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RESEARCH ARTICLE

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Assessing the effect of nursing stress factors on turnover intention among newly recruited nurses in hospitals in China

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Abstract

Aim: This study sought to investigate some possible job stress factors that could influence newly recruited nurses' behaviour to either continue or discontinue their job with their organization.

Design: A cross-sectional study design was adopted for this study.

Method: Using 654 responses from novice nurses working in 20 county Chinese hospitals, we estimated the effects of six job stressors from the perceived stress scale on the turnover intention with a structural equation model in AMOS version 21 software.

Results: The results showed that four stressors, stress from taking care of patients ($\beta = 0.111$, $p < .01$), stress from roles and workload ($\beta = 0.129$, $p < .001$), stress from co-workers and daily life ($\beta = 0.323$, $p < .001$) and stress from lack of professional knowledge and skills ($\beta = 0.137$, $p < .001$), from the perceived stress scale had a significant impact on turnover intention among nurses.

KEYWORDS

job stress factors, newly recruited nurses, turnover intention

1 | INTRODUCTION

The leave of newly recruited nurses has become a bottleneck to the expansion of healthcare organizations and appears to be a waste of financial resources on nursing education (Zhang et al., 2020). The World Health Organization has projected that a 12.9 million nurse shortage will hit the world by the end of 2035 (Marć et al., 2019). Before this projection, the International Council of Nurses (2003) had earlier warned the world to be mindful of the 27.1% of newly Registered Nurses who quit their jobs within their first year of engagement. Turnover intention contributes to the nurses' shortage and heavy workload and consequently spurs other nurses to leave. In this case, healthcare delivery quality also diminishes (Al Sabei et al., 2020; Alsubhi et al., 2020; Bautista et al., 2020; Edwards-Dandridge, 2019; Van Bogaert et al., 2014).

This current study acknowledges the many researches on different factors contributing to turnover intention among nurses in many countries (Bautista et al., 2020; Labrague & Santos, 2020; Sokhanvar et al., 2018). Probably in China, one could find more work on causes of turnover intention in literature than in any other country in the world (Cao et al., 2020; Wang et al., 2020; Wu et al., 2012; Zhang et al., 2020; Zhang et al., 2017). Yet, Chen et al., (2018) concluded in their study that China has the highest turnover intention among nurses, most notably among newly recruited nurses in the world. The

high turnover intention is alarming and requires researchers and policymakers to relook at the possible factors contributing to turnover intention among nurses, primarily newly recruited nurses. Cheng et al., (2014) showed in their longitudinal study that clinical competence and clinical stress are the leading causes of newly recruited nurses' intention to leave within the 6–12 months of their practice. Zhang et al., (2017) also concluded in their longitudinal study that professional identity and occupational stress significantly contributed to newly recruited nurses intention to quit their job within the first year of practice. Yeh and Yu (2009) had earlier demonstrated that factors such as tasks in general care, leadership/management, tasks in critical care, roles/interpersonal relationships and general occupational are key predictors of turnover intention among newly recruited nurses.

This current study will consider the six different variables in the perceived stress scale (PSS) (Sheu et al., 1997) and examine whether they can influence turnover intention among newly recruited nurses in some selected hospitals in Jiangsu Province, China. Sheu et al., (2002) demonstrated the PSS variables' predictive capacity on intern nurses' stress levels (physio-psychosocial stress symptoms). Shaban et al., (2012) also showed that stress from assignments and the clinical environment in the PSS was higher than the other four stressors in causing stress in nursing students. Mohamed and Ahmed (2012) similarly demonstrated that stress from taking care of patients, stress from peers and daily life and stress from hospital staff in the PSS significantly accounted for nursing students' higher stress levels.

However, evidence from previous literature like Cheng et al., (2014) suggests that nursing stressors that affect nurses' behaviour during their clinical practice are similar to those that affect working nurses. The literature on how the PSS's variables affect newly recruited nurses' behaviour at the hospital is scarce to find in the extant literature since its development. For this reason, this current study aims to extend the literature on the PSS (Sheu et al., 1997) to turnover intention among newly recruited nurses. By newly recruited nurses, we imply those graduate nurses who have received their license, are working and are within their first year of employment as newly licensed Registered Nurses. The relationship between the six job stress factors and turnover intention is graphically presented in Figure 1.

