



ORIGINAL ARTICLE

Effects of role overload, work engagement and perceived organisational support on nurses' job performance during the COVID-19 pandemic

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Abstract

Aims: We aim to study the effect of role overload, work engagement and perceived organisational support on nurses' job performance, including task performance, interpersonal facilitation and job dedication.

Background: Many nurses have suffered from role overload at work during the COVID-19 pandemic. However, the investigations of the influence mechanisms and boundary conditions through and under which role overload is associated with job performance have shown inconsistent results.

Methods: A total of 595 Chinese nurses were studied from November 2020 to February 2021. Confirmatory factor analysis, maximum likelihood estimation and bootstrapping analysis were used to test the mediating process and the moderating effect.

Results: Work engagement partly mediated the relationships of role overload with task performance ($\beta = -.253$, $p < .001$, 95% CI: $[-.315, -.204]$) and interpersonal facilitation ($\beta = -.202$, $p < .001$, 95% CI: $[-.261, -.145]$); work engagement also fully mediated the relationship between role overload and job dedication ($\beta = -.239$, $p < .001$, 95% CI: $[-.302, -.186]$). Perceived organisational support moderated the relationships of role overload with task performance, interpersonal facilitation and work dedication ($\beta = -.171$, $p < .001$, $\beta = -.154$, $p < .001$ and $\beta = -.175$, $p < .001$, respectively).

Conclusions: Work engagement is the linchpin linking role overload to distal outcomes of job performance. Perceived organisational support mitigates the ways in which role overload undermines job performance.

Implications for Nursing Management: Hospital administrators can minimize the effects of role overload and create a more supportive organisational environment to promote the job performance of nurses.

KEYWORDS

job performance, perceived organisational support, role overload, work engagement

1 | BACKGROUND

Role overload, which is defined as a work condition in which helping professionals have too many clients and not enough time to serve the needs of these clients in a sufficient manner, is a challenge in the nursing work environment (Wang & Li, 2021). Nurses are regularly exposed to multiple stressful work conditions, such as the heavy allocation of patients, the emotional burden of treating dying patients, high expectations from patients' relatives, continuous upgrading of medical technology and improper support from peers and superiors; as a result, nurses need to consistently maintain a high level of effort to meet the everyday demands of their job (Dasgupta, 2012). During the COVID-19 pandemic, many changes in the workplace suggest that nurses may experience more role overload today than they did before (Zhang et al., 2021). Because of this high-intensity work environment, nurses are enduring tremendous pressure; without adequate protection, they have a high risk of becoming infected and suffering a feeling of a loss of control; they are also inexperienced in combating the disease. All of these factors contribute to increased job demands and thus role overload for nurses.

Nurses spend more time with patients than ever before, and patient outcomes are affected by nursing care quality. Excellent nursing job performance ensures that patients are provided appropriate nursing care, and job performance can be included in an evaluation index of nursing quality (An et al., 2020). Thus, improvements in nurses' job performance under such special conditions are particularly important. However, fulfilling the various role requirements and successfully improving job performance is often not easy for nurses due to insufficient time, resources, or personal skills. That is, role overload may play a significant role in affecting job performance.

It has previously been observed that role overload has an array of negative effects on employees and their organisations (Duxbury et al., 2008), such as turnover intention (Kim & Han, 2013), absenteeism (Duxbury et al., 2008) and lack of organisational commitment (Bowling et al., 2015). To date, however, there has been little agreement on the influence of role overload on job performance. Some cross-sectional studies observed that role overload was related to employee performance in a negative way through increased strain (Noblet et al., 2012). Other empirical studies showed that role overload positively affected performance through enhanced motivation; for example, in Akgunduz's (2015) research, role overload had a performance-enhancing impact on the hotel employees. Several meta-analytic studies have consistently reported that the relationship between role overload and job performance is not significant (Bowling et al., 2015). Therefore, previous studies called for more scientific research exploring the mediating procedures and boundary situations of role overload to clarify its link with job performance (Tang & Vandenberghe, 2021). In light of this unexplored area, the focus of the present study is addressing this issue by analyzing how role overload affects nurses' job performance in China.

Work engagement is a 'positive, fulfilling, work-related mental state with characteristics of vitality, dedication, and focus' (Schaufeli

et al., 2006). The job demands–resources (JD-R) model is the most universally utilized integrated conceptual framework for illuminating the antecedents and consequences of work engagement. In the JD-R model, there are two specific sets of working conditions, job demands and job resources, which are related to negative and positive consequences, namely burnout and engagement (Demerouti et al., 2001). Job demands are described as 'aspects of physical, spiritual, social, or organisational in work that require continuous physical and/or spiritual (rational and emotional) efforts and are therefore related to certain physical and/or mental costs' (Chevalier et al., 2021). Role overload and other poor environmental conditions are typical examples. Job resources refer to the 'aspects of physical, emotional, social, and organisational in the job that are either practical in accomplishing work goals, decrease job demands and the correlated physical and emotional costs, or accelerate personal growth, learning, and development' (Sayed et al., 2019), such as organisational support from colleagues and leaders, performance feedback, skill variety, autonomy and learning opportunities (Bakker & Demerouti, 2014). Additionally, the model proposes job demands and job resources, as well as the linkages between demands and resources, as the antecedent variables of work engagement (Bakker, 2011).

