understanding the complexities of the nursing working environment and its impact on MNC is crucial for healthcare organizations and policymakers. By identifying the specific environmental factors that contribute to missed care,

interventions can be developed to address these issues proactively (Duffield et al., 2011). These interventions may include optimizing staffing levels, promoting effective communication and collaboration, providing resources and support, and fostering a culture of patient-centered care (Copanitsanou et al., 2017).

The work environment has been recognized as a significant determinant of missed care (Chiappinotto et al., 2023). However, the mechanisms through which the work environment influences MNC remain complex and multifaceted (Al Sabei et al., 2020). Nursing professional commitment, characterized by dedication, loyalty, and identification with the nursing profession, may act as a mediator in the relationship between the work environment and MNC. A nurse's level of professional commitment can impact their motivation, resilience, and willingness to go above and beyond in delivering care. Understanding how professional commitment mediates the influence of the work environment on missed care is essential for developing targeted interventions to improve patient outcomes (Guerrero et al., 2017).

By understanding the mechanisms through which nursing professional commitment operates, healthcare organizations can develop strategies to optimize commitment levels among nurses. This may include fostering a positive work environment, promoting effective leadership and communication, providing opportunities for professional growth and development, and recognizing and valuing nurses' contributions (Cho et al., 2021; Moreno-Monsiváis et al., 2015).

Furthermore, recognizing nursing professional commitment as a mediator between the work environment and MNC opens avenues for interventions aimed at reducing missed care. By addressing factors within the work environment that hinder professional commitment, such as excessive workload or inadequate resources, healthcare organizations can mitigate the occurrence of MNC and enhance patient safety (Caricati et al., 2014).

Review of Literature

Findings from recent reviews regarding missed care, conducted by Diab and Ebrahim in 2019 in Egypt, indicate that 47.5% and 30.4% of nurses reported moderate and high instances of missed care during hospitalization. Additionally, findings from other recent reviews (Jones et al., 2015; Papastavrou et al., 2014) have shown that MNC is highly prevalent in acute care settings, with a global prevalence rate ranging from 55% to 98% (Jones et al., 2015).

Furthermore, Gurková et al. (2022) reported that the mean composite score of the MISSCARE Survey was influenced by several factors. Overtime work ($\beta = -.227, t = 4.155, P < .0001$), “Nursing foundations for quality of care” ($\beta = -.214, t = -3.718, P = .0002$), and “Satisfaction with current position” ($\beta = -.151, t = -2.621, P = .009$) were identified as significant predictors, explaining a total of 16% of the variance.

This article aims to explore the role of nursing professional commitment as a mediator between the work environment and MNC. We aim to identify the relationship between the work environment and nursing professional commitment, as well as the subsequent impact on missed care.

Methods

Study Design

A cross-sectional analysis study following the “STROBE guideline” was conducted using an online structured questionnaire to collect data. We proposed the following hypotheses: (a) the work environment was positively related to professional commitment, (b) professional commitment was negatively related to missed care, and (c) the work environment was negatively related to missed care (see Figure 1, hypothetical model).

Sample

The study was carried out on a sample of 813 nurses working at seven governmental hospitals in Egypt, specifically in hospital wards, operating rooms, intensive care units (ICU, PICU, NICU), and obstetric wards, over a 4-month period from April to August 2022.

Inclusion Criteria

The inclusion criteria were having at least 1 year of experience and providing direct patient care, while the exclusion criterion was being a newly hired nurse. The response rate was 69%, and participants were selected based on availability

without any specific criteria. The sample size was calculated based on an effect size of 17% (Barać et al., 2018), a power level of 0.95, and a significance level of .05.

