








## ORIGINAL ARTICLE

# A model of nurses' intention to care of patients with COVID-19: Mediating roles of job satisfaction and organisational commitment

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## Abstract

**Aim and Objectives:** This study aims to test the hypothesis that job satisfaction and organisational commitment might play a mediating roles between workload, quality of supervision, extra-role behaviour, pay satisfaction and intention to care of patients with COVID-19.

**Background:** Given the high incidence of coronavirus and shortage of nurses in Iranian hospitals, learning about nurses' intention to care for patients with COVID-19 is important.

**Design:** In this cross-sectional study, 648 Iranian nurses were surveyed during March 2020. The online questionnaire consisted of two parts. The mediating role was explored for the following: job satisfaction and commitment in the association of workload, quality of supervisor, extra-role behaviours, and pay satisfaction with the intention to care. The study adhered to STROBE checklist for cross-sectional studies.

**Results:** The results of this study show that job satisfaction and organisational commitment mediated the relationship of nurses' workload, quality of supervisor, extra-role behaviours, and pay satisfaction with the intention to care for patients with COVID-19.

**Conclusion:** The results of the study indicate the importance of job satisfaction and organisational commitment as mechanisms that help to understand the association of nurses' workload, quality of supervisor, extra-role behaviours and pay satisfaction with the intention to care during the COVID-19 pandemic.

**Relevance to clinical practice:** Hospital managers need to attend to the role of nurses' job satisfaction and other organisational factors to ensure that they can cope with the challenges of the COVID-19 pandemic.

**KEYWORDS**

COVID-19, extra-role behaviour, intention to care, job satisfaction, organisational commitment, pay satisfaction, quality of supervision, workload

**What does this paper contribute to the wider global clinical community?**

- During the pandemic, the medical working environment is highly intense for the nurses. The combination of stress, high susceptibility for acquiring COVID-19, surges in workload as well as the arduous job situation has created a challenging working environment which affects the quality of care to COVID-19 patients.
- In such a risky situation where “self-rescue” seems more important than others, the factors increasing the job satisfaction and commitment become more important than anytime to increase the intention to care among nurses.
- The quality of supervision by managers contributes significantly to the caregiving process. Mutual understanding between nurses and their supervisors, trust and respect seems of high necessity to keep the nurses committed. Moreover, as the quality of health care directly and indirectly is linked to the nurses, the monetary compensation can improve the commitment among nurses.
- Especially during the pandemic when the work environment is highly risky for the nurses, the impact of pay satisfaction can play significant role to increase the satisfaction about the job.

## 1 | INTRODUCTION

Coronavirus disease 2019 (COVID-19) is rapidly spreading worldwide from December 2019 (Rothan & Byrareddy, 2020). Many people have become infected and have died around the world. This pandemic has involved healthcare systems all over the world, including Iran (Nikpouraghdam et al., 2020). According to statistics, the population of Iran is 83,992,949 million people [World Health Organization (WHO) report on 2020/11/6]; Iran ranked 14th in the world with 654,936 confirmed positive cases. Death due to COVID-19 accounted for 36,985 patients and ranked 9th in the world (WHO COVID-19 Explorer, 2020). Most of the hospitals are faced with the challenges of increasing number of suspected and confirmed cases, lack of personal protective equipment, financial problems, heavy workloads and psychological distress of healthcare workers who need to adjust to an entirely new working environment in this stressful situation to provide to care for patients with COVID-19 (Spiotta & Crosa, 2020; Sultana et al., 2020).

Among healthcare providers, nurses have a crucial role because they provide front-line care at the height of the coronavirus outbreak (Liu et al., 2020). Therefore, nurses experience many stressors while working in the environments with high job stress, inadequate resources that adversely affect their intention to care for patients with COVID. (Mo et al., 2020; Sultana et al., 2020; Zhang, Chen, et al., 2020). Moreover, recent articles have pointed out that the lack of nurses' information about COVID-19, fear of infection and fear of transmitting the virus to their families have increased the difficulties of nursing caring for these patients. This fear impacts the nurses and results in them wanting to leave their job (Maben & Bridges, 2020; Zeytinoglu et al., 2011). This situation that many nurses wish to leave their jobs has increased, and many countries have invited nursing

students and retired nurses to step in and work (Daly et al., 2020). Thus, it is important to examine the factors influencing nurses' intention to care for these patients during the COVID-19 pandemic.

This study aims to investigate the relationship between workload, quality of supervision, extra-role behaviour, pay satisfaction and intention of nurses to care for patients with COVID-19 in Iran. Several studies have identified, considering that a significant relationships between workload (Lee et al., 2020), quality of supervision (Bobbio & Manganelli, 2015), extra-role behaviour, pay satisfaction (Wang et al., 2019), job satisfaction, organisational commitment and nurses intention to care. Therefore, this study hypothesises that job satisfaction and organisational commitment might play mediating roles between workload, quality of supervision, extra-role behaviour, pay satisfaction and intention to care.

## 2 | BACKGROUND

### 2.1 | Workload and intention to care

During COVID-19 outbreak, nurses are under heavy workload conditions. Despite high patient–nurse ratio and nurse shortages, working continuously with personal protective equipment (PPE) and putting on and taking off PPE twice a day created difficult working conditions for nurses (Huang et al., 2020). Workload is a part of work environments, is a significant factor in intention to care, and is also related to a decreased in job satisfaction and increased intention to leave nursing (Lee et al., 2020).

Hypothesis 1: Workload is negatively associated with nurses' intention to care for patients with COVID-19.

## 2.2 | Quality of supervision and intention to care

Supportive supervisor behaviour in a stressful workplace will inspire nurses who are fighting against COVID-19 infection (Sultana et al., 2020). In one study, the supervisor's behaviour enhanced the quality of care by training, supporting nurses and creating a safe place for them (Dehghani et al., 2016). The nursing supervisor has an important role in causing nurses to stay or leave the organisation (Bobbio & Manganelli, 2015).

Hypothesis 2: Quality of supervision is positively associated with nurses' intention to care for patients with COVID-19.