In the study of stress, researchers tend to differentiate between two types of job demands: challenge job demands and hindrance job demands (Crawford et al., 2010). Challenge demands are viewed by workers as obstacles to be overcome in order to learn and achieve. In contrast, hindrance demands are viewed by workers as unnecessarily thwarting personal growth and goal attainment. Role overload is a work stressor that reflects hindrance job demands rather than challenge demands (Crawford et al., 2010). When there is a need to deal with obstructive work demands, employees often perceive that they lack the ability to perfectly deal with these demands and achieve their work goals. Accordingly, role overload will generate negative emotions and perceptions, leading to passive and emotion-centred coping, which is reflected in reduced work engagement (Crawford et al., 2010). Based on the aforementioned insights, a negative role overload–work engagement correlation has been proposed and confirmed by researchers (Kim et al., 2018).

When job requirements are deemed too difficult to meet and cannot be met even with sustained physical or mental effort, employees often feel that 'enough is enough'. Therefore, a reactive coping strategy is adopted, whereby performance goals are adjusted to a lower level so that no additional effort is required. As a result, role overload may lead to a decline in work engagement and job performance (Pourteimour et al., 2021). In addition, when an individual's time and resources are spent coping with oppressive role demands, the resources needed to simultaneously accomplish role-prescribed responsibilities, much less extra-role behaviours that benefit others or organisations, are inadequate (Tang & Vandenberghe, 2021). Most relevant studies have provided evidence for the adverse relationship between role overload and job performance. For example, Tang and Vandenberghe (2021) found that role overload causes psychological tension, which in turn affects work performance. The above reasoning leads to the following hypotheses:

Hypothesis 1. Role overload is negatively related to work engagement.

Hypothesis 2. Role overload is negatively related to job performance.

In this study, we focus on work engagement as the key mediating mechanism linking job demands to job performance because work engagement represents a more agentic approach to work (Crawford et al., 2010), which should generate positive consequences such as job performance (Rich et al., 2010). As individuals who are highly engaged in their work roles often experience positive emotions and better mental health, create their own job and personal resources and convey their engagement to others around them (Bakker, 2011), they perform better than nonengaged individuals. Therefore, in the JD-R model, job performance is a consequence of work engagement. To date, numerous studies have suggested that work engagement can enhance job performance (Bakker, 2011). For example, Hood et al. (2016) found that individuals who engage in their careers positively are more likely to obtain higher task performance ratings. These analyses lead to the following hypotheses:

Hypothesis 3. Work engagement is positively related to job performance.

Hypothesis 4. The relationship between role overload and job performance is mediated by work engagement.

According to the JD-R model, effective job resources can provide nurses with inexhaustible intrinsic motivation that increases their health and mental well-being and improves work performance (Bakker & Demerouti, 2014). Wan et al. (2018) confirmed that a comfortable organisational working environment, such as the provision of organisational support, is one of the key factors that can be used as a job resource to promote work engagement. As effective support has a beneficial effect on the psychological health of nurses, it may improve the working state of nurses (Vallone et al., 2020). Perceived organisational support (POS) is defined as employees' overall feeling of how much the organisation values their contribution and cares

about their welfare (Eisenberger et al., 1986). Wang et al. (2017) pointed out that when individuals feel a high level of POS, their needs for autonomy and use of their particular skills will be met, which is conducive to improving their work attitude and stimulating their work passion. Therefore, their work engagement and performance may be improved. That is, high POS may weaken the negative effect of role overload on job performance. Taking together the above arguments and evidence, we propose the following hypothesis:

Hypothesis 5. The negative relationship between role overload and job performance is attenuated by POS.

Another possible explanation for the mixed findings regarding the effect of role overload on job performance is that the majority of studies did not distinguish between different types of job performance. Since employees' job performance is composed of a range of different activities, which make their contributions to organisations very different (Rich et al., 2010), it is important to explore how different kinds of job performance might be affected by role overload. According to Campbell et al. (1993), the conceptualized definition of job performance in this study is the synthesis of the behavioural activities and achievements of employees related to organisational goals, which consists of task performance and contextual performance in the workplace. Task performance is described as the fulfilment of the activities specified by the organisation, which mainly involves the completion of the tasks required by the work (Van Scotter & Motowidlo, 1996). Contextual performance is extra work that is not related to the work required to support the work of the organisation, including interpersonal facilitation and job dedication (Williams & Anderson, 1991). However, previous research on job performance has mainly focused on the single role of task performance, whereas contextual performance has not received sufficient attention (Rich et al., 2010). Hence, it would be useful to explore the association between nurses' role overload and job performance more thoroughly from a comparative view of task performance, interpersonal facilitation and job dedication.

