Research Paper

Association Between Workload and Professional Commitment Among Nurses During the COVID-19 Pandemic

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ABSTRACT

Background: Nurses with a strong professional commitment tend to perform more efficiently within healthcare systems. However, excessive workload can lead to stress and burnout, which in turn may undermine their commitment. It is particularly evident during pandemics like COVID-19, when nurses face greater challenges. This study aimed to investigate the association between professional commitment and workload among Iranian nurses during the pandemic.

Methods: This cross-sectional, correlational study included a convenience sample of 245 eligible nurses caring for COVID-19 patients in 3 hospitals affiliated with Qazvin University of Medical Sciences in Qazvin City, Iran. We recruited them from January 2022 to July 2022. Data were collected via a demographic characteristics checklist, nurses' activities score (NAS), and nurses' professional commitment scale (NPCS) and analyzed using a multivariate linear regression model using SPSS software, version 26. The significance level was considered $P<0.05$.

Results: The Mean±SD scores for workload and professional commitment were 77.96±23.93 and 87.23±14.12, respectively. The multivariate regression model showed that workload was negatively associated (β=-0.408, P=0.001), while employment in critical care (β=0.527, P=0.001) and medical-surgical departments (β=0.170, P=0.048) were positively associated with nurses' professional commitment. Overall, the variables in the multivariate regression model explained 23% of the variation in professional commitment.

Conclusion: The present study may help nursing managers to understand better the factors associated with nurses' professional commitment during pandemics. Given the negative association between workload and professional commitment, improving working conditions may effectively promote nurses' professional commitment.

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Highlights

- Workload was negatively associated with professional commitment.
- Nurses in the ICU and medical-surgical departments showed higher professional commitment.
- Workload and working in medical-surgical and critical care departments explained 23% of changes in professional commitment.
- Improving the working conditions, especially during pandemics, is suggested.

Plain Language Summary

Professional commitment, an important aspect of nursing practice, significantly affects patient care. The present study showed that workload can negatively affect professional commitment during the pandemic. Working in medical-surgical and critical care departments was associated with higher professional commitment. Improving nurses' working conditions, especially during pandemics, can help promote professional commitment.

Introduction

COVID-19, first identified in Wuhan, China, in December 2019 (Stübinger & Schneider, 2020), was considered a major public health emergency by the World Health Organization (WHO) (Bulut & Kato, 2020). Among healthcare workers, nurses were in direct contact with COVID-19 patients from admission to discharge (Yusefi et al., 2022) and were on the front line of the fight against the pandemic (Mohammadi et al., 2022).

The adverse physical and psychological conditions caused by the pandemic have significantly affected healthcare workers' professional commitment, including nurses (Duran et al., 2021). Professional commitment refers to an identity belief through which individuals committed to the profession find identity and internalize the profession (Lee et al., 2000). In nursing, professional commitment is an attitude that strengthens nurses' physical, mental, and emotional connection to their professional roles and behaviors. This concept emphasizes the need to provide competent care based on nurses' professional competencies and patients' needs (Joker et al., 2022). Professional commitment, an essential component of nursing codes of ethics, has extensive direct and indirect effects on various aspects of the profession. These aspects include job satisfaction, professional self-concept, self-efficacy development, job adaptations, professional decision-making, enhancing work motivation, and the nurse-patient relationship (Arash et al., 2023; Chen et al., 2025). Adherence to professional commitment increases patient safety and improves quality of care. Conversely, neglecting these principles creates a serious gap in the quality and effectiveness of care (Ahmadzadeh-Zeidi et al., 2024). On the other hand, managers' promotion of professional commitment plays a vital role in improving nurses' performance and the quality of their professional lives (Arash et al., 2023).

The level of professional commitment among nurses varies from low to high across countries (Shahraki, 2023; Soltani, 2018; Tuna & Sahin, 2021). Nurses' professional commitment is related to various factors, including religious beliefs, ethics, education level, personality traits, work experience, and job satisfaction (Ahmadzadeh-Zeidi et al., 2024). Decreased professional commitment can stem from factors such as job fatigue, emotional exhaustion, compassion fatigue, economic pressures, and limited professional autonomy (Nabi Foodani et al., 2023; Tatoy et al., 2023). Identifying the factors affecting nurses' professional commitment is important for promoting nursing care quality. In recent years, the nursing profession has faced a worrying decline in professional commitment. This situation has emerged under the influence of global conditions, the consequences of the COVID-19 pandemic, economic challenges, and sociocultural factors (Nabi Foodani et al., 2024).