2 | BACKGROUND

Nurses' turnover intention has become a severe problem that health institutions always have to battle with (Edwards-Dandridge et al., 2020), mainly among newly recruited nurses (Cheng et al., 2014; Hung & Lam, 2020). Previous studies have also highlighted that stress obviously could be the possible reasons behind newly recruited nurses' willingness to leave (Cheng et al., 2014; Yeh & Yu, 2009; Y. Zhang et al., 2017).

Stress is defined as the response one shows when he or she is confronted with demands more than what his/her ability can handle. Stress is induced by factors known as stressors (Cooper & Marshall, 1978; Selye, 1956; Sheu et al., 2002). Stress in the healthcare sector can emanate from taking care of patients, unit managers, supervisors and physicians, roles and workload, co-workers and daily life, lack of professional knowledge and skills, and the working environment (Sheu et al., 2002). Newly recruited nurses often have to deal with these stressors, and their ability to handle them can influence their desire to either continue or discontinue the nursing profession.

2.1 | Stress from taking care of patients and turnover intention

Newly recruited nurses usually have little experience in managing patient's information and caring for the patients (Sheu et al., 2002). For example, not knowing how to communicate with patients and being

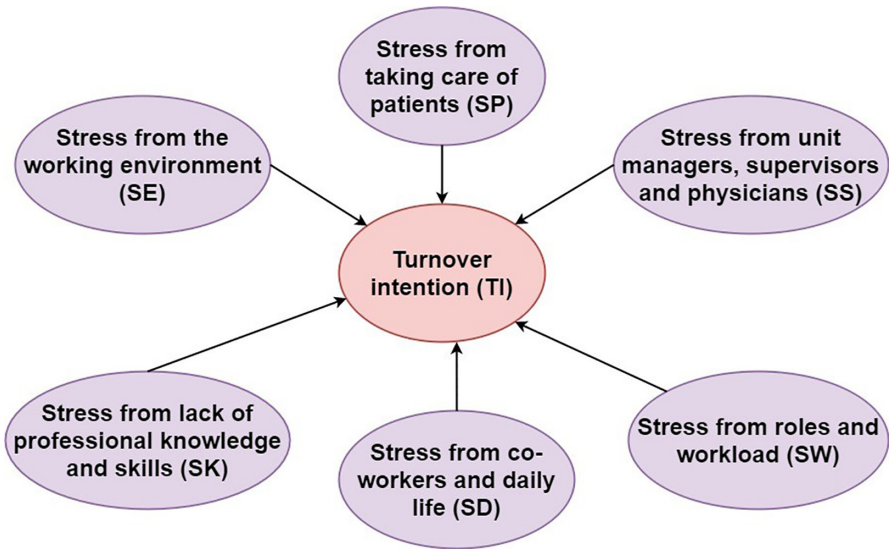

FIGURE 1 Relationship between nursing job stress factors and turnover intention

unable to provide them with excellent nursing care can develop negative emotions such as depression, anxiety, fear and anger (Cheung & Yip, 2015; Seabrook et al., 2016). These nurses may also not be aware of the expectations their patients would want from them. They may employ wrong clinical methods, creating problems between them and their patients (Donilon & Donilon, 2013). This stressful event where newly recruited nurses are uncertain about their patients' expectations can compel them to leave the nursing profession (Tang et al., 2002). From this background, we hypothesize that,

H 1 Stress from taking care of patients has a significant influence on turnover intention.

2.2 | Stress from unit managers, supervisors, and physicians, and turnover intention

Some unit managers, supervisors and physicians may bully these new nurses and make the workplace unfriendly for them to function. In some instances, unnecessary demands may be made by unit managers, supervisors or physicians, with which the newly recruited nurses could not comply. This condition can create a poor relationship between freshly hired nurses and their superiors. Some superiors can even poorly rate these newly recruited nurses. A newly hired nurse who cannot bear this will seek to exit the healthcare sector (Lim et al., 2010). A study reported that nurses were generally angry and complained about nursing administrators being absent from their daily activities and not providing them with adequate support and recognition (Dunn, 2003). Therefore, we hypothesize that,

H 2 Stress from unit managers, supervisors and physicians has a significant influence on turnover intention.