Measurements

- Characteristics of nurses such as age, gender, education level, marital status, years of experience, working shift at last month, nurse to patient ratio, continuous training program about nursing care practices, and training program about ethical values.
- The Nursing Work Index-Revised (NWI-R) scale was adopted from Kim et al. (2013) and translated into Arabic to facilitate the collection of data from Egyptian nurses. It actually consists of 57 items in total, which are divided into six subscales: Nurse participation in hospital affairs (10 items), Nursing foundations for quality of care (10 items), Staffing and resource adequacy (10 items), Collegial nurse–physician relations (10 items), Nurse manager ability, leadership, and support of nurses (10 items), Job satisfaction, intention to leave, and nurse-assessed quality of care (7 items). The NWI-R scale is typically scored using a 4-point Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. For the 57 items, the total score is the sum of all responses, with higher scores indicating a more positive perception of the nursing work environment.
- Nursing Professional Commitment Scale (NPCS) was adopted from Lin et al. (2007) and translated into Arabic to facilitate the collection of data from Egyptian nurses: This is a 25-item scale that measures nurses’ commitment to their profession across three dimensions: affective commitment, normative commitment, and continuance commitment. NPCS is scored on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Participants are asked to indicate the extent to which they agree or disagree with each statement. To score the NPCS, the responses for each of the 25 items are summed separately for each dimension of commitment. The possible range for each dimension is from 5 to 35, with higher scores indicating greater levels of commitment.
- The MISSCARE Questionnaire is a widely used 21-item self-report questionnaire that was developed to measure the frequency of MNC among nurses, as well as the reasons and consequences of missed care. It included three domains as Omitting required care, delaying required care, delegating required care. It adopted from Tschannen et al. (2010) and Kalisch et al. (2012) and translated into Arabic to facilitate the collection of data from Egyptian nurses. Each item in the questionnaire is scored on a Likert scale, where respondents are asked to rate the frequency of MNC using a scale that ranges from “never” to “always” or from “0” to “4.”

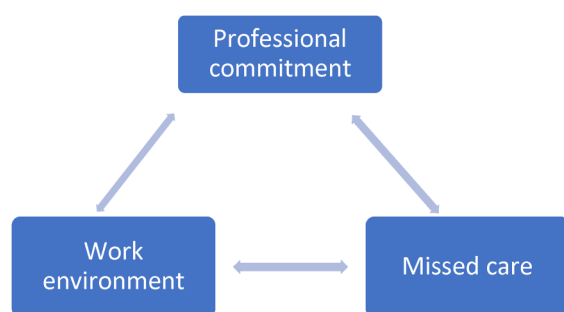


Figure 1. Hypothesized model.

Reliability

The internal consistency reliability of the scale was assessed using Cronbach's α coefficient, which indicated a NWI-R was good level of reliability with $\alpha = .881$, NPCS was good level of reliability with $\alpha = .872$ and MISSCARE Questionnaire was excellent level of reliability with $\alpha = .913$.

Data Collection Procedure

Chose a reliable online survey platform like Google Forms. Ensured that the platform was user-friendly and capable of meeting our study's specific requirements. Before launching the survey, conducted pilot testing with 10% of participants who were representative of the target population. Created the online survey and developed a recruitment plan to reach the target audience. Used email lists, social media, and websites to invite participants to take the survey. Data collection was automated through the online survey platform. Ensured that participants could easily access and complete the questionnaire.

Ethical Considerations

Ethics approval was obtained from the institutional review board of the Faculty of Nursing ethics committee at January 2022. Participation in this study was voluntary, and it complied with the Declaration of Helsinki. Nurses were assured that their feedback would not affect their performance evaluations, work status, or salaries. We used "Informed online consent" from the participants using an "agree-by-clicking" online approach, which included two questions: (1) agreement to participate in the study and (2) granting permission for the use of generated data for publications. The researchers did not coerce or entice anyone to complete the questionnaire. The questionnaire was filled in anonymously, and the data were kept confidential and used for research purposes only.