## 2.3 | Extra-role behaviour and intention to care

Nurses demonstrated more "helping behaviour" towards other nursing colleagues than other healthcare providers (Boerner et al., 2005). Some nurses were willing to volunteer and to use their rest hours or vacations to care for patients with COVID-19. The "extra-role behaviours" was not part of their formal employment contracts, and it is the willingness of nurses to make an extra efforts on behalf of the organisation (Malik & Dhar, 2017). Balfour & Wechsler stated that workload satisfaction occurred as a result of supportive, productive, and meaningful relations with other people or to show concern for their patients of the organisation (Balfour & Wechsler, 1996). During severe acute respiratory syndrome (SARS) outbreak, nurses' intention to take care of SARS patients was more influenced by organisational commitment and a willingness to put in extra effort for the organisation, rather than their professional commitment (Wu et al., 2012).

Hypothesis 3: Extra-role behaviour is positively associated with nurses' intention to care for patients with COVID-19.

## 2.4 | Satisfaction with their pay and intention to care

Hospitals had financial problems during the COVID-19 outbreak, and as a result, nurses did not receive their salaries, even while they continued to work on the front lines, risking their health and the health of their families (Spiotta & Crosa, 2020). One of the important factor that was associated with nurses' decision to leave or stay in their job, was their satisfaction with their pay (Wang et al., 2019). Unfair and unequal salaries for nurses results in lower levels of pay satisfaction and might be associated with their intention to care or nursing behaviours. When individuals are satisfied with their pay, they are more likely to have feelings of attachment to the organisation and their intention to care for patients may be increased (Balfour & Wechsler, 1996).

Hypothesis 4: Pay satisfaction is positively associated with nurses' intention to care for patients with COVID-19.

## 2.5 | Organisational commitment and intention to care

In the context of the COVID-19 outbreak, a stronger organisational commitment by healthcare professionals is a very important factor that influences nurses' intention to remain in their jobs. Also, the quality of care they deliver and it may decrease absenteeism and job turnover (Bobbio & Manganelli, 2015; Jun et al., 2020; Liou, 2009). In this stressful environment, nurses are putting their lives at risk for their job (Mo et al., 2020). Furthermore, job characteristics including job stress and workload, pay and benefits interact with their relationships with their work environment. Task identity and task conflict are linked to nurses job satisfaction and motivation and are significant predictors of organisational commitment (Liou, 2009).

Hypothesis 5: Organisational commitment is positively associated with nurses' intention to care for patients with COVID-19.

Hypothesis 6: The relationship between all independent variables and nurses' intention to care for patients with COVID-19 is mediated by organisational commitment.

## 2.6 | Job satisfaction and intention to care

It is important to organisations to have a satisfied nursing staff during the Covid-19 epidemic (Zhang, Liu, et al., 2020). Job satisfaction is defined as a positive effect towards a job or its components. Satisfied nurses are more likely to stay in their profession but also with the organisation in which they are satisfied (Abualrub & Alghamdi, 2012). Recent studies demonstrated that job satisfaction is critical to ensure quality of patient care and to nurses intention to care (Lee et al., 2020). Moreover, the literature emphasised that the supervisor's role (Abualrub & Alghamdi, 2012; Sultana et al., 2020) and pay satisfaction (Spiotta & Crosa, 2020) influenced nurses' job satisfaction.

Hypothesis 7: Job satisfaction is positively associated with nurses' intention to care for patients with COVID-19.

Hypothesis 8: The relationship between all independent variables and intention to care is mediated by job satisfaction among nurses who care for patients with COVID-19.

Iran's specific situation makes this country a good setting for our study. At the time of writing this paper, Iran was the hardest hit country with the coronavirus pandemic in the Middle East. The first SARS-CoV-2-positive cases were reported in February 2020. Thereafter, the disease spread very rapidly all around the country. In 6 November 2020, there were 48,534,508 confirmed cases of COVID-19, including 1,231,017 deaths (WHO COVID-19 Explorer, 2020). Thus, the country's top priority was to control the rapid spread of this disease and provide the necessary health services to those infected. However, imposed sanction by the USA after withdrawal from the nuclear deal in 2018 has severely restricted the country ability to raise fund and access the international markets (Murphy et al., 2020). Therefore, access to medicines and medical equipment was impeded by the trade sanctions, but the unstable foreign currency made them extremely expensive. In such situation, the pressures on health workforce as the main support for the infected patients are intensified.

### 3 | METHODS

#### 3.1 | Study design, setting and sampling

In this cross-sectional study, Iranian nurses in hospitals affiliated by Mazandaran University of Medical Sciences were selected to carry out a survey in March 2020. The guidelines on "Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)" were chosen to guide this study (File S1). The inclusion criteria were as follows: nurses who provided direct care to patients with COVID-19 and volunteered to participate in this study. The online data collection nurses were invited to participate in this study. The questionnaires were sent to 800 nurses via social networking application (Telegram and WhatsApp). The response rate was 81%, which resulted in a sample of 648 nurses.

#### 3.2 | Measurements

A self-administered questionnaire consisting of eight parts including intention to care, quality of supervision, extra-role behaviour, pay satisfaction, organisational commitment, workload, job satisfaction as well as demographic information.