2.3 | Stress from roles and workload and turnover intention

Another nursing stress factor influencing newly recruited nurses' turnover intention is the hospital's role and workload. Some of these assignments and workloads can break the nurses down both physically and psychologically. Cho and Kim (2014) reported that most nurses, mainly newly recruited ones, may wish to leave the health profession when they cannot cope with the roles and heavy workload they are expected to perform. With the increasing nursing shortage, due to the high level of turnover, remaining nurses (including newly hired ones) are at times assigned different, multiple responsibilities, making their workload heavier and more complex. However, the absence of a clear description of their role and tasks may result in some confusion as to what they are expected to do at any given moment or situation, which may increase their level of stress and still rush their leaving (Yau et al., 2012). On this note, we hypothesize that,

H 3 Stress from roles and workload has a significant influence on turnover intention.

2.4 | Stress from co-workers and daily life, and turnover intention

As beginners, nurses sometimes have difficulties integrating into their new work environment; that is why they need their colleagues' support and encouragement. Cho et al., (2012) highlights that neophyte nurses might feel unaccepted, isolated and uneasy about sharing their struggles with other nurses. Moreover, as employees are rational beings, they may compare their work to other peers or co-workers in other organizations (Wilkin, 2012). Newly recruited nurses may do as well and compare their lives and what they benefit from their hospitals with other colleagues working for various institutions. Once these freshly recruited nurses realize that their colleagues receive better packages and live a more comfortable life than they do, they may be tempted to leave their institutions for better offers. On this basis, we hypothesize that,

H 4 Stress from co-workers and daily life has a significant influence on turnover intention.

2.5 | Stress from lack of professional knowledge and skills and turnover intention

Furthermore, Cheng et al., (2014) found evidence in their study to support the relationship between clinical competence and nurses' intention to leave. Most newly recruited nurses are fresh graduates who just migrated from students to staff nurses. They may have a lot to learn to fit nicely into their roles as nurses. Nurses who may struggle to improve their professional skills and knowledge may prefer to leave the nursing profession (Dvořáková et al., 2019). From this background, we hypothesize that.

H 5 Stress from lack of professional knowledge and skills has a significant influence on turnover intention.

2.6 | Stress from the working environment and turnover intention

As the first impression is crucial in all works of life, the one new nurses have from their work environment when they start work can comfort them in choosing the right profession. Besides, a safe and pleasing work environment makes workers feel happy (Salehi et al., 2020). For example, if the work environment offers protection for workers' well-being, a newly recruited nurse may wish to stay (Kang et al., 2020). However, if the work environment does not care about employees' safety and well-being, newly recruited nurses may have a different option, such as having the intention to leave (Chen et al., 2018; Coudounaris et al., 2020). On this basis, we hypothesize that,

H 6 Stress from the working environment has a significant influence on turnover intention.

3 | METHODS

3.1 | Research study design and setting

This work was a descriptive and cross-sectional study that adhered to the STROBE guidelines. Data were collected from newly recruited nurses working in county hospitals across Jiangsu Province in China, using an online questionnaire survey. County hospitals are medium-sized hospitals (100–500 beds), also known as second-level hospitals, offering comprehensive medical and healthcare services in small cities in the county or district (Zhang et al., 2013). The online approach for collecting data was employed because it allows a large number of the population to access the questionnaires easily and participate. The available instruments were in the English version. Following Shaban et al., (2012) recommendation, we adopted the English version of the scales and translated them into Chinese to prevent language issues. The translation was done by a language expert who speaks and writes both English and Chinese. Before the final survey was sent online, we conducted face validity and pilot testing on 107 newly engaged nurses who were not included in the final survey. The pilot study helped to be sure about the Chinese nurses' readability and comprehension of the scales and to ensure items truly measure what they are meant to measure. Three professors and colleague doctoral students whose research field is in management and health policy in the authors' university judged and certified the content validity of the scales employed for this study. The reliability of the piloted instruments was established through Cronbach alphas. The reliability of the combined Cronbach alpha for the six job stress factors was 0.78, and that of the turnover intention instrument was 0.83. The results from the pilot testing of the measurement items were also convincing; hence, the necessary steps to ensure that the final questionnaires reached the targeted population were followed.

3.2 | Participants

A purposive and convenient sampling technique was used to select 20 county hospitals in Jiangsu province and 700 newly recruited nurses working in those hospitals. Concerning the sample size, many researchers have contended that the overall sample size should focus on the ratio of participants to items suitable for factor analysis (Chatterjee & Hadi, 2015; Sprent & Smeeton, 2016). It usually is referred to as a sample to the variable-ratio, which is represented as the *N*: p ratio, where *N* stands for the number of participants, while *p* denotes the number of items. For this study, a 10:1 ratio was used, indicating 10 participants to each item to be analysed as proposed by Cattell (1978) and cited by (Kline, 2014). The study had 32 items, implying that a total number of 320 respondents was sufficient for the survey. However, a higher sample was judged preferable in this study.