Statistical Analysis

The data were analyzed by SPSS 22.0 and AMOS. General characteristics are described by descriptive statistics. Multiple linear regression was used to identify associations between continuous dependent variable (missed care) and one or both independent variables (work environment and professional commitment). Statistical significance was set at $P < .05$. Structural equation modeling was conducted to verify the relationships among work environment and professional commitment, and missed care. The mediating effects of professional commitment were also tested. The SEM methodology was used to test the propose model using the model fit criteria proposed by Bagozzi and Yi (1988) which include preliminary model fit criteria, overall model fit, and fit of internal structure of model.

Results

A total of 813 nurses were included in the study. The mean age of the nurses was 38.27 ± 6.78 years. Among the participants, 63.9% identified as female. More than half (55.4%) of the nurses had completed training at a technical health institute. Additionally, 76.9% of the participants were married, and 24.6% reported having 5 to less than 10 years of work experience. Night shift work was reported by 44.3% of the nurses, and approximately half (49.4%) had a nurse-to-patient ratio of 1:3. In terms of continuous training programs, the majority of nurses had not attended training programs specifically focused on nursing care practices (76.4%) and ethical values (88.3%), as indicated in Table 1.

In Table 2, the data revealed significant findings concerning the work environment, professional commitment, and MNC among the participants. Specifically, 53.1% of the

Table 1. Characteristics of Studied Nurses ($n = 813$).

Items	<i>n</i>	%
Age		
22–<32	429	52.8
32–<42	285	35.1
42–52	99	12.1
Mean \pm SD	38.27 \pm 6.78	
Gender		
Male	293	36.1
Female	520	63.9
Education level		
Diploma of nursing	69	8.5
Technical health institute	450	55.4
Bachelor of nursing	273	33.6
Postgraduate	21	2.5
Years of experience		
1–<5	314	38.6
5–<10	200	24.6
10–15	187	23
>15 years	112	13.8
Marital status		
Un-married	188	23.1
Married	625	76.9
Working shift at last month		
Day shift	453	55.7
Night shift	360	44.3
Nurse to patient ratio		
1:2	107	13.2
1:3	402	49.4
1:4	206	25.3
1:5	98	12.1
Continuous training program about nursing care practices		
Yes	192	23.6
No	621	76.4
Training program about ethical values		
Yes	95	11.7
No	718	88.3

studied nurses reported a negative work environment, as indicated by a mean score of 119.6 (SD = 15.8). Additionally, 45.1% of the nurses demonstrated low levels of professional commitment, with a mean score of 64.7 (SD = 7.3). Furthermore, 24.5% of the nurses reported moderate levels of MNC, with a mean score of 37.6 (SD = 4.6).

Dependent Variable: Missed Nursing Care

Predictors: (Constant), work environment, nursing professional commitment, working shift at last month (night), continuous training program about nursing care practices, nurse to patient ratio, years of experience, training program about ethical values

In Table 3, the analysis revealed a highly significant model detected through an *F* test value of 48.623, with a *P*-value of .000. This model explained 93% of the variation in MNC scores, as indicated by an *R*² value of 0.939. Furthermore, the results demonstrated that both work environment and nursing professional commitment, training

program about ethics values, had a significant negative effect on MNC scores, with a high frequency at a *P*-value < .05*. While, continuous training program about nursing care practices had a significant negative effect on MNC scores, but at a *P*-value > .05. Conversely, night shift work, an increase in years of experience, and an increase in the nurse-to-patient ratio had a positive effect on MNC at *P*-value .753, .012, and .043, respectively.

The model pathway was as follows: [working environment → Professional commitment], [working environment → missed nursing care], and [Professional commitment → missed nursing care]. From the results, we can see that all paths were significant (*P* < .01) (see Figure 2).

Structural equation modeling was used to determine the mediating role of professional commitment on the relationship between work environment and MNC. The results indicated that professional commitment “partially” mediated the relationship between work environment and MNC (*B* = -0.421, *P* < .05, 95% CI). Therefore, the proportion of the total effect of work environment on MNC that is mediated by professional commitment is 0.44 or 44%. This indicates that 44% of the total effect of the work environment on missed care is explained indirectly through professional commitment. The remaining 56% is the direct effect not mediated through professional commitment, see more in Table 4.