The purpose of the current study was to add to the body of knowledge regarding factors that can buffer the negative association between nurses' role overload and job performance by investigating a

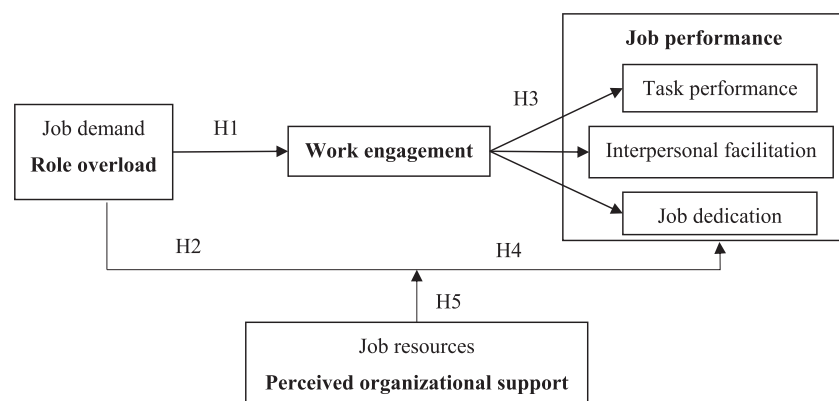


FIGURE 1 Overall conceptual framework

potential mediating variable, work engagement, and a moderating variable, POS. Figure 1 provides an overview of the conceptual framework for this study.

2 | METHODS

2.1 | Design and data collection

Before the investigation, ethics approval was obtained from the IRB of the First Affiliated Hospital of Jinan University (No. KY-2020-090). This study adopted a multi-stage cluster sampling design. Based on the three biggest cities in Hebei Province (in north China) and in Guangxi Province (in south China), the researchers randomly selected one hospital from each city, and the eligible nurses in the study were selected randomly in three shifts (morning, evening and night).

Data collection was conducted from November 2020 to February 2021 during the COVID-19 pandemic. The second and fourth authors visited six hospitals and contacted the nursing managers of these hospitals. With the agreement of nurse managers, all the nurse participants completed the questionnaires during their work hours. After the researcher introduced the purpose, risks and benefits of this study, the participants signed the informed consent form. Then, the survey instrument was distributed to each nurse by the researcher. Participants were told that the purpose of this study was to learn more about nurses. Participation was voluntary, and no personally identifiable information was collected. Participants were instructed to read the items carefully and to respond to the associated questions, and they were informed of their right to withdraw from the survey at any time. To ensure anonymity, participants returned the completed questionnaires directly to the researchers. All participants received small gifts after they completed and returned the questionnaires.

2.2 | Participants

All the participants were clinical nurses and had to meet the following criteria: (a) have a Chinese registered nurse license and (b) be employed full-time. Ultimately, 730 questionnaires were collected. After eliminating 98 invalid questionnaires (not completed at all phases of the study or with invalid answers, such as using the same answer for the whole questionnaire), we obtained 595 responses (a response rate of 81.5%).

2.3 | Measures

All the measures were prepared in Chinese. As the survey items used were originally developed in English, we recruited two experienced bilingual translators to translate all items into Chinese and then check the accuracy of the items by back-translating these into English. No significant differences in language were identified. In this study, each

of the questionnaire responses was scored on a 5-point scale to assess the extent to which the respondents strongly disagreed or strongly agreed with the items in the measures.

2.3.1 | Role overload

Nurses' role overload was assessed using the five-item single-dimensional scale of Peterson et al. (1995). The Cronbach's α of the scale is .850, and the scale has been widely verified by Chinese researchers as having good reliability (Lin & Ling, 2018). A sample item is 'My workload is too heavy'. Cronbach's α for the current study was .860.

2.3.2 | Work engagement

Work engagement was determined by the simplified Work Engagement Scale (UWES-9) created by Schaufeli et al. (2006), showing proper reliability and validity in Chinese nurses' responses (Cao & Chen, 2019). The scale consisted of nine items with the following three sub-dimensions: vigour (three items), dedication (three items) and absorption (three items). A sample item is 'At my job, I feel strong and vigorous'. The Cronbach's α of each dimension ranges from .700 to .890, and the scale shows satisfactory construct validity and predictive validity. In this study, the scale's α reliability was .943, and the Cronbach's α of each domain was .894, .934 and .834.

2.3.3 | Perceived organisational support

POS scores were obtained from the 9-item simplified version scale that was designed by Eisenberger et al. (1986). The Chinese version of the POS has been tested by scholars in various industries (Liu et al., 2020), and the Cronbach's α coefficient of the scale was .910. A sample item is 'Your organisation cares about your well-being'. The Cronbach's α coefficient of the scale was .925 in our research.

2.3.4 | Task performance

A seven-item single-dimensional scale designed by Williams and Anderson (1991) was used to assess task performance (e.g. 'I effectively fulfilled my roles and responsibilities concerning the hospital's proposal assignment'). The Chinese version of the task performance scale has been applied to Chinese occupational groups with satisfactory reliability and validity (Li et al., 2017). In terms of reliability, the Cronbach's α of the task performance scale was .850. A correlation test showed that there was a significant correlation between the averaged scores and individual scores of the seven items, which proved to be of good validity (correlation = 0.47–0.75). Cronbach's α was .738 in this study.