Workload is defined as the total amount of work performed by an individual or group of individuals in a specific time period (Bakhshi et al., 2017). Workload relates to an individual's mental abilities and how they receive and process information, which ultimately leads to deci-

sion-making and action. Therefore, workload is not limited to the physical tasks nurses perform. Cognitive tasks also constitute a complex part of the nursing profession (Zakerian et al., 2013). In nursing, heavy workloads may lead to fatigue, decreased efficiency, memory loss, impaired thinking, and irritability (Yusefi et al., 2019).

More committed nurses make greater efforts to improve their professional competence (Gould & Fontenla, 2006). This issue leads to higher-quality nursing care (Akbari Sefideh et al., 2018; Omrani et al., 2016; Shali et al., 2016a). A previous study during the COVID-19 pandemic in Turkey found high professional commitment among nurses despite heavy workloads and risk to their lives (Murat et al., 2021). However, results conflict regarding the relationship between nurses' workload, professional commitment, and the quality of nursing care. A study in Switzerland found that increased workload can reduce nursing care quality (Zúñiga et al., 2015). In contrast, another study found high-quality nursing care despite heavy workload, nursing shortages, and limited resources (Gaalan et al., 2019). Some studies also emphasize that increased workload and job demands lead to decreased professional commitment of nurses (Goldfarb et al., 2021; Jafaraghaee et al., 2014; Teng et al., 2007).

Professional commitment is influenced by the culture and structure of the health system and therefore can vary across societies (Jafaraghaee et al., 2014). In addition, the COVID-19 pandemic and its challenges can also affect the development of professional commitment among nurses (Mamaghani et al., 2024). Therefore, this study investigated the association between professional commitment and workload among nurses during the COVID-19 pandemic.

Materials and Methods

Design, setting, and sample

We conducted a cross-sectional correlational study in 3 main hospitals affiliated with Qazvin University of Medical Sciences in Qazvin City, Iran, in 2022.

We recruited 245 nurses using convenience sampling with proportional allocation. The inclusion criteria were consent to participate in the study, being a registered full-time nurse, having at least a bachelor's degree in nursing, and having a history of caring for patients with COVID-19 for at least 3 months in the current hospital and wards that had at least one room dedicated to caring for patients with COVID-19.

The sample size was estimated based on the results of a previous study (Rafiee Vardanjani, 2020), using the following formula with a type I error (α=0.05), a Mean±SD professional commitment score of 85.65±15.04, the absolute precision of d=2.7, and the type II error (β) of 0.2. Thus, a sample size of 245 nurses was estimated as follows:

$$n = \frac{(z_{1-\frac{\alpha}{2}} + z_{1-\beta})^2 + \sigma^2}{d^2}$$

Study instruments

Data were collected through a structured questionnaire, including a demographic characteristics checklist, the nurses' activities score (NAS), and the nurses' professional commitment scale (NPCS).

Demographic variables: The demographic variables included age, sex, education level, marital status, work experience in COVID-19 wards, work department, type of employment, and work shift.

The NAS: The level of nurses' workload was assessed by the NAS (Miranda et al., 2003). The tool measures the time nurses spend caring for critically ill patients and consists of 7 main categories: basic activities, ventilator support, cardiovascular support, renal support, neurological support, metabolic support, and specific interventions. NAS was originally designed to measure nursing activities over 24 hours, but Debergh et al. (2012) validated it to measure nursing activities per shift. For each patient being cared for by each clinical nurse who participated in the study, the NAS was completed separately in 3 shifts: morning, evening, and night. The obtained NAS for each patient was then summed. The researchers used direct observation of nursing measures, nursing reports, and patient records to complete the NAS. The NAS score is calculated by summing the 23 items. The total score ranges from 0% to 177%. A score of 100 indicates that the nurse spends 100% of her/his work time providing direct patient care. Therefore, a NAS of 177% equals 1.77 full-time nurse posts. The total score indicates the nursing activities score per shift. A higher NAS score indicates a higher level of activity (Debergh et al., 2012). Previous studies translated this tool into Persian and determined its validity and reliability at a good level (Alizadeh et al., 2015; Nasirizad Moghadam et al., 2021). To determine the face validity of the Persian version, the researchers obtained the opinions of 10 nursing faculty members. To test reliability, the inter-rater method was used, and a correlation of 0.75 was reported (Alizadeh

et al., 2015). In the present research, the internal consistency was measured (Cronbach α=0.87).

The NPCS: Nurses' professional commitment was measured using the NPCS (Lachman and Aranya, 1986). This validated 26-item survey assesses self-reported professional commitment and includes 4 dimensions: perception of nursing (6 items), satisfaction with the nursing profession (4 items), involvement with the nursing career (6 items), and devotion to the nursing profession (10 items). Subjects were asked to rate their level of professional commitment on a 5-point Likert-type scale (1=completely disagree, 2=disagree, 3=neutral, 4=agree, 5=completely agree). Scores range from 26 to 130; the higher the score, the higher the nurse's professional commitment. Shali et al. (2016b) translated the NPCS into Persian. In a study conducted in Iran, the internal consistency of this questionnaire was reported as 0.93 (Akbari et al., 2015). In the current study, the internal consistency was calculated (the Cronbach α=0.86).