After the various hospital authorities had approved, the online survey was published at the beginning of August 2019. The final responses were collected at the end of that same month. Meanwhile, the web link and QR code containing the online survey questionnaire were forwarded to the hospital administrators of the various hospitals. They then helped share them in their professional networking groups of newly recruited nurses. In assessing the survey analysis items, respondents could easily access the online survey using their phones to log in to the web link or scan the QR code. Each question in the survey was designed so that refusal to answer an item would not be possible. This situation was not new to the participants because they were previously informed when the research team visited the selected hospitals. Newly graduated nurses within their first year of work as Registered Nurses were then eligible to participate willfully in the survey under optimum anonymity and confidentiality. Those who had work experience in other hospitals, working part-time, and on leave during the study period for health, maternity or other reasons were not eligible for this study. Ensuring that nurses who filled the questionnaire met the study's definition required us to include in the questionnaire an open-ended item such as "How long have you been working in this hospital as a graduated nurse newly hired?". This question was deliberately included to help delete respondents who did not fall within the newly recruited nurses' definition. Fortunately, all the answers from the respondents met the study's intent. Of the 700 nurses who were conveniently recruited for the survey, a total of 660 responses were received, representing 94.3% of the response rate. Of the 660 responses, only six (6), representing 0.009%, were male nurses, and 654 (99.09%) were female nurses. Since various studies have highlighted the fact that factors affecting nursing stress reactions differ significantly between males and females (Warnet, 2013; Yada et al., 2014), we did not include the male answers for subsequent analysis to avoid potential confounds. The decision to drop the six male responses from the further investigation was also in agreement with previous studies (Tao et al., 2018; Wang et al., 2012). The study finally worked with 654 (99.09%) valid responses from female newly recruited nurses.

3.3 | Survey instruments

3.3.1 | Nurses' job stress factors

Nurses' job stress factors were measured with twenty-nine items assessing six variables adopted from the perceived stress scale (PSS) developed by Sheu et al., (1997). This scale was initially developed for nursing students doing their clinical practices and since then has received a lot of recognition in studies on nursing students' stress. The six variables included stress from taking care of patients, stress from teachers and nursing staff, stress from assignments and workload, stress from peers and daily life, stress from lack of professional knowledge and skills and stress from the environment. The Cronbach's alpha of the original scale was 0.89, with the 1-week test–retest reliability of 0.60 ($p < .01$), showing good internal consistency reliability (Sheu et al., 1997). However, Cheng et al., (2014) demonstrated that stressors that affect nurses'

behaviour during their clinical practice are similar to stressors that affect newly recruited nurses' behaviour. From this background, to suit this current study's context and objectives, we adopted and slightly reworded some of the perceived stress scale factors to measure the stressors newly recruited nurses are likely to encounter in their first few months of employment. For instance, stress from assignments and workload was changed to stress from roles and workload. Stress from teachers and nursing staff was changed to stress from unit managers, supervisors and physicians, and stress from peers and daily life was changed to stress from co-workers and daily life. The modifications did not cause any significant change to the content validity of the scale. All items were measured on a seven-point Likert ranging from "1 = never," "2 = rarely," "3 = seldom," "4 = sometime," "5 = frequently," "6 = often" to "7 = always." The total score ranged from 1–203, with a high score indicating a higher degree of stress.

3.3.2 | Turnover intention

The turnover intention was measured with three items adopted from the work of Singh et al., (1996). This scale has been proven to be valid and reliable since it has been widely used in research to measure turnover intention (Mustafa & Ali, 2019; Qureshi & Aleemi, 2018; Wang & Wang, 2020). The Cronbach's alpha of the original scale was 0.89, showing good internal consistency reliability (Singh et al., 1996). Items were also measured on a seven-point Likert scale ranging from "1 =never" to "7 = always." This turnover intention scale's total score ranged from 1–21, and a high score suggested a higher degree of turnover intention.

3.3.3 | Control variables

Marital status, employment status and salary have been suggested to have a significant influence on health workers' turnover intention (Lee & Kang, 2018). Therefore, this current study employed the above three demographic characteristics variables as control variables in the structural effect model.