- *Demographic information* includes age, gender, marital status, years of work experience and education level (bachelor's or master's degree).
- *Intention to care* was measured using Persian version of Nurses' Intention to Care Scale (P-NICS) for Patients with COVID-19. It consisted of 31 items and six domains: positive behavioural beliefs, negative behavioural beliefs, family subjective norms, work subjective norms, positive control beliefs and negative control beliefs (Rahmatpour et al., 2020). An intention to care variable was computed from the six subscales. Cronbach's alpha of intention to care in this study was 0.85 (95% CI: 0.83–0.86).
- The Belfour and Wechsler questionnaire was used in this study. The three subscales included *quality of supervision*, *extra-role behaviour* and *pay satisfaction*. Each subscale has three items and a response options with seven-point Likert scores ranging from "strongly disagree" to "strongly agree" (Balfour & Wechsler, 1996). Sample items of quality of supervision, extra-role behaviour and pay satisfaction include respectively: "My supervisor treats me with concern and respect," "I am willing to put in a great deal of effort beyond what is normally expected in order to help the organization be successful" and "I am generally satisfied with the amount of pay and fringe benefits I receive." Cronbach's alpha of quality of supervision, extra-role behaviour and pay satisfaction in this study was 0.93 (95% CI: 0.92–0.93), 0.80 (95% CI: 0.77–0.83), and 0.87 (95% CI: 0.85–0.89), respectively.
- *Organisational commitment* was measured using nine items in three dimensions of commitment (identification, affiliation and exchange) of the Belfour and Wechsler study. Response options were given using a seven-point Likert scores ranging from "strongly disagree" to "strongly agree" (Balfour & Wechsler, 1996). Sample items of identification of commitment include "what this organization stands for is important to me," affiliation commitment "I feel like part of the family at this organization" and exchange commitment "this organization appreciates my accomplishments on the job." Cronbach's alpha of organisational commitment in this study was 0.82 (95% CI: 0.80–0.84).
- *Workload* was assessed with four items based on perceived workload subscale in Lee et al. (2020) study with seven-point Likert scores ranging from "strongly disagree" to "strongly agree". Sample items include "I am arriving early or staying late to get my work done" and "I am working through my breaks to complete my assigned workload." Cronbach's alpha of workload in this study was 0.75 (95% CI: 0.71–0.78).
- *Job satisfaction* was measured using four question about work satisfaction adapted from Shaver and Lacey with seven-point Likert scores ranging "strongly disagree" to "strongly agree" (Shaver & Lacey, 2003). Nurses were asked to respond to four items such as "I am happy with my current work environment," "I would encourage other nurses to apply for a job here," "I like being a nurse here" and "Overall, I'm satisfied with my current job as a whole." Cronbach's alpha job satisfaction in this study was 0.91 (95% CI: 0.90–0.92).

#### 3.3 | Data analyses

We evaluated the descriptive statistics for logical inconsistencies and missing values. The assumption for the test was examined. Skewness and kurtosis scores employed to investigate the assumption of normality (D'Agostino et al., 1990). Pearson correlation analysis was then performed to examine the associations between the variables of the study. A series of mediation models were tested to explore the mediating role of job satisfaction and commitment in the association of workload, quality of supervisor, extra-role behaviours

and pay satisfaction with the intention to care using the PROCESS macro version 3.4 (Model 6) for SPSS (Hayes, 2017).

Results of the mediation models were interpreted using standardised path estimates ( $\beta$ ) and squared-multiple correlations ( $R^2$ ): 0.01–0.059 = small, 0.06–0.139 = moderate, and  $\geq 0.14$  = large (Kotrlík et al., 2011). The bootstrap method with 10,000 resamples to estimate the 95% confidence intervals (CI) was also employed to test the significance of indirect effects (Hayes, 2017; Preacher & Hayes, 2008). All data analyses were performed using SPSS version 25 and PROCESS macro version 3.4.

### 3.4 | Ethical consideration

The study aims, number of items, time to complete the questionnaire, the researcher's affiliation email for queries and ethical code of study were provided on the first page of online questionnaire. The nurses were advised that their participations were voluntary and that their responses would be published anonymously as group data. The Mazandaran University of Medical Sciences Research Ethics Committee approved the protocol of this study (IR.MAZUMS.REC.1399.7298).

## 4 | RESULTS

The mean ages of nurses were 32.90 ( $\pm 7.7$ ) (range 20–60) years old, and most were female (65.3%), married (61.9%) and had a bachelor's degree education (81.5%). The mean ( $\pm$ standard deviation) of years worked was 9.5 ( $\pm 7.4$ ) years.

The descriptive statistics indicated that all variables had a relatively normal distribution, skewness and kurtosis scores were from  $-0.92$  to  $0.74$ , as shown in Table 1. Correlation analysis results revealed that workload had a significant and negative correlations with job satisfaction, commitment, and intention to care, ranging small to moderate effect sizes ( $r$  range =  $-0.16$  to  $-0.28$ ). Quality of supervisor, extra-role behaviours, and pay satisfaction were significantly and positively associated with job satisfaction, commitment, and intention to care, ranging moderate to large effect sizes ( $r$  range =  $.27$

to  $.60$ ). Moreover, intention to care was largely and positively correlated with job satisfaction ( $r = .55$ ) and commitment ( $r = .53$ ), as shown in Table 1.

After examining the descriptive statistics and correlation analysis, several mediation models were tested to identify the mediating role of job satisfaction and commitment in the association of workload, quality of supervisor, extra-role behaviours, and pay satisfaction with intention to care. We first tested the mediation model of workload, indicating that workload was a significant predictor of job satisfaction ( $\beta = -0.18$ ,  $p < .001$ ) and commitment ( $\beta = -0.16$ ,  $p < .001$ ) but a non-significant predictor of intention to care ( $\beta = -0.02$ ,  $p = .634$ ). Job satisfaction mediated the effect of workload on commitment ( $\beta = 0.66$ ,  $p < .001$ ), and workload predicted intention to care through job satisfaction ( $\beta = 0.28$ ,  $p < .001$ ) and commitment ( $\beta = 0.35$ ,  $p < .001$ ), as shown in Table 2. Workload accounted for 3% of the variance in job satisfaction, workload and job satisfaction together explained 50% of the variance in commitment, and all variables together accounted for 34% of the variance in intention to care.