2.3.5 | Contextual performance

We evaluated contextual performance with the 15-item scale developed by Van Scotter and Motowidlo (1996), which has two

subdivisions, interpersonal facilitation (seven items, e.g. 'I praised coworkers when they are successful') and job dedication (eight items, e.g. 'I worked harder than necessary'). The Cronbach's α of the original interpersonal facilitation scale was .890, and that of the job

TABLE 1 Demographic characteristics of the sample ($N = 595$) and comparisons of job performance

Demographics	<i>n</i>	%	Task performance			Interpersonal facilitation			Job dedication		
			<i>M</i> ± <i>SD</i>	<i>F/t</i>	<i>p</i>	<i>M</i> ± <i>SD</i>	<i>F/t</i>	<i>p</i>	<i>M</i> ± <i>SD</i>	<i>F/t</i>	<i>p</i>
Gender				1.509	0.132		3.203	0.003		2.732	0.011
Female	571	96.0	3.96 ± 0.43			4.15 ± 0.47			4.10 ± 0.46		
Male	24	4.0	3.83 ± 0.32			3.97 ± 0.26			3.93 ± 0.29		
Age				2.135	0.095		1.465	0.223		1.448	0.228
20–29	219	36.8	3.94 ± 0.42			4.11 ± 0.45			4.06 ± 0.48		
30–39	268	45.0	3.93 ± 0.43			4.15 ± 0.49			4.09 ± 0.44		
40–49	78	13.1	4.01 ± 0.42			4.16 ± 0.44			4.16 ± 0.47		
≥50	30	5.0	4.11 ± 0.38			4.30 ± 0.40			4.19 ± 0.39		
Education level				1.652	0.193		0.432	0.650		1.124	0.326
Junior college	180	30.3	3.91 ± 0.42			4.13 ± 0.46			4.05 ± 0.48		
Bachelor's degree	403	67.7	3.97 ± 0.43			4.15 ± 0.47			4.11 ± 0.45		
Master's degree or above	12	2.0	4.05 ± 0.49			4.06 ± 0.47			4.08 ± 0.46		
Work years				2.109	0.063		1.099	0.360		1.295	0.264
<1	21	3.5	3.89 ± 0.36			4.05 ± 0.38			4.02 ± 0.51		
1–5	140	23.5	3.97 ± 0.42			4.11 ± 0.48			4.06 ± 0.49		
6–10	179	30.1	3.91 ± 0.42			4.15 ± 0.44			4.07 ± 0.45		
11–15	112	18.8	3.92 ± 0.47			4.11 ± 0.53			4.10 ± 0.44		
16–20	48	8.1	4.10 ± 0.42			4.25 ± 0.45			4.20 ± 0.43		
>20	95	16.0	4.00 ± 0.39			4.18 ± 0.44			4.16 ± 0.45		
Employment type				2.559	0.011		0.977	0.329		1.075	0.283
Formal	177	29.7	4.02 ± 0.42			4.17 ± 0.45			4.13 ± 0.45		
Contracted	418	70.3	3.93 ± 0.42			4.13 ± 0.47			4.08 ± 0.46		
Position				0.759	0.518		3.953	0.008		4.542	0.004
General nurse	515	86.6	3.95 ± 0.42			4.12 ± 0.46			4.07 ± 0.46		
Head nurse	55	9.2	4.01 ± 0.49			4.30 ± 0.51			4.26 ± 0.50		
Unit manager	23	3.9	4.04 ± 0.33			4.30 ± 0.33			4.30 ± 0.36		
Director of nursing	2	0.3	4.00 ± 0.40			4.50 ± 0.71			4.25 ± 0.35		
Professional title				0.776	0.541		1.661	0.158		1.932	0.104
Primary nurse	122	20.5	3.94 ± 0.43			4.13 ± 0.46			4.07 ± 0.47		
Senior nurse	257	43.2	3.94 ± 0.43			4.13 ± 0.45			4.06 ± 0.46		
Supervisor nurse	170	28.6	3.96 ± 0.42			4.14 ± 0.50			4.11 ± 0.46		
Co-chief nurse	37	6.2	4.07 ± 0.42			4.31 ± 0.40			4.25 ± 0.43		
Chief nurse	9	1.5	4.00 ± 0.41			4.13 ± 0.41			4.29 ± 0.34		
Hospital				0.664	0.651		1.330	0.250		1.739	0.124
A	86	14.5	3.90 ± 0.42			4.13 ± 0.47			4.04 ± 0.48		
B	76	12.8	3.96 ± 0.45			4.03 ± 0.46			4.01 ± 0.48		
C	97	16.3	3.99 ± 0.45			4.15 ± 0.46			4.14 ± 0.48		
D	104	17.5	3.92 ± 0.43			4.17 ± 0.43			4.06 ± 0.42		
E	133	22.4	3.99 ± 0.39			4.20 ± 0.44			4.11 ± 0.45		
F	99	16.6	3.96 ± 0.44			4.14 ± 0.53			4.10 ± 0.45		

dedication measure was .940. In the present study, Cronbach's α for the scales was .871 and .903, respectively.

2.3.6 | Control variables

Given their potential to confound the hypothesized relationships, we controlled for gender, age, education level, work years, employment type, position, professional title and weekly working hours because these variables are correlated with job performance (Deng et al., 2019).

2.4 | Data analysis

We used SPSS 23 and Mplus 8.3 statistical software for data analysis. We initially obtained the means, standard deviations and correlation values among these variables. A two-tailed t test and ANOVA were applied to test the group differences of dependent variables. Subsequently, we selected structural equation modelling (SEM) to examine the hypothesized model. Following the recommendations of Nguyen and Borteyrou (2016), the two-step analysis strategy was used to examine the mediating mechanism. First, we conducted confirmatory factor analysis (CFA) to test the measurement model. Second, maximum likelihood estimation was used to test the structural model. Lastly, we used SEM to test the moderating effect of POS on the relationship between role overload and all aspects of job performance. Bootstrapping analysis was used to test the mediating process of work engagement and the moderating role of POS with 2000 iterations.