3.4 | Ethical consideration

The ethical approval was obtained before the conduction of this study and was first delivered by the Academic Research Board of Jiangsu University, with the approval number JU-ERC: 07/05/19. Besides, the selected hospitals' ethics and internal review boards also gave their permission and support for the data collection. All the respondents willingly participated in this study and were informed about the aim of the study. They were also assured of optimum anonymity and confidentiality of their responses. The respondents were made aware that their responses were for only academic exercise.

TABLE 1 Kaiser–Meyer–Olkin and Bartlett's Test

Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		0.878
Bartlett's Test of Sphericity	Approx. chi-square	13,548.36
	df	465
	p	<.001

3.5 | Data analysis

This research work utilized the SPSS version 21 software and structural equation model (*SEM*) in AMOS version 21 software to analyse the data. The SPSS was used to analyse the descriptive aspect of the data. In contrast, *SEM* was used to analyse the relationships between the six job stressors and turnover intention among newly recruited nurses.

SPSS was also used to perform exploratory factor analysis to ensure that the survey items were loaded under their predicted components. During this process, the value for the Kaiser–Meyer–Olkin measure of sampling adequacy (KMO-MSA) and Bartlett's test of sphericity (BTS) in determining the data suitability for factor analysis were within acceptable thresholds, as illustrated in Table 1. Thus, it indicates that the chosen variables were adequately efficient for factor analysis.

4 | RESULTS

4.1 | Analysis of respondents' characteristics

The average age of the 654 respondents was 21.88, with a standard deviation of 0.973. Regarding the respondents' educational level, 157 (24.0%) had completed a professional nursing school, and 497 (76%) had completed university education. Concerning the salaries of the respondents, 37 (5.66%) received less than 3,000 RMB, 88 (13.46%) of the participants received between 3001–4000 RMB, 96 (14.68%) received salaries ranging from 4001–5000 RMB, and 433 (66.21%) respondents received wages higher than 5,000 RMB. There were 147 (22.48%) married respondents, while 507 (77.52%) were single. Also, 386 (59.0%) of the respondents had been employed on a contract basis, while 268 (41.0%) were formally employed.

4.2 | Reliability and validity of used scales

The analytical procedure was conducted at a two-staged level. First, data integrity checks were performed using an ensemble of prescribed techniques (Tennant & Pallant, 2006) as espoused by (Shi et al., 2017). The recorded values of Kaiser–Meyer–Olkin measure of sampling adequacy (KMO-MSA) (0.878) and Bartlett's test of sphericity (BTS) (X^2 = 13,548.36; *df* = 465; $p < .001$) in establishing the appropriateness of the data for factor analysis were within

acceptable thresholds, as shown in Table 1. Thus, implying that the employed variables were sufficiently efficient to perform factor analysis. Additionally, the exploratory factor analysis (see Table 2) led to deleting one item that recorded a lower factor loading, less than 0.50 from the scale of "stress from taking care of patients." The seven factors together had an eigenvalue of 22.672, with a total variance of 73.136% (see Table 3).

TABLE 2 Rotated component matrix

	1	2	3	4	5	6	7
SP1	0.892						
SP2	0.839						
SP8	0.826						
SP3	0.81						
SP5	0.804						
SP7	0.783						
SP6	0.781						
SW5		0.931					
SW2		0.866					
SW3		0.864					
SW4		0.855					
SW1		0.854					
SS1			0.82				
SS5			0.775				
SS6			0.753				
SS2			0.751				
SS4			0.727				
SS3			0.721				
SD1				0.88			
SD4				0.809			
SD3				0.804			
SD2				0.781			
SK3					0.919		
SK2					0.915		
SK1					0.911		
TI2						0.879	
TI3						0.838	
TI1						0.83	
SE1							0.863
SE2							0.819
SE3							0.776

Note: SP4 was deleted for lower factor loadings.

Stress from taking care of patients (SP1, SP2, SP3, SP4, SP5, SP6, SP7, SP8); stress from unit managers, supervisors, and physicians (SS1, SS2, SS3, SS4, SS5, SS6); stress from roles and workload (SW1, SW2, SW3, SW4, SW5); stress from co-workers and daily life (SD1, SD2, SD3, SD4); stress from lack of professional knowledge and skills (SK1, SK2, SK3); stress from the working environment (SE1, SE2, SE3); turnover intention (TI1, TI2, TI3).