A second model showed that quality of supervisor was a significant predictor of job satisfaction ( $\beta = 0.44$ ,  $p < .001$ ) and commitment ( $\beta = 0.37$ ,  $p < .001$ ) but a non-significant predictor of intention to care ( $\beta = 0.03$ ,  $p = .508$ ). Job satisfaction mediated the effect of quality of the supervisor on commitment ( $\beta = 0.53$ ,  $p < .001$ ), and quality of the supervisor, moreover, predicted intention to care through job satisfaction ( $\beta = 0.28$ ,  $p < .001$ ) and commitment ( $\beta = 0.34$ ,  $p < .001$ ). Quality of supervisor accounted for 20% of the variance in job satisfaction, quality of supervisor and job satisfaction together explained 58% of the variance in commitment, and all variables together accounted for 34% of the variance in intention to care, as shown in Table 2.

We next tested the mediation model of extra-role behaviours, and the results revealed that extra-role behaviours was a significant predictor of job satisfaction ( $\beta = 0.42$ ,  $p < .001$ ) and intention to care ( $\beta = 0.20$ ,  $p < .001$ ) but a non-significant predictor of commitment ( $\beta = 0.05$ ,  $p = .126$ ). Job satisfaction mediated the effect of extra-role behaviours on commitment ( $\beta = 0.67$ ,  $p < .001$ ), and extra-role behaviours also predicted intention to care through job satisfaction ( $\beta = 0.21$ ,  $p < .001$ ), (Table 2). Extra-role behaviours accounted for 17% of the variance in

TABLE 1 Descriptive statistics and correlation results ( $n = 648$ )

	M	SD	Skew.	Kurt.	1.	2.	3.	4.	5.	6.	7.
1. Workload	20.01	5.51	-0.56	-0.23	-	-.17**	.11**	-.20**	-.18**	-.28**	-.16**
2. Quality of supervisor	12.86	5.42	-0.23	-0.92		-	.18**	.24**	.44**	.60**	.35**
3. Extra-role behaviours	14.44	4.47	-0.47	-0.37			-	.06	.42**	.33**	.40**
4. Pay satisfaction	8.38	3.71	0.35	-0.11				-	.34**	.41**	.27**
5. Job satisfaction	16.96	7.19	-0.17	-0.95					-	.69**	.53**
6. Commitment	36.55	11.21	-0.19	-0.04						-	.55**
7. Intention to care	170.69	27.15	-0.05	0.74							-

\*\* $p < .001$ .

TABLE 2 Unstandardised coefficients for the mediation model

Antecedent	Consequent				M <sub>1</sub> (Job satisfaction)				M <sub>2</sub> (Commitment)				Y <sub>1</sub> (Intention to care)			
	Coeff.	SE	t	p	Coeff.	SE	t	p	Coeff.	SE	t	p	Coeff.	SE	t	p
X (Workload)	a <sub>1</sub>	-0.23	0.05	-4.63	<.001	a <sub>2</sub>	-0.32	0.06	-5.54	<.001	c'	0.01	0.16	-0.48	.634	
M <sub>1</sub> (Job satisfaction)		-	-	-	d <sub>21</sub>	1.03	0.04	23.26	<.001	b <sub>1</sub>	1.06	0.17	6.44	<.001		
M <sub>2</sub> (Commitment)		-	-	-	-	-	-	-	-	-	b <sub>2</sub>	.85	0.11	7.77	<.001	
Constant	i <sub>M1</sub>	21.64	2.05	20.64	<.001	i <sub>M2</sub>	25.50	1.52	16.81	<.001	i <sub>y</sub>	123.14	5.03	24.44	<.001	
		R <sup>2</sup> = 0.03 F = 21.41; p < .001					R <sup>2</sup> = 0.50 F = 319.24; p < .001					R <sup>2</sup> = 0.34 F = 112.57; p < .001				
X (Quality of supervisor)	a <sub>1</sub>	.58	0.05	12.36	<.001	a <sub>2</sub>	.76	0.06	12.95	<.001	c'	.13	0.20	0.67	.508	
M <sub>1</sub> (Job satisfaction)		-	-	-	d <sub>21</sub>	.82	0.04	18.65	<.001	b <sub>1</sub>	1.06	0.17	6.40	<.001		
M <sub>2</sub> (Commitment)		-	-	-	-	-	-	-	-	-	b <sub>2</sub>	.82	0.12	6.88	<.001	
Constant	i <sub>M1</sub>	9.54	0.65	14.64	<.001	i <sub>M2</sub>	12.91	0.84	15.31	<.001	i <sub>y</sub>	120.91	2.99	40.44	<.001	
		R <sup>2</sup> = 0.19 F = 152.87; p < .001					R <sup>2</sup> = 0.58 F = 449.47; p < .001					R <sup>2</sup> = 0.34 F = 58.91; p < .001				
X (Extra-role behaviours)	a <sub>1</sub>	.67	0.06	11.63	<.001	a <sub>2</sub>	.12	0.07	1.53	.126	c'	1.23	0.21	5.91	<.001	
M <sub>1</sub> (Job satisfaction)		-	-	-	d <sub>21</sub>	1.04	0.05	21.31	<.001	b <sub>1</sub>	.79	0.17	4.69	<.001		
M <sub>2</sub> (Commitment)		-	-	-	-	-	-	-	-	-	b <sub>2</sub>	.82	0.10	7.90	<.001	
Constant	i <sub>M1</sub>	7.30	0.87	8.38	<.001	i <sub>M2</sub>	17.155	1.14	15.07	<.001	i <sub>y</sub>	109.51	3.49	31.34	<.001	
		R <sup>2</sup> = 0.17 F = 135.17; p < .001					R <sup>2</sup> = 0.48 F = 292.33; p < .001					R <sup>2</sup> = 0.38 F = 130.24; p < .001				
X (Pay satisfaction)	a <sub>1</sub>	.70	0.07	9.34	<.001	a <sub>2</sub>	.59	0.09	6.59	<.001	c'	.23	0.26	0.90	.369	
M <sub>1</sub> (Job satisfaction)		-	-	-	d <sub>21</sub>	.97	0.05	21.08	<.001	b <sub>1</sub>	1.05	0.17	6.32	<.001		
M <sub>2</sub> (Commitment)		-	-	-	-	-	-	-	-	-	b <sub>2</sub>	.83	0.11	7.57	<.001	
Constant	i <sub>M1</sub>	118.15	1.78	66.28	<.001	i <sub>M2</sub>	15.21	0.92	16.42	<.001	i <sub>y</sub>	120.41	3.08	39.06	<.001	
		R <sup>2</sup> = 0.12 F = 87.26; p < .001					R <sup>2</sup> = 0.51 F = 331.39; p < .001					R <sup>2</sup> = 0.34 F = 112.87; p < .001				

Abbreviations: Coeff, unstandardised coefficient; M, mediator variables; SE, standard error; X, independent variable; Y, outcomes or dependent variables.

job satisfaction, extra-role behaviours and job satisfaction together explained 48% of the variance in commitment, and all variables together accounted for 38% of the variance in intention to care.