3 | RESULTS

3.1 | Descriptive statistics

The demographic characteristics, job condition variables and group differences in kinds of job performance are shown in Table 1. Female nurses had higher interpersonal facilitation ($p < .01$) and job dedication ($p < .05$) than male nurses, formal nurses had higher task

performance ($p < .05$) than contracted nurses, directors of nursing had higher interpersonal facilitation ($p < .01$) and job dedication ($p < .01$) than nurses in other positions, and nurses who worked less than 40 h per week had higher task performance ($p < .05$), interpersonal facilitation ($p < .05$), and job dedication ($p < .05$). As there were no differences of all the key variables across hospitals, we aggregated data across the six hospitals.

Table 2 provides the means (M), standard deviations (SD) and Pearson's correlation coefficients of all variables. The results of the correlation analysis indicated that there were significant correlations between independent variables and dependent variables. Specifically, role overload was negatively correlated with work engagement ($r = -.485$, $p < .01$), task performance ($r = -.338$, $p < .01$), interpersonal facilitation ($r = -.302$, $p < .01$), and job dedication ($r = -.285$, $p < .01$). Work engagement was positively linked to task performance ($r = .486$, $p < .01$), interpersonal facilitation ($r = .432$, $p < .01$), and job dedication ($r = .476$, $p < .01$). Additionally, POS was significantly and positively related to task performance ($r = .411$, $p < .01$), interpersonal facilitation ($r = .367$, $p < .01$), and job dedication ($r = .387$, $p < .01$).

3.2 | Measurement model

The construct validity of the research model was tested using CFA before testing our hypotheses. Fit statistics and indices for the modified structural models are presented in Table 3. The results of CFA indicated that the proposed model, which comprised six latent constructs of role overload, work engagement, POS, task performance, interpersonal facilitation and job dedication (Model A), had an excellent fit to the data, $\chi^2/df = 3.112$, $p < .000$; TLI = .900, CFI = .907, RMSEA = .060, SRMR = .052. Therefore, we concluded that the model fit the data well and was thus suitable for testing the research hypotheses.

3.3 | Testing of hypotheses

We tested the hypothesized models, which included paths between role overload, work engagement and POS and all aspects of job performance.

TABLE 2 Means, standard deviations (SD) and correlations among study variables ($N = 595$)

	Mean	SD	1	2	3	4	5	6
1. Role overload	3.035	0.768	1					
2. Work engagement	4.423	1.214	−0.485**	1				
3. POS	3.593	0.679	−0.517**	0.609**	1			
4. Task performance	3.956	0.426	−0.338**	0.486**	0.411**	1		
5. Interpersonal facilitation	4.144	0.466	−0.302**	0.432**	0.367**	0.559**	1	
6. Job dedication	4.095	0.460	−0.285**	0.476**	0.387**	0.605**	0.713**	1

Abbreviation: POS: perceived organisational support.

** $p < 0.01$ (two-tailed).

TABLE 3 Fit statistics and indices for different models

Model	Description	χ^2	χ^2/df	TLI	CFI	SRMR	RMSEA
Model A	6 factors: Role overload, work engagement, POS, task performance, interpersonal facilitation, and job dedication	2502.33***	3.112	.900	.907	.052	.060
Alternative model 1	5 factors: Causal variables (role overload and work engagement), POS, task performance, interpersonal facilitation, and job dedication	3456.36***	4.272	.846	.855	.067	.074
Alternative model 2	3 factors: Causal variables (role overload and POS), work engagement, and outcome variables (task performance, interpersonal facilitation, and job dedication)	4477.15***	5.487	.789	.800	.073	.087
Alternative model 3	2 factors: Causal variables (role overload, POS and work engagement) and outcome variables (task performance, interpersonal facilitation, and job dedication)	6334.51***	7.744	.682	.698	.083	.106
Alternative model 4	1 factor: All items loading on the same factor	9590.46***	11.71	.495	.520	.122	.134

Abbreviations: CFI, comparative fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual; TLI, Tucker-Lewis index.

*** $p < .000$.

TABLE 4 Standard path estimates ($N = 595$)

Relationships	Model 1	Model 2
Role overload → task performance	-0.404***	-0.145**
Role overload → interpersonal facilitation	-0.342***	-0.114*
Role overload → job dedication	-0.318***	-0.079
Role overload → work engagement	-0.568***	
Work engagement → task performance	0.446***	
Work engagement → interpersonal facilitation	0.355***	
Work engagement → job dedication	0.421***	
Role overload → work engagement → task performance	-0.253***	
Role overload → work engagement → interpersonal facilitation	-0.202***	
Role overload → work engagement → job dedication	-0.239***	
POS → task performance		0.364***
POS → interpersonal facilitation		0.285***
POS → job dedication		0.334***
Role overload × POS → task performance		-0.171***
Role overload × POS → interpersonal facilitation		-0.154***
Role overload × POS → job dedication		-0.175***

* $p < .05$.