Furthermore, previous studies have suggested that exploratory factor analysis is not enough to establish validity and reliability. Therefore, we went further to perform confirmatory factor analysis (CFA). The reason was to verify additional validity and reliability for the scales, with particular attention to the CFA loadings, average variance extracted (AVE), discriminant validity ($\sqrt{}$AVE) and composite reliability.

This current study performed confirmatory factor analysis (see Tables 4 and 5) to establish additional validity and reliability for the scales. The confirmatory factor analysis (see Figure 2) displayed a model fit measures of chi-square (X^2) = 550.318, normed chi-square =1.332, standardized root mean residual (SRMR) = 0.028, goodness-of-fit index =0.949, Tucker–Lewis fit index (TLI) =0.988, comparative fit index (CFI) =0.99 and room mean square error of approximation (RMSEA) =0.023. The confirmatory factor analysis revealed that all the scales chosen for the study had factor loadings greater than 0.50, and they were all significant at 0.001. The scales' composite reliability values were from 0.783–0.946, and they are higher than the 0.70 thresholds suggested in previous studies (Joreskog & Sorbom, 1993), hence showing high internal consistency. The average variance extracted values for the scales ranged from 0.541–0.842, and they are higher than the 0.50 threshold recommended by Joreskog and Sorbom (1993), showing high convergent validity. As shown in bold along the correlation's diagonal path, the discriminant validity values are greater than the inter-factor correlation coefficients (see Table 5), hence showing that the variables are unique and distinct from each other.

4.3 | Hypotheses testing

In analysing the various hypothesized relationships in this study, path analysis in the structural equation model was used (see Figure 3). The model fit for the structural model achieved very good fit to the data set (X^2 = 1,260.468, X^2/df = 2.419, GFI = 0.889, TLI = 0.941, CF1 = 0.945, RMSEA = 0.047) even after controlling for variables such as salary, marital status and employment status. These control variables proved to have a significant influence on turnover intention. For instance, employment status proved to have a significant negative influence on turnover intention ($\beta = -0.115$, $p < .01$). Also, salary had a significant negative influence on turnover intention ($\beta = -0.106$, $p < .01$). Marital status as well had a significant negative influence on turnover intention ($\beta = -0.098$, $p < .01$). These findings support the work of Lee and Kang (2018), Lee and Kim (2020), and Yeh and Yu (2009), who concluded that elements of demographic characteristics are essential in studies on stress and turnover intention.

The path analysis results presented in Table 6 show that stress from patients had a significant impact on turnover intention, thereby supporting H1. Stress from unit managers, supervisors and physicians had no significant influence on turnover intention; hence, H2 was not supported. Also, stress from roles and workload significantly affected turnover intention, thereby supporting H3. Stress from co-workers and daily life significantly influenced newly recruited nurses'

TABLE 3 Total variance explained by the stress factors and turnover intention

Variables	Component	Eigenvalues	% of variance explained	Cumulative % of variance
Stress from taking care of patients	1	7.209	23.255	23.255
Stress from roles and workload	2	4.842	15.619	38.874
Stress from unit managers, supervisors and physicians	3	2.67	8.612	47.486
Stress from co-workers and daily life	4	2.326	7.505	54.991
Stress from lack of professional knowledge and skills	5	2.116	6.827	61.817
Turnover intention	6	1.919	6.19	68.007
Stress from the working environment	7	1.59	5.129	73.136

turnover intention; hence, H4's support. Furthermore, stress from lack of professional knowledge and skills significantly influenced newly recruited nurses' turnover intention. Therefore, H5 was supported. Stress from the working environment had no statistically significant impact on turnover intention. Hence, H6 was not supported.

5 | DISCUSSIONS

This study examined the effect of six job stressors on turnover intention using 654 newly recruited nurses in China. The study also assessed the validity and reliability of the scales. From the study's outcome, all the six job stressors of the perceived stress scale have been proven to have high reliability and validity. The research has also demonstrated the predictive effect of job stress factors on newly recruited nurses' turnover intention. Details of the discussions are provided below:

5.1 | Effect of stress from taking care of patients on turnover intention

For instance, stress from patients had a significant positive impact on turnover intention. As most patients feel uncertain about the care they receive from newly recruited nurses, they may have a poor attitude towards them (Donilon & Donilon, 2013). Consequently, nurses can develop negative emotions such as depression, anxiety, fear or anger when they do not know how to communicate with patients and cannot provide them with excellent nursing care (Seabrook et al., 2016). For example, with the overall improvement of the national economy and Chinese citizen's lifestyle, the pressure on nurses by patients and their families for a better quality of care services is higher (Lyu et al., 2019; Wang et al., 2019; Wang et al., 2018). This situation can be highly challenging for a new nurse's clinical practice, affect him/her psychologically and cause him/her to feel inferior. Affected employees may choose to leave when they can no longer bear the pain of their patients' stress. However, it has been reported that nurses feel very satisfied when there are empathetic and able to effectively address patients' issues and answer their questions and relatives (Hayes et al., 2013).

5.2 | Effect of stress from roles and workload on turnover intention

Furthermore, stress from roles and workload had a significant positive impact on turnover intention, and this outcome supports some similar findings in the works of Zeytinoglu et al., (2007) and Han et al., (2015). Newly recruited nurses often spend their first year of work to overcome the differences between the theory learned in school and the clinical practice and accommodate themselves to their new responsibilities and roles (Duchscher, 2009; Yeh & Yu, 2009). They may still be green and not have the tenacity to handle complex and challenging roles and heavy workload. This condition may make them feel incompetent and worry about their future in the healthcare profession. They may opt for careers that their abilities can bear, hence may consider leaving.

5.3 | Effect of stress from co-workers and daily life on turnover intention

Also, stress from co-workers and daily life positively and significantly impacted turnover intention, providing support for previous studies (Wilkin, 2012). Nurses who often feel threatened by their working peers, as well as challenges that daily life may pose, may opt for exit response. The turnover intention may increase whether the newly recruited nurses perceive that their colleagues who they completed college with but are working in different institutions have better service' conditions and live a more beautiful life. Newly recruited nurses who are not conditioned to understand and accept the healthcare sector's objectives may have lower job satisfaction and wish to leave. Thus, they feel more stressed when the working environment is more competitive than supportive. They need help, support and mentorship to develop their learning and practice skills, which will improve their service care delivery, increase their satisfaction and reduce their intention to leave (Cheng et al., 2014; Zhang et al., 2017).

TABLE 4 Results of standardized factor loadings of confirmatory factor analysis

Variables/Items		Factor loadings	SE.	CR.	*p*
Stress from taking care of patients (SP)					
SP1	Lack of experience and ability in providing nursing care and in making judgments.	0.899			
SP2	Do not know how to help patients with physio-psycho-social problems	0.807	0.032	27.38	***
SP3	Unable to reach one's expectations	0.783	0.032	25.895	***
SP5	Worry about not being trusted or accepted by patients or patients' family	0.784	0.033	25.981	***
SP6	Unable to provide patients with good nursing care	0.731	0.035	23.024	***
SP7	Do not know how to communicate with patients	0.751	0.034	24.074	***
SP8	Experience difficulties in changing from the role of a recruit to that of a nurse	0.796	0.033	26.689	***
Stress from unit managers, supervisors and physicians (SS)					
SS1	Experience discrepancy between theory and practice	0.851			
SS2	Do not know how to discuss patients' illness with physicians and medical nursing personnel	0.714	0.044	20.108	***
SS3	Feel stressed that physician's instruction is different from one's expectations	0.687	0.043	19.101	***
SS4	Unit managers and supervisors lack empathy and are not willing to help	0.678	0.044	18.771	***
SS5	Feel that physicians and supervisors do not give a fair evaluation on newly recruited nurses	0.752	0.043	21.563	***
SS6	Lack of care and guidance from physicians and supervisors	0.716	0.044	20.16	***
Stress from roles and workload (SW)					
SW1	Worry about a bad appraisal	0.836			
SW2	Experience pressure from the nature and quality of clinical work	0.853	0.035	28.389	***
SW3	Feel that one's performance does not meet the hospital's expectations	0.862	0.035	28.918	***
SW4	Feel that the requirements of the workload at the clinic exceed one's physical and emotional endurance	0.851	0.037	28.294	***
SW5	Feel that dull and inflexible workload affects one's family and social life	0.996	0.032	37.586	***
Stress from co-workers and daily life (SD)					
SD1	Experience competition from co-workers	0.959			
SD2	Feel pressure from physicians and supervisors who evaluate newly recruited nurses' performance by comparison	0.713	0.037	22.707	***
SD3	Feel that working as a new nurse affects one's involvement in extracurricular activities	0.757	0.035	25.059	***
SD4	Cannot get along with other peers in the group	0.793	0.031	27.261	***
Stress from lack of professional knowledge and skills (SK)					
SK1	Unfamiliar with medical history and terms	0.883			
SK2	Unfamiliar with professional nursing skills	0.9	0.03	34.377	***
SK3	Unfamiliar with patients' diagnoses and treatments	0.968	0.028	39.078	***
Stress from the working environment (SE)					
SE1	Feel stressed in the hospital environment where surgical activities take place	0.896			
SE2	Unfamiliar with the ward facilities	0.699	0.054	14.224	***
SE3	Feel stressed from the rapid change in patient's condition	0.605	0.054	13.121	***