Lastly, the mediation analysis showed that pay satisfaction was a significant predictor of job satisfaction ( $\beta = 0.35, p < .001$ ) and commitment ( $\beta = 0.19, p < .001$ ) but a non-significant predictor of intention to care ( $\beta = 0.03, p = .369$ ). Job satisfaction mediated the effect of pay satisfaction on commitment ( $\beta = 0.62, p < .001$ ), and pay satisfaction, additionally, predicted intention to care through job satisfaction ( $\beta = 0.28, p < .001$ ) and commitment ( $\beta = 0.34, p < .001$ ). Pay satisfaction accounted for 12% of the variance in job satisfaction, pay satisfaction and job satisfaction together explained 51% of the variance in commitment, and all variables together accounted for 34% of the variance in intention to care, as shown in Table 2. The indirect and total effects with 95% bootstrap confidence intervals are presented in Table 3 and Figure 1.

## 5 | DISCUSSION

To our knowledge, this study is the first of its kind in Iran context to examine the mechanism through which the nurses' intention to care for patients with COVID-19 is investigated. The study also identified factors that significantly influenced nurses' intention via applying several mediation models. The results of the first mediation model showed that job satisfaction and commitment fully mediated the relationship between nurses' workload and intention to care for patients with COVID-19. The sudden increase of workload due to abrupt surge in the number of infected people with the novel coronavirus has negatively affected job satisfaction and the commitment towards the job. The repercussions of lower level of job satisfaction and commitment were reflected in the lower intention to care for these patients. Referring to the negative impact of workload, it should be noted that hardship in the work environment might intensify the adverse influence of increased workload. For example, the stress due to elevated risk of exposure, and adherence to precautionary guidelines such as wearing tight masks, gloves, goggles and full protective clothing make the job situation arduous (Adams & Walls, 2020).

The results from the second model presented that the supervisors encouraging behaviour will increase the job satisfaction and subsequently enhance the commitment among nurses. The result of our study is consistent with vast literature that quality of supervision in the hospital wards influences the nurse behaviour (Hassan et al., 2014; Qiu et al., 2020). In healthcare systems in general, and during health crisis such as COVID-19 pandemic in particular where the human resources play a significant role (Zaghini et al., 2020), the quality of the supervision by managers contributes significantly to the caregiving process. In stressful situations where nurses are exposed to high risk of infection, the quality of support from the supervisors seems of high importance to keep nurses committed. Mutual understanding between nurses and their supervisors, trust and respect seems of high necessity to be able to provide the utmost help to patients with COVID-19 (Courtenay et al., 2020; Qiu et al., 2020).

**TABLE 3** Indirect and total effects and 95% bootstrap confidence intervals (BCI)

	Standardised			
	Estimate	SE	Lower	Upper
<b>Workload</b>				
Indirect effect through M1	-0.05	0.01	-0.08	-0.03
Indirect effect through M2	-0.05	0.01	-0.08	-0.03
Indirect effect through M1 and M2	-0.05	0.01	-0.06	-0.02
Total effect	-0.15	0.02	-0.20	-0.10
<b>Quality of supervisor</b>				
Indirect effect through M1	0.12	0.02	0.08	0.17
Indirect effect through M2	0.12	0.02	0.08	0.17
Indirect effect through M1 and M2	0.08	0.01	0.05	0.11
Total effect	0.33	0.03	0.27	0.38
<b>Extra-role behaviours</b>				
Indirect effect through M1	0.09	0.02	0.05	0.13
Indirect effect through M2	0.02	0.01	-0.01	0.04
Indirect effect through M1 and M2	0.09	0.02	0.06	0.13
Total effect	0.20	0.02	0.15	0.25
<b>Pay satisfaction</b>				
Indirect effect through M1	0.10	0.02	0.06	0.13
Indirect effect through M2	0.06	0.01	0.04	0.10
Indirect effect through M1 and M2	0.07	0.01	0.05	0.10
Total effect	0.24	0.02	0.19	0.29

Note: Number of bootstrap samples for percentile bootstrap confidence intervals: 10000.

Abbreviations: M1, job satisfaction; M2, commitment.

For example, some nurses may lack the confidence in this endeavour that will influence their intention to care about patients negatively. However, the supervisor can play an important role in consolidating the team to overcome the challenge. Since healthcare providers are very likely to be at high risk of infection, the absenteeism appears as the common problem in this situation. In such circumstances, the care of a leader will influence the commitment among nurses and causes the magnified intent to care for patients (Hassan et al., 2014).