Data collection

Data were collected from January to July 2022 across all shifts (morning, evening, and night) throughout the week. The nurses were asked to complete the questionnaires during their break time in the ward or at home. After 48 hours, the researcher collected the completed questionnaires. The researcher's phone number was provided on the first page of the questionnaire so participants could contact the researcher with any queries.

Data analysis

Data analysis was performed via SPSS software version 26. The Mean±SD was used for continuous variables, while frequency (percentage) was used to describe categorical variables. The Kolmogorov-Smirnov test showed that the data followed a normal distribution (P>0.05), which was further supported by the histogram. First, univariate linear regression was run to determine association between demographic variables, workload, and professional commitment. We then entered variables with P<0.1 from the univariate analysis into the multivariate linear regression models. Categorical variables were entered as dummy-coded variables. Effect sizes were determined as the coefficient of determination (R^2) for each model as a whole. Multicollinearity was evaluated by the variance inflation factor (VIF). VIF values also confirmed the assumption of non-collinearity between the independent variables included in the multivariate regression models. The significance level for all tests was set at 0.05.

Results

Participant's characteristics

Table 1 shows the distribution of participants' characteristics. The Mean±SD age of the nurses was 33.56 (7.02) years, and most (69.8%) were women. Also, 223 (91%) nurses had a bachelor's degree. Most participants (49.8%) worked in medical-surgical departments.

The Mean±SD workload and professional commitment of the nurses were 77.96±23.93 and 87.23±14.12, respectively. Regarding nurses' professional commitment, the lowest mean score was in the job satisfaction subscale, and the highest was in the devotion to nursing subscale (Table 2).

Univariate linear regression model for professional commitment and workload

In univariate regression analysis, there was an association between professional commitment and being male (β=0.143, P<0.026), workload (β=-0.271, P<0.001), and employment in critical care (β=0.404, P<0.001) and medical-surgical departments (β=0.195, P<0.013) (Table 3).

Multivariate linear regression model for professional commitment and workload

In the multivariate regression model, workload was negatively associated with professional commitment (β=-0.408, P<0.001). In contrast, employment in critical care (β=0.527, P<0.001) and medical-surgical departments (β=0.170, P<0.048) was positively associated with professional commitment. However, in the multivariate regression model, there was no statistically significant association between sex and professional commitment. Generally, the variables included in the adjusted regression model explained (23%) of the changes related to professional commitment among nurses (Table 3).

The multivariate linear regression model was adjusted for workload, sex, and department.

Discussion

The findings of the present study provided evidence about the impact of the COVID-19 pandemic on profes-

Table 1. Participants' characteristics (n=245)

Variables		Mean±SD/No. (%)
Age (y)		33.56±7.02
Working experience as a nurse (y)		9.38±6.41
Sex	Male Female	74(30.2) 171(69.8)
Marital status	Single Married	74(30.2) 171(69.8)
Education	Bachelor's Master's	223(91) 22(9)
Department	Emergency Critical care Medical-sergical	37(15.1) 86(35.1) 122(49.8)
Work shift schedule	Fixed Rotating	72(29.4) 173(70.6)
Type of employment contract	Permanent government employees (formal) Under a contract with government (contractual) Committed to service	132(53.9) 53(21.6) 60(24.5)

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sional commitment among nurses and explained the association between professional commitment and workload.

In our study, nurses' professional commitment scores exceeded the scale's cut-off score, indicating a high level of professional commitment. This finding aligned with previous Iranian studies (Mehralian et al., 2024; Poor et al., 2023). However, this finding contrasts with another Iranian study that reported low levels of professional commitment among nurses (Baghaei et al., 2022). High nurses' professional commitment during the pandemic may be associated with organizational support, professional training, and individual motivation (Poor et al., 2023; Mehralian et al., 2024). Conversely, a lack of organizational or emotional support may contribute to reduced commitment among nurses (Duran et al., 2021; Kaya et al., 2022).

In our study, the lowest professional commitment score was related to the job satisfaction subscale. Given that factors such as low salaries, challenging working conditions, job insecurity, and limited opportunities for career advancement reduce job satisfaction among Iranian nurses (Amiri, 2024), it is recommended that managers increase nurses' job satisfaction by taking measures, such as creating supportive work environments, providing necessary training, and creating opportunities for nurses' professional growth (Ramzani et al., 2024).