** $p < .01$.

*** $p < .001$ (two-tailed).

Hypotheses 1–4 pertain to the relationships among role overload, work engagement and job performance. Model 1 in Table 4 provides the standardized path estimates of the relationships among role overload, work engagement and job performance. The results showed that role overload had significant negative correlations with task performance ($\beta = -.404$, $p < .001$, 95% CI: $[-.484, -.324]$), interpersonal

facilitation ($\beta = -.342$, $p < .001$, 95% CI: $[-.425, -.260]$), and job dedication ($\beta = -.318$, $p < .001$, 95% CI: $[-.400, -.236]$). Therefore, Hypothesis 2, which states that role overload has a significant adverse impact on job performance, is supported. This suggests that the greater the role overload perceived by the nurse, the weaker his/her work engagement will be.

Hypothesis 1, which posited that role overload is negatively related to work engagement, was also supported ($\beta = -.568$, $p < .001$, 95% CI: $[-.630, -.504]$). Additionally, work engagement had a positive correlation with task performance ($\beta = .446$, $p < .001$, 95% CI: $[.358, .537]$), interpersonal facilitation ($\beta = .355$, $p < .001$, 95% CI: $[.258, .454]$), and job dedication ($\beta = .421$, $p < .001$, 95% CI: $[.325, .511]$). Thus, Hypothesis 3 was supported.

Hypothesis 4 suggested that work engagement mediates the negative influence of role overload on job performance. The 95% confidence interval of bootstrap upper and lower limits for the direct consequence caused by role overload on task performance ($\beta = -.150$, $p < .05$, 95% CI: $[-.261, -.019]$) and the indirect impact of work engagement ($\beta = -.253$, $p < .001$, 95% CI: $[-.315, -.204]$) did not contain 0, which showed that role overload can not only directly predict task performance but also predict task performance through the mediating role of work engagement. Therefore, the partial mediating effect of work engagement on the relationship between role overload and task performance has been validated.

The findings of the bootstrapping analysis demonstrated that role overload was significantly indirectly correlated with interpersonal facilitation via work engagement ($\beta = -.202$, $p < .001$, 95% CI: $[-.261, -.145]$), and the direct influence of role overload on interpersonal facilitation ($\beta = -.142$, $p < .05$, 95% CI: $[-.242, -.025]$) was significant. Therefore, the partial mediating role of work engagement in the association between role overload and interpersonal facilitation has also been validated.

Additionally, role overload was significantly and indirectly correlated with job dedication via work engagement ($\beta = -.239$, $p < .001$, 95% CI: $[-.302, -.186]$), and the direct effect of role overload on

interpersonal facilitation ($\beta = -.080, p > .05, 95\% \text{ CI} : [-.194, .035]$) was not significant. Therefore, the full mediating effect of work engagement on the relationship between role overload and job dedication has been validated.

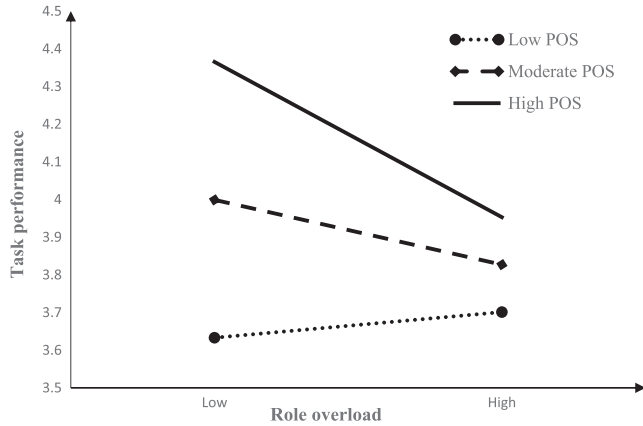


FIGURE 2 Simple slopes of role overload predicting task performance at low (1 SD below M), moderate and high (1 SD above M) levels of POS

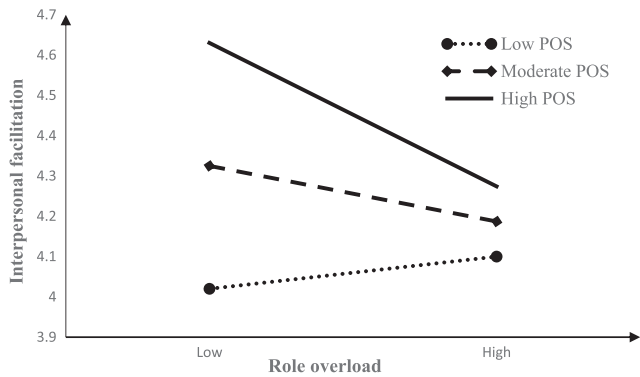


FIGURE 3 Simple slopes of role overload predicting interpersonal facilitation at low (1 SD below M), moderate and high (1 SD above M) levels of POS

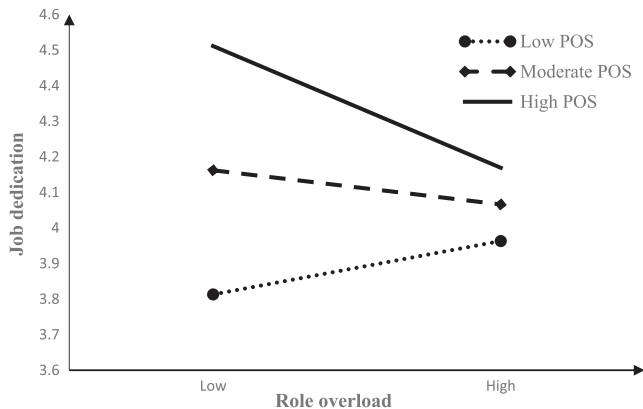


FIGURE 4 Simple slopes of role overload predicting job dedication at low (1 SD below M), moderate and high (1 SD above M) levels of POS