The result of the third model showed job satisfaction can mediate the relationship between extra-role behaviour and intention

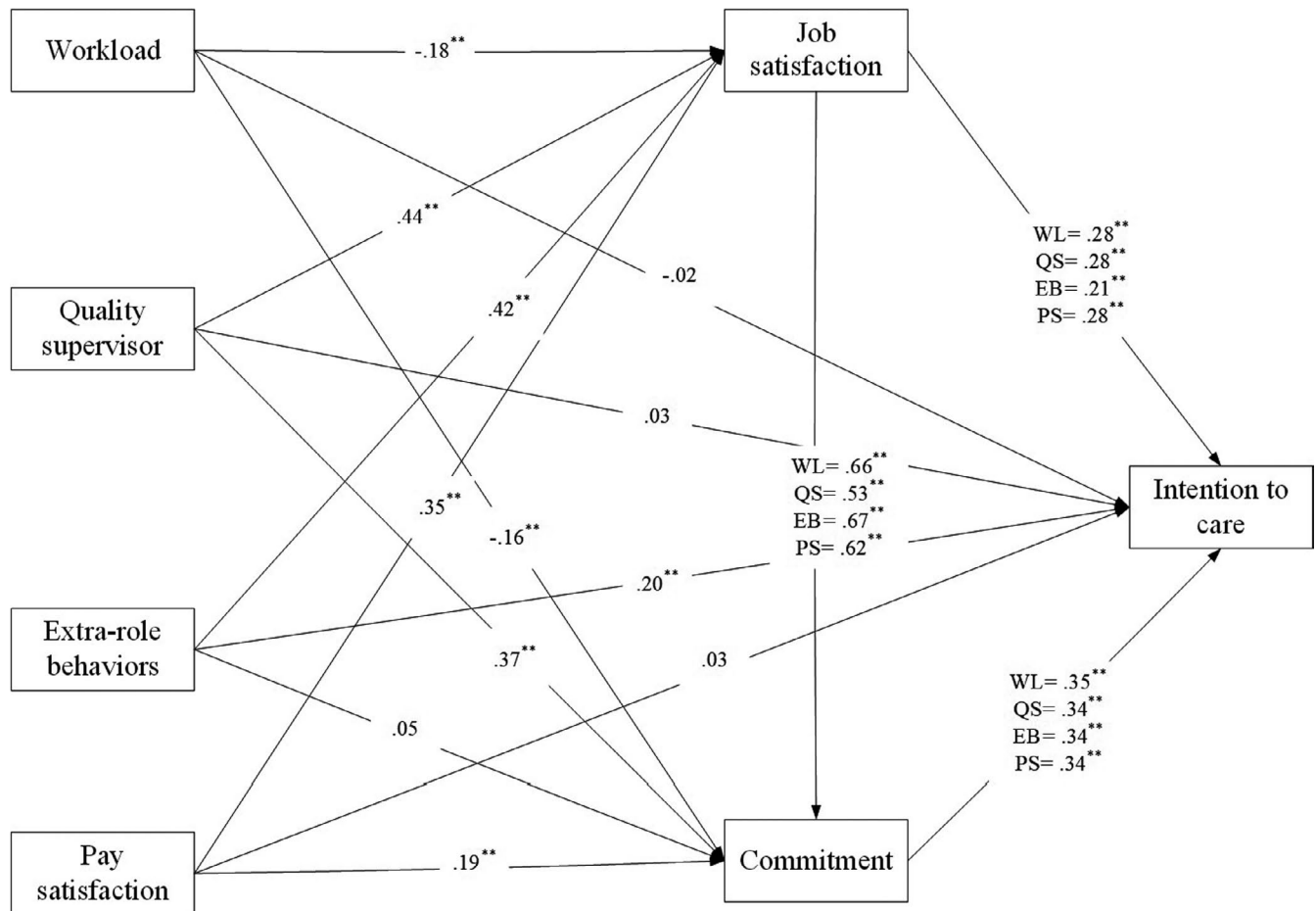


FIGURE 1 A final model of nurses' intention to care of patients with COVID-19

to care for patients with COVID-19. However, commitment failed to mediate the above-mentioned association. The result of our study is consistent with Joyce and Ranee (2020) discussing that in time of crisis, the altruistic intention of nurses seems one of the factors which lead to extra voluntary working hours with no instruction/reward for extra performance. Although this extreme effort to care about the patients is not recognised/ instructed formally by the institutions, it increases the job satisfaction among passionate nurses who consider it a must in crisis time. Subsequently, job satisfaction can increase the intention to care for patients.

The yielded result of the last model emphasises on the impact of pay satisfaction on job satisfaction and commitment. As the quality of health care directly and indirectly is linked to the nurses, the monetary compensation can improve the commitment among nurses. Especially during the pandemic when the work environment is highly risky and stressful for the nurses, the impact of pay satisfaction can play significant role to increase the satisfaction about the job. The result of the study is consistent with Manookyan who showed the direct relationship between nurse pay and their job satisfaction in Iran (Manookyan et al., 2004). The importance of pay satisfaction would be highlighted referring to the fact that Iranian nurses claim to be underpaid compared to other healthcare professionals though their responsibility and work load is similar (Atefi et al., 2015; Emami & Nasrabadi, 2007). As discussed earlier, the job satisfaction would

increase the commitment and intention to care for patients with COVID-19.

To sum up, this study endeavours to show the determinants of intention to care for patients with COVID-19 among nurses who are the front-line fighters during this pandemic. Since the novel coronavirus is announced to be more contagious than seasonal flu, the nursing job has turned out to be a challenge. In such a risky situation where "self-rescue" seems more important than others, the factors increasing the job satisfaction and commitment becomes more important than anytime to increase the intention to care among nurses. This study goes one-step further to investigate the factors affecting job satisfaction and commitment. The presented result emphasised that pay satisfaction, quality of supervision and extra-role behaviour positively contribute to job satisfaction and commitment that subsequently increase the intention to care for patients.

## 5.1 | Limitation

The study has some limitations. First, cross-sectionality of the study limits any causal conclusion. Conducting the longitudinal studies and more representative sampling methods are recommended for future studies. Second, the convenience sampling method also inhibits the generalisability of the study findings. Third, self-report measures were used to gather the data.



## 6 | CONCLUSION

The present study aimed to investigate the mediating role of job satisfaction and commitment in the association of workload, quality of supervisor, extra-role behaviours, and pay satisfaction with nurses' intention to care for the patients with COVID-19 in the Iranian context. The results of the study provide evidence to literature suggesting that psychological strengths and resources such as job satisfaction are key in contributing to nurses' intention to care for the patients with COVID-19 during the pandemic. These findings can be used to tailor effective interventions to cope with the difficulties of COVID-19 in healthcare workers.