Table 2. Total Score of Nurses' Related Working Environment, Nursing Professional Commitment, and Missed Nursing Care (n = 813).

	n	%	Mean (SD)
Total work environment			119.6 (15.8)
Positive	381	46.9	
Negative	422	53.1	
Total nursing professional commitment			64.7 (7.3)
High	167	20.5	
Moderate	280	34.4	
Low	366	45.1	
Total missed nursing care			37.6 (4.6)
High	84	10.3	
Moderate	199	24.5	
Low	530	65.2	

Discussion

MNC refers to essential care not provided to patients, often due to factors such as staffing shortages and heavy workload. This can result in various hazards, including medication errors, falls and injuries, pressure ulcers, infections, delayed assessments, emotional distress, nutrition and hydration issues, lack of patient education, communication breakdowns, and increased length of stay (Lake et al., 2016; Srulovici & Drach-Zahavy, 2017). The primary purpose of this research was to examine whether professional

Table 3. Multiple Linear Regression for Missed Nursing Care (n = 831).

Model	Unstandardized B	Coefficient St. error	Standardized coefficient beta	t	Sig
(Constant)	38.788	5.657		6.856	.000
Work environment	-.244	.125	-.189	-2.876	.021
Nursing professional commitment	-.090	.037	-.165	-2.393	.026
Working shift at last month (night)	.348	1.094	.027	.318	.753
Continuous training program about nursing care practices	-2.384	1.548	-.186	-1.54	.139
Nurse to patient ratio	1.152	.564	.271	2.041	.043
Years of experience	.408	.150	.240	2.726	.012
Training program about Ethical values	-2.553	1.031	-.196	-2.476	.021
Model summary					
R	R square	Adjusted R square	F	Sig	
.969	.939	.920	48.623	.000	

commitment, a specific construct in the nursing field, could act as a mediator in the relationship between the nursing work environment and MNC.

Our hypothesis was that the working environment was associated with professional commitment, which, in turn, was associated with aspects of MNC. Firstly, the results showed a significant relationship between the working environment and MNC. Our findings are supported by a study conducted by Gurková et al. (2022), who reported that nurses who work in unfavorable environments consistently experience a higher frequency of episodes of missed care. MNC could be mitigated by improving the nurses' work environment. Additionally, Simonetti et al. (2022) stated that there was a significant association between the work environment, staffing ratios, and missed care. Most studies exploring this association have shown that better work environments reduce missed care (Ausserhofer et al., 2014; Lake et al., 2020; Zhao et al., 2020).

The study findings provided further insight into the relationship between different factors and MNC. Notably, the results indicated that continuous training programs focusing on nursing care practice and ethical values could potentially reduce the occurrence of MNC. On the other hand, variables such as night shift work, longer years of experience, and a higher number of patients under the care of nurses were positively associated with MNC.

The study revealed that nurses identified human resources, material resources, and communication as the primary reasons for missed care. Furthermore, the incidence of

MNC was found to be higher among male nurses, as well as with increasing age of nurses and the number of patients under their care (Chegini et al., 2020). Additionally, Khajooee et al. (2019) highlighted that high workload contributes to the occurrence of MNC. A significant relationship between the prevalence of MNC and working overtime was found in multinational European research (Bruyneel et al., 2015; Griffiths et al., 2014).