TABLE 5 Results for the conditional direct effects of role overload on job performance across levels of POS

Variable	Moderator level	Task performance			Interpersonal facilitation			Job dedication		
		Effect	SE	p	Effect	SE	p	Effect	SE	p
POS	Low (M-1 SD)	-0.005	0.034	0.887	0.005	0.036	0.888	0.036	0.035	0.309
	Moderate level	-0.086	0.026	<0.001	-0.069	0.027	<0.05	-0.048	0.027	0.076
	High (M + 1 SD)	-0.168	0.028	<0.001	-0.143	0.029	<0.001	-0.131	0.029	<0.001
										95% CI
										[-0.033, 0.105]
										[-0.100, 0.005]
										[-0.187, -0.075]

Hypothesis 5 states that POS moderates the relationship between role overload and job performance. Model 2 of Table 4 shows the results. As predicted, the interaction effects of role overload and POS on task performance, interpersonal relationship promotion and work dedication were significant and negative ($\beta = -.171$, $p < .001$, $\beta = -.154$, $p < .001$, and $\beta = -.175$, $p < .001$, respectively), supporting Hypothesis 5. Figures 2–4 illustrate the forms of the interactions.

To examine the interactions further, we conducted simple slope tests. The results in Table 5 show that the association of role overload with task performance was negative and significant in the high-POS condition ($\beta = -.168$, $p < .001$, 95% CI: $[-.222, -.113]$) and in the moderate-POS condition ($\beta = -.086$, $p < .001$, 95% CI: $[-.137, -.036]$); however, this relationship became nonsignificant when POS was low ($\beta = -.005$, ns, 95% CI: $[-.072, .062]$).

In addition, Table 5 shows that the effect of role overload on interpersonal facilitation was stronger and significant at a high level of POS ($\beta = -.143$, $p < .001$, 95% CI: $[-.137, -.036]$) and at a moderate level of POS ($\beta = -.069$, $p < .05$, 95% CI: $[-.137, -.036]$) but was positive and nonsignificant at a low level of POS ($\beta = .005$, ns, 95% CI: $[-.066, .076]$).

Finally, the results in Table 5 show that when POS was high, there was a negative effect of role overload on job dedication ($\beta = -.131$, $p < .001$, 95% CI: $[-.187, -.075]$). However, this relationship became nonsignificant when POS was moderate ($\beta = -.048$, ns, 95% CI: $[-.100, .005]$) or low ($\beta = .036$, ns, 95% CI: $[-.033, .105]$).

In summary, POS moderated the correlation between nurses' role overload and job performance, and this correlation was greater when POS was high than when POS was low.

4 | DISCUSSION

4.1 | Interpreting the findings

The aim of this study was to investigate the associations among role overload, work engagement, POS and all aspects of job performance. Our results showed that work engagement mediated the relationships of nurses' role overload with task performance, interpersonal facilitation and job dedication. Furthermore, we found that POS moderated the relationship between role overload and job performance. Higher levels of POS create buffers against the negative influence of role overload on all aspects of job performance. These findings provide critical insights for both researchers and nursing managers. Here, we expand on the theoretical and practical implications of these findings and highlight what we believe are promising avenues for future research.

First, our results confirmed Hypothesis 1, which stated that role overload negatively affects work engagement. Our findings were similar to those of earlier studies (Bakker & Sanz-Vergel, 2013; Kim et al., 2018). This could be due to role overload being harmful, causing stress, exhaustion and degrading care (Dasgupta, 2012). Especially during the COVID-19 pandemic in China, nurses may experience more role overload than they did before. Therefore, nurses under such

a high-intensity work environment may reduce their work engagement. However, our results were inconsistent with previous findings on medical residents (Deng et al., 2021); in those studies, role overload was positively related to work engagement. That may be because, as the saying goes, 'with great power comes great responsibility'; residents faced with overload may find themselves motivated to engage more deeply than nurses.

Second, Hypothesis 2 stated that role overload would negatively affect job performance. The results of this study are consistent with our conceptual framework and most of the empirical research findings (e.g. Jain & Cooper, 2012; Jha et al., 2017), but, contrary to the results of Kumar et al. (2021), we found some evidence for a significant negative influence of role overload on all aspects of job performance. This may be because role overload reflects a situation in which the demands of the role exceed the individual's resources, creating an imbalance that is characterized by more threats than challenges (Tang & Vandenberghe, 2021).

Third, our results confirmed Hypothesis 3. The findings concerning the impact of work engagement on job performance are congruent with our predictions and other empirical investigations (e.g. Olugbade & Karatepe, 2019). Our results are also in line with the JD-R model and the reviews of work engagement in nursing (García-Sierra et al., 2016; Keyko et al., 2016), which showed that good work engagement enhances job performance.

Rather than having a direct impact on job performance, the results of this study supported Hypothesis 4, stating that role overload is indirectly related to job performance via work engagement. According to the resource loss spiral mentioned in conservation of resources theory, when a job's demands are too high, personal resources will be threatened, which will hinder the achievement of positive work results (Hobfoll, 2002). A similar conclusion was also reached by Sutanto and Wiyono (2017), in whose research role overload had an effect on job performance through job stress as a mediating variable.