## 7 | RELEVANCE OF CLINICAL PRACTICE

Iran such as many other countries has faced with shortage of health-care professional especially nurses to control the rising number of COVID-19 patients. To cope with the shortage of manpower in the health system, the government endeavours to implement new policies to absorb more people in this sector. The result of the current study shed lights on the importance of the pay and quality of leadership at hospitals to increase the job satisfaction and arouse the sense of commitment among nurses. Moreover, the yielded results broaden our understanding of the fact that increased workload can be a deterrence to the nurse intent to care for the patients. However, the intention to care will increase if the nurses opt voluntarily to work extra hours and provide more assistance to their colleague. In simple words, the current study is the first study in the context that highlights the positive role of taking volunteer responsibilities against the negative impact of imposed heightened workload on the nurse intention.

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### CONFLICT OF INTEREST

None.

### 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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## REFERENCES

- Abualrub, R. F., & Alghamdi, M. G. (2012). The impact of leadership styles on nurses' satisfaction and intention to stay among Saudi nurses. *Journal of Nursing Management*, 20(5), 668–678. <https://doi.org/10.1111/j.1365-2834.2011.01320.x>
- Adams, J. G., & Walls, R. M. (2020). Supporting the health care workforce during the COVID-19 global epidemic. *JAMA*, 323(15), 1439–1440. <https://doi.org/10.1001/jama.2020.3972>
- Atefi, N., Lim Abdullah, K., Wong, L. P., & Mazlom, R. (2015). Factors influencing job satisfaction among registered nurses: A questionnaire survey in Mashhad, Iran. *Journal of Nursing Management*, 23(4), 448–458. <https://doi.org/10.1111/jonm.12151>
- Balfour, D. L., & Wechsler, B. (1996). Organizational commitment: Antecedents and outcomes in public organizations. *Public Productivity and Management Review*, 19(3), 256–277. <https://doi.org/10.2307/3380574>
- Bobbio, A., & Manganeli, A. M. (2015). Antecedents of hospital nurses' intention to leave the organization: A cross sectional survey. *International Journal of Nursing Studies*, 52(7), 1180–1192. <https://doi.org/10.1016/j.ijnurstu.2015.03.009>
- Boerner, S., Dütschke, E., & Schwämmle, A. (2005). Doing voluntary extra work? Organizational citizenship behavior in the hospital—a comparison between physicians and nurses. *Gesundheitswesen (Bundesverband der Ärzte des Öffentlichen Gesundheitsdienstes (Germany))*, 67(11), 770–776.
- Courtenay, M., Burnett, E., Castro-Sánchez, E., Du Toit, B., Figueiredo, R. M., Gallagher, R., Gotterson, F., Kennedy, H., Manias, E., McEwen, J., Ness, V., Olans, R., & Padoveze, M. C. (2020). Preparing nurses for COVID-19 response efforts through involvement in antimicrobial stewardship programmes. *Journal of Hospital Infection*, 106(1), 176–178. <https://doi.org/10.1016/j.jhin.2020.06.011>
- D'Agostino, R. B., Belanger, A., & D'Agostino, R. B. (1990). A Suggestion for Using Powerful and Informative Tests of Normality. *The American Statistician*, 44(4), 316. <https://doi.org/10.2307/2684359>
- Daly, J., Jackson, D., Anders, R., & Davidson, P. M. (2020). Who speaks for nursing? COVID-19 highlighting gaps in leadership. *Journal of Clinical Nursing*, 29(15-16), 2751–2752. <https://doi.org/10.1111/jocn.15305>
- Dehghani, K., Nasiriani, K., & Salimi, T. (2016). Requirements for nurse supervisor training: A qualitative content analysis. *Iranian Journal of Nursing and Midwifery Research*, 21(1), 63. <https://doi.org/10.4103/1735-9066.174760>
- Emami, A., & Nasrabadi, A. N. (2007). Two approaches to nursing: A study of Iranian nurses. *International Nursing Review*, 54(2), 137–143. <https://doi.org/10.1111/j.1466-7657.2007.00517.x>
- Hassan, S., Wright, B. E., & Yukl, G. (2014). Does ethical leadership matter in government? Effects on organizational commitment, absenteeism, and willingness to report ethical problems. *Public Administration Review*, 74(3), 333–343. <https://doi.org/10.1111/puar.12216>
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.
- Huang, L., Lin, G., Tang, L., Yu, L., & Zhou, Z. (2020). *Special attention to nurses' protection during the COVID-19 epidemic*. BioMed Central.
- Joyce, S. N., & Ranee, M. C. (2020). Altruism, employee loyalty and organizational citizenship behaviour during COVID-19. *Tathapi with ISSN 2320-0693 is an UGC CARE Journal*, 19(24), 119–132.
- Jun, J., Tucker, S., & Melnyk, B. M. (2020). Clinician mental health and well-being during global healthcare crises: Evidence learned from prior epidemics for COVID-19 pandemic. *Worldviews on Evidence-Based Nursing*, 17(3), 182–184. <https://doi.org/10.1111/wvn.12439>