According to the structural equation model (SEM), we decided to accept the hypothesis of the current study. The study revealed that the working environment has a beneficial impact and is related in the expected direction to MNC, which is consistent with previous studies (Hessels et al., 2015; Winsett et al., 2016). There is a significant direct effect of the working environment on MNC before considering the mediator variable. After adding the mediator variable (professional commitment), the effect of the working environment on MNC decreases but remains significant, indicating partial mediation. These results are supported by a study conducted by Yu et al. (2021), who detected, through SEM, that nursing professional commitment has a highly positive influence on the intention to stay. It plays a complete mediating role between social support and intention to stay, as well as between resilience and intention to stay. Furthermore, Moustafa and Gouda (2023) reported that the nursing work environment and patient safety culture affect MNC. Additionally, Labrague et al. (2022) found that the nurse work environment is directly and indirectly associated with nurse-assessed quality of care, adverse patient events, and job satisfaction through interprofessional collaborations as a mediating factor. According to a study by Lake et al. (2020), modifications in the hospital work environment and improvements in staffing significantly reduced instances of missed care.

It has been proven that enhancing the nursing working environment through improving staffing and resource adequacy, as well as enhancing nurse managers' ability, leadership, and support for nurses, has been attributed to improving professional commitment. Furthermore, the working environment explains 33% of the variance in nurses' professional commitment. Ilyas et al. (2022) demonstrated that perceived organizational support has a positive and indirect effect on the professional commitment of nurses. Additionally, Duran et al. (2021) found that organizational support, as an

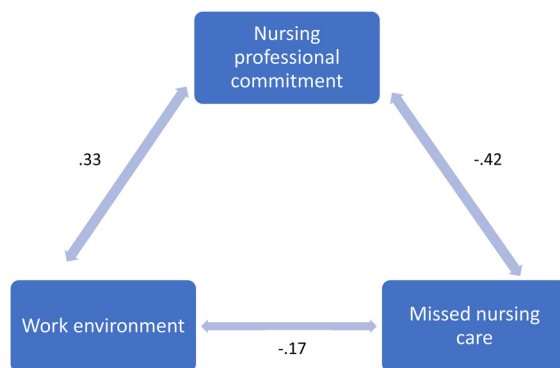


Figure 2. Structural equation modeling results.

Table 4. Direct and Indirect Effects of the Model.

			Estimate	S.E.	C.R.	P-Value
Professional	←	Working environment	.330	.123	2.670	<0.05
Missed	←	Working environment	-.175	.047	-3.749	<0.05
Missed	←	Professional	-.421	.062	-6.825	<0.05
			Direct effect		Indirect effect	Total effect
Professional	←	Working environment	.330	.000		.330
Missed	←	Working environment	-.175	-.139		-.314
Missed	←	Professional	-.421	.000		-.421

element of the working environment, had a significant effect on professional commitment.

Implication of Practice

This research clearly implies that professional commitment and a conducive working environment are crucial for the development of nurses, with the aim of minimizing instances of MNC. The findings hold significant value for all individuals involved in hospital and department management, particularly nurse managers. It is necessary to establish programs for ongoing professional training, such as supervisory work in hospital departments and workshops focusing on professional self-empowerment. Furthermore, future research and practice should aim to enhance nurses' professional commitment as a means to reduce instances of MNC. These findings can serve as a reference point for the development of programs tailored to newly graduated nurses.

Conclusion

To sum up, we studied the relationship between the working environment, professional commitment, and MNC. It was found that professional commitment plays an intermediary role between the working environment and MNC. According to these results, it is necessary to formulate and implement intervention strategies to improve nurses' professional commitment and working environment, which is the key to reducing instances of MNC. Professional commitment acts as a partial mediating variable because it explains how the work environment influences MNC.

We hope that the hospital can develop appropriate policies, such as implementing a continuous training program on ethical values and nursing practice, implementing rotational working schedules, and improving nurse-to-patient ratios in alignment with national standards. Overall, the study suggests that enhancing the work environment for nurses is vital in reducing instances of MNC. Moreover, it underscores the significance of nursing professionals' commitment in mitigating the adverse effects of an unfavorable work environment on patient care.

Data Availability Section

All data needed are available at the article.


Declaration of Conflicting Interests

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