Finally, Hypothesis 5 assumed that POS moderates the relationship between role overload and job performance. Our findings from the structural equation model demonstrated that POS is an important job resource in the workplace that mitigates the threatening potential of role overload, which is detrimental to job performance. In other words, nurses with a high level of POS are likely to identify with the organisation (e.g. Eisenberger & Stinglhamber, 2011), thus making them engaged in nursing care, which creates more potential to increase job performance. Our results are in line with the meta-analysis of Riggle et al. (2009), which found a positive relationship between POS and both task and contextual performance. These results are in agreement with Naseer et al.'s (2018) findings, which showed that POS reinforced the relationship between bullying and job performance. A similar conclusion was also reached by Hur et al. (2021), in whose study POS moderated the relationship between employees' CSR perceptions and job performance. Our findings have practical implications for promoting organisational support in Chinese hospitals because providing adequate organisational support may be an essential job resource among all nurses, especially during the COVID-19 pandemic.

4.2 | Theoretical implications

The present research contributes to the literature in several ways. First, although existing nursing research has identified some influencing factors of job performance, scant scholarly attention has been given to role stressors, in particular role overload. Prior research has generally considered job demands in a broad way, as either job hindrances or job challenges (Van den Broeck et al., 2010). Our study reveals that nurses perceive role overload more as a hindrance demand than as a challenging demand because it significantly threatens their ability to perform effectively, and it ultimately undermines nurses' work engagement and performance.

Second, these research results expand the scope of the consequences of role overload by examining various aspects of performance, such as interpersonal facilitation, job devotion and task performance, which may resolve the inconsistencies of prior research that resulted from considering job performance as only a kind of behaviour. Performance is a highly complex multidimensional construct (Gilboa et al., 2013); however, previous studies have investigated isolated performance outcomes case-by-case, such as organisational citizen behaviours (Gilboa et al., 2013) and sales volume (Jha et al., 2017). By assessing multiple performance outcomes, our research responds to the suggestion of Gilboa et al. (2013) to assess the relationships between stressors and specific dimensions of job performance to clarify the stressor-performance relationships.

Third, the most important contribution of this study is providing a more definitive answer to the question of whether and how role overload is related to job performance than has been provided by previous nursing research, especially highlighting the potential usefulness of POS as a buffer. POS can increase nurses' inner motivation to help organisations reach their objectives and increase their affective commitment to organisations (Wang et al., 2017). When nurses perceive a higher level of organisational support, they may be engaged to increase their task performance and contextual performance, hence reducing the depleting effects of role overload.

4.3 | Limitations and future research

It is reasonable that some limiting factors may have affected the results. First, because this was a cross-sectional study, it was impossible to obtain an explanation of causality. Second, it is worth noting that nurses' role overload may also significantly affect individual consequences or professional outcomes over and above performance-related consequences, which could be considered at the same time in future research. Third, we depended on self-report measures for our samples. Although the use of self-reporting was the most appropriate way to assess nurses' perceptions, it may, to some extent, have led to the relationships found in our research being artificially inflated; in other words, there may have been a response bias in this study. Finally, although we found that POS is an important job resource in the workplace, it is still the individual's perception of how the organisation values their contributions and cares about their well-being. In the future, high-level variables, such as organisational support climate,

and multilevel modelling are needed to confirm the results of the present study.

5 | CONCLUSION

Based on the JD-R model, the present study examined a key process, job engagement, that explains how role overload undermines different aspects of job performance and also examined the buffering role of POS. The findings suggest that work engagement plays a key role in the relationship between role overload and distal outcomes of performance; furthermore, POS, as a resource-providing context, alleviates the impact of role overload on job performance.

6 | IMPLICATIONS FOR NURSING MANAGEMENT

The results obtained in this study have several useful practical implications for nursing managers. It should be understood by practitioners that role overload has negative effects on job performance. Therefore, nursing managers can minimize the effect of the factors leading to role overload and thus enhance the job performance of their employees. In this context, introducing analytical and problem-focused training on how to deal with overload situations (Wang & Li, 2021), carefully scheduling all activities a nurse needs to accomplish, and reducing the number of items on nurses' to-do lists to the most important priorities may contribute to decreased role overload.

Moreover, our results on the moderating role of POS in the relationship between role overload and job performance also have some practical implications. First, a good working atmosphere and support from the people around them can improve nurses' POS. Nursing managers should create a supportive working environment, which will help nurses to be confident and relaxed. Second, a humanistic management system may make nurses realize that they have more POS. Managers should pay attention to the welfare of nurses, such as the implementation of reasonable salaries and performance incentive systems. Finally, nurses should be encouraged to establish harmonious interpersonal relationships, which is an excellent way to help them obtain POS. Managers should organize members to carry out activities to enhance their friendship, such as engaging in activities outside of work.

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CONFLICT OF INTERESTS

The authors declared no potential conflict of interests with respect to the research, authorship and/or publication of this article.

ETHICAL STATEMENT

We got the formal approval from the IRB of the First Affiliated Hospital of Jinan University (No. KY-2020-090). Data privacy and confidentiality were maintained and assured by obtaining subjects' informed consent to participate in the research before data collection, which ensured by not reporting the participant's identities, and that we only reported the findings in aggregate, and the raw data were destroyed after the completion of data analysis process.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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