- Kotrlík, J. W., Williams, H. A., & Jabor, M. K. (2011). Reporting and interpreting effect size in quantitative agricultural education research. *Journal of Agricultural Education*, 52(1), 132–142.
- Lee, S. E., MacPhee, M., & Dahinten, V. S. (2020). Factors related to perioperative nurses' job satisfaction and intention to leave. *Japan Journal of Nursing Science*, 17(1), e12263. <https://doi.org/10.1111/jjns.12263>
- Liou, S. R. (2009). Nurses' intention to leave: Critically analyse the theory of reasoned action and organizational commitment model. *Journal of Nursing Management*, 17(1), 92–99. <https://doi.org/10.1111/j.1365-2834.2008.00873.x>
- Liu, Q., Luo, D., Haase, J. E., Guo, Q., Wang, X. Q., Liu, S., Xia, L., Liu, Z., Yang, J., & Yang, B. X. (2020). The experiences of health-care providers during the COVID-19 crisis in China: A qualitative study. *The Lancet Global Health*, 8(6), e790–e798. [https://doi.org/10.1016/s2214-109x\(20\)30204-7](https://doi.org/10.1016/s2214-109x(20)30204-7)
- Maben, J., & Bridges, J. (2020). Covid-19: Supporting nurses' psychological and mental health. *Journal of Clinical Nursing*, 29(15–16), 2742–2750. <https://doi.org/10.1111/jocn.15307>
- Malik, N., & Dhar, R. L. (2017). Authentic leadership and its impact on extra role behaviour of nurses. *Personnel Review*, 46(2), 277–296. <https://doi.org/10.1108/pr-05-2015-0140>
- Manookyan, A., Razi, P., Monjamed, Z., & Faghih, Z. S. (2004). Comparison of the nurses' job satisfaction in oncology and obstetrics wards. *Hayat*, 13(3), 49–55.
- Mo, Y., Deng, L., Zhang, L., Lang, Q., Liao, C., Wang, N., Qin, M., & Huang, H. (2020). Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. *Journal of Nursing Management*, 28(5), 1002–1009. <https://doi.org/10.1111/jonm.13014>
- Murphy, A., Abdi, Z., Harirchi, I., McKee, M., & Ahmadnezhad, E. (2020). Economic sanctions and Iran's capacity to respond to COVID-19. *The Lancet Public Health*, 5(5), e254. [https://doi.org/10.1016/s2468-2667\(20\)30083-9](https://doi.org/10.1016/s2468-2667(20)30083-9)
- Nikpouraghdam, M., Jalali Farahani, A., Alishiri, G. H., Heydari, S., Ebrahimnia, M., Samadinia, H., Sepandi, M., Jafari, N. J., Izadi, M., Qazvini, A., Dorostkar, R., Tat, M., Shahriary, A., Farnoosh, G., Hosseini Zijoud, S. R., Taghdir, M., Alimohamadi, Y., Abbaszadeh, S., Gouvarchin Ghaleh, H. E., & Bagheri, M. (2020). Epidemiological characteristics of coronavirus disease 2019 (COVID-19) patients in IRAN: A single center study. *Journal of Clinical Virology*, 27, 104378. <https://doi.org/10.1016/j.jcv.2020.104378>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891.
- Qiu, S., Dooley, L. M., Deng, R., & Li, L. (2020). Does ethical leadership boost nurses' patient-oriented organizational citizenship behaviours? A cross-sectional study. *Journal of Advanced Nursing*, 76(7), 1603–1613. <https://doi.org/10.1111/jan.14366>
- Rahmatpour, P., Sharif Nia, H. S., Froelicher, E. S., Kaveh, O., Pahlevan Sharif, S., & Taghipour, B. (2020). Psychometric evaluation of Persian version of nurses' intention to Care Scale (P-NICS) for patients with COVID-19. *International Journal of General Medicine*, 13, 515–522.
- Rothan, H. A., & Byrareddy, S. N. (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *Journal of Autoimmunity*, 109, 1–4.
- Shaver, K. H., & Lacey, L. M. (2003). Job and career satisfaction among staff nurses: Effects of job setting and environment. *JONA. The Journal of Nursing Administration*, 33(3), 166–172. <https://doi.org/10.1097/00005110-200303000-00008>
- Spiotta, A. M., & Crosa, R. (2020). Letter to the Editor: Two perspectives on the COVID-19 pandemic nobody is talking about—and it's costing lives. *World Neurosurgery*, 139, 723. <https://doi.org/10.1016/j.wneu.2020.05.004>
- Sultana, U. S., Tarofder, A. K., Darun, M. R., Haque, A., & Sharief, S. R. (2020). Authentic Leadership effect on Pharmacists Job stress and satisfaction During COVID-19 Pandemic: Malaysian Perspective. *Journal of Talent Development and Excellence*, 12(3s), 1824–1841.
- Wang, E., Hu, H., Mao, S., & Liu, H. (2019). Intrinsic motivation and turnover intention among geriatric nurses employed in nursing homes: The roles of job burnout and pay satisfaction. *Contemporary Nurse*, 55(2–3), 195–210. <https://doi.org/10.1080/10376178.2019.1641120>
- World Health Organization (2020). *WHO COVID-19 explorer*. World Health Organization, 2020. <https://covid19.who.int/>
- Wu, C.-C., Lee, W.-C., & Lin, R. S. (2012). Are employees more committed and willing to accept critical assignments during a crisis? A study of organizational commitment, professional commitment and willingness to care during the SARS outbreak in Taiwan. *The International Journal of Human Resource Management*, 23(13), 2698–2711. <https://doi.org/10.1080/09585192.2011.637056>
- Zaghini, F., Fiorini, J., Piredda, M., Fida, R., & Sili, A. (2020). The relationship between nurse managers' leadership style and patients' perception of the quality of the care provided by nurses: Cross sectional survey. *International Journal of Nursing Studies*, 101, 103446. <https://doi.org/10.1016/j.ijnurstu.2019.103446>
- Zeytinoglu, I. U., Denton, M., & Plenderleith, J. M. (2011). Flexible employment and nurses' intention to leave the profession: The role of support at work. *Health Policy*, 99(2), 149–157. <https://doi.org/10.1016/j.healthpol.2010.07.017>
- Zhang, S. X., Chen, J., Jahanshahi, A. A., Alvarez-Risco, A., Dai, H., Li, J., & Patty-Tito, R. (2020). Succumbing to the COVID-19 Pandemic: Healthcare Workers not Satisfied and Intend to Leave their Jobs. *medRxiv*, <https://doi.org/10.1101/2020.05.22.20110809>
- Zhang, S. X., Liu, J., Jahanshahi, A. A., Nawaser, K., Yousefi, A., Li, J., & Sun, S. (2020). At the height of the storm: Healthcare staff's health conditions and job satisfaction and their associated predictors during the epidemic peak of COVID-19. *Brain, Behavior, and Immunity*, 87, 144–146. <https://doi.org/10.1016/j.bbi.2020.05.010>

## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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