Our findings suggest a negative association between the nurses' professional commitment and workload. This finding is consistent with previous studies showing that higher

Table 2. Mean±SD of professional commitment and its subscales and workload

Variables	Mean±SD
Understanding of the nursing profession	18.34±4.79
Job satisfaction	13.06±2.97
Involvement in the nursing profession	21.71±3.29
Devotion to nursing	34.11±5.97
Total professional commitment	87.23±14.12
Workload	77.96±23.93

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Table 3. Univariate and multivariate linear regression model for professional commitment among the participants

Independent Variables		Univariate			Multivariate		
		β	95% CI	P	β	95% CI	P
Age		0.077	-0.09, 0.40	0.231			
Working experience as a nurse		0.044	- 0.18, 0.37	0.497			
Workload		-0.271	-0.23, -0.08	0.001	-0.408	-0.31, -0.17	0.001
Sex	Female Male	Ref 0.143	0.53, 8.21	0.026	Ref 0.080	-1.05, 5.99	0.168
Marital Status	Single Married	Ref 0.007	-3.67, 4.08	0.917			
Education	Master's Bachelor's	Ref 0.008	- 5.82, 6.63	0.899			
Department	Emergency Critical care Medical-sergical	Ref 0.404 0.195	6.69, 17.19 0.49, 10.51	0.001 0.031	Ref 0.527 0.170	10.49, 20.64 0.04, 9.51	0.001 0.048
Work shift schedule	Rotating Fixed	Ref 0.086	-1.23, 6.55	0.179			
Type of employment contract	Committed to service Formal Contractual	Ref 0.062 -0.068	-2.55, 6.08 -7.56, 2.90	0.422 0.381			
F=19.23 Adjusted R^2=0.23							

Abbreviations: F: F statistic (linear regression); β: Standardized coefficients; CI: Confidence interval. Client- Centered Nursing Care

workload can reduce nurses' professional commitment (Wulandari et al., 2023; Reganata & Saputra, 2022; Pourteimour et al., 2021). However, a previous review found that nurses maintained high professional commitment despite changing workloads across different times and settings (Alruwaili et al., 2022). Other studies in Iran reported inconsistent findings (Magharei et al., 2021; Hosseyni et al., 2022). Differences in findings could be related to religious and psychological beliefs, motivation and self-efficacy (Chen et al., 2025), as well as challenges with different emotions such as burnout and feelings of worthlessness, and the role of managers, such as a climate of appreciation or punishment, the manager's perspective on care, and knowledge-based versus routine-oriented nursing (Jafaraghaee et al., 2014).

Employment in intensive care units and medical-surgical departments was associated with higher professional commitment. Evidence suggests that frontline and critical care nurses often demonstrate higher levels of professional commitment, which may be attributed to greater responsibilities, direct engagement with critically ill patients, collaborative teamwork, and an enhanced sense of purpose and value in their work (Joker et al., 2022; Caro-Alonso et al., 2023; Chegini et al., 2021). During the COVID-19 pandemic, nurses' professional commitment appears to be shaped by a complex interplay of actors, including unit type, workload intensity, and the nature of patient care provided.

Study strengths and limitations

Strengths of this study include its multicenter design and the use of standardized questionnaires to assess nurses' professional commitment and workload. In addition, collecting data during the COVID-19 pandemic provides valuable insight into nurses' professional behavior under high stress. However, there are some limitations. The cross-sectional design limits the ability to draw causal conclusions about the relationship between workload and professional commitment. Therefore, longitudinal studies are recommended to examine the long-term effects of workload on professional commitment. Furthermore, given the multifaceted nature of nurses' professional commitment, future studies should evaluate other environmental and social factors that affect it.

Conclusion

The present study may help nursing managers to understand better the factors associated with nurses' professional commitment during pandemics. Given the negative association between workload and professional commitment, improving working conditions may effectively promote

nurses' professional commitment. To this end, nurse managers should have more flexibility in adjusting nurses' work schedules, especially during pandemics.

Ethical Considerations

Compliance with ethical guidelines

This stydy was approved by the Research Ethics Committee of Qazvin University of Medical Sciences, Qazvin, Iran (Code: IR.QUMS.REC.1400.351). Participants were assured that their information would be kept confidential. After explaining the study objectives, the authors obtained written informed consent from participants.

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Authors' contributions

Conceptualisation: Maryam Momeni, Zahra Tayebi Myaneh, and Farnoosh Rashvand; DATA COLLEVTION: Alireza Qaber, Bahare Yousefi, and Alireza Alimohammadi; Supervision and methodology: Maryam Momeni and Farnoosh Rashvand; Writing: Fatemeh Safari Alamouti, Zahra Tayebi Myaneh, and Farnoosh Rashvand; Final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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