TABLE 4 (Continued)

Variables/Items		Factor loadings	SE.	CR.	*p*
Turnover intention (TI)					
TI1	Likely, I will actively look for a new job next year	0.739			
TI2	I often think about quitting	0.959	0.055	20.29	***
TI3	I will probably look for a new job next year	0.716	0.053	18.377	***

Abbreviations: CR, critical ratio; SE, standard error.
***$p < .001$.

TABLE 5 Validity and reliability and Inter-factor correlation analysis

	CR	AVE	SP	SS	SW	SD	SK	SE	TI
SP	0.923	0.631	**0.794**						
SS	0.875	0.541	0.043	**0.736**					
SW	0.946	0.777	0.067	0.446***	**0.882**				
SD	0.884	0.658	0.260***	0.350***	0.237***	**0.811**			
SK	0.941	0.842	0.007	0.325***	0.343***	0.205***	**0.918**		
SE	0.783	0.552	0.130**	0.177***	0.122**	0.215***	0.146***	**0.743**	
TI	0.851	0.659	0.187***	0.170***	0.224***	0.367***	0.218***	0.076†	**0.812**

Note: Bolded values represent the discriminant validities.
Abbreviations: AVE, average variance extracted; CR, composite reliability; SD, stress from co-workers and daily life; SE, stress from the working environment; SK, stress from lack of professional knowledge and skills; SP, stress from taking care of patients; SS, stress from unit managers, supervisors, and physicians; SW, stress from roles and workload; TI, turnover intention.
†$p < .10$.
**$p < .01$.; ***$p < .001$.

5.4 | Effect of stress from lack of professional knowledge and skills on turnover intention

Additionally, stress from a lack of professional knowledge and skills obtained a significant positive influence on turnover intention, supporting the findings of Cheng et al., (2014). Newly recruited nurses may not seem to possess all or most of the requisite knowledge, skills, and abilities necessary to make them work efficiently and effectively as expected. In their beginnings, nurses have limited and inflexible clinical behaviour; they follow instructions and are almost told what to do (Benner, 1982, 1984). This condition makes them commit minor mistakes that experienced nurses may not make. They may receive a few occasional reprimands, making them feel psychologically distressed and want to leave (Fink et al., 2008).

5.5 | Effects of stress unit managers, supervisors and physicians, and stress from the environment on turnover intention

Stress from unit managers, supervisors and physicians, and stress from the working environment had no statistically significant impacts on turnover intention among newly recruited nurses. These results are consistent with the findings of Chan et al., (2009) and Sheu et al., (2002). However, they disagree with the results of Karaca et al., (2017), and Shaban et al., (2012), where the above two insignificant job stressors were instead ranked as the first factors causing stress to nurses. One possible reason could be that items for these variables could not extract their intended purposes. Another possible explanation could be that respondents were cautious in answering items for these variables and eventually erred in providing appropriate answers. According to Vinodkumar and Bhasi (2010), respondents could give different interpretations to a particular variable and their corresponding items measuring it. This condition happens when there are items that seek information about one's superior or employer, which respondents may be cautious about answering. And when this happens, the affected variables' predictive capacity may be weakened in a structural model. Furthermore, the newly recruited nurses exposed to stress from unit managers, supervisors and physicians, and stress from the environment may withdraw from any relationship, thereby breaking any connection between stress and outcome. All the reasons mentioned above could have accounted for the insignificant effects of stress from unit managers, supervisors and physicians, and stress from the environment on turnover intention.

6 | LIMITATIONS OF THE STUDY

This current study had some limitations. One limitation is that other existing factors could have contributed to the stressors' possible effects on turnover intentions. Future studies could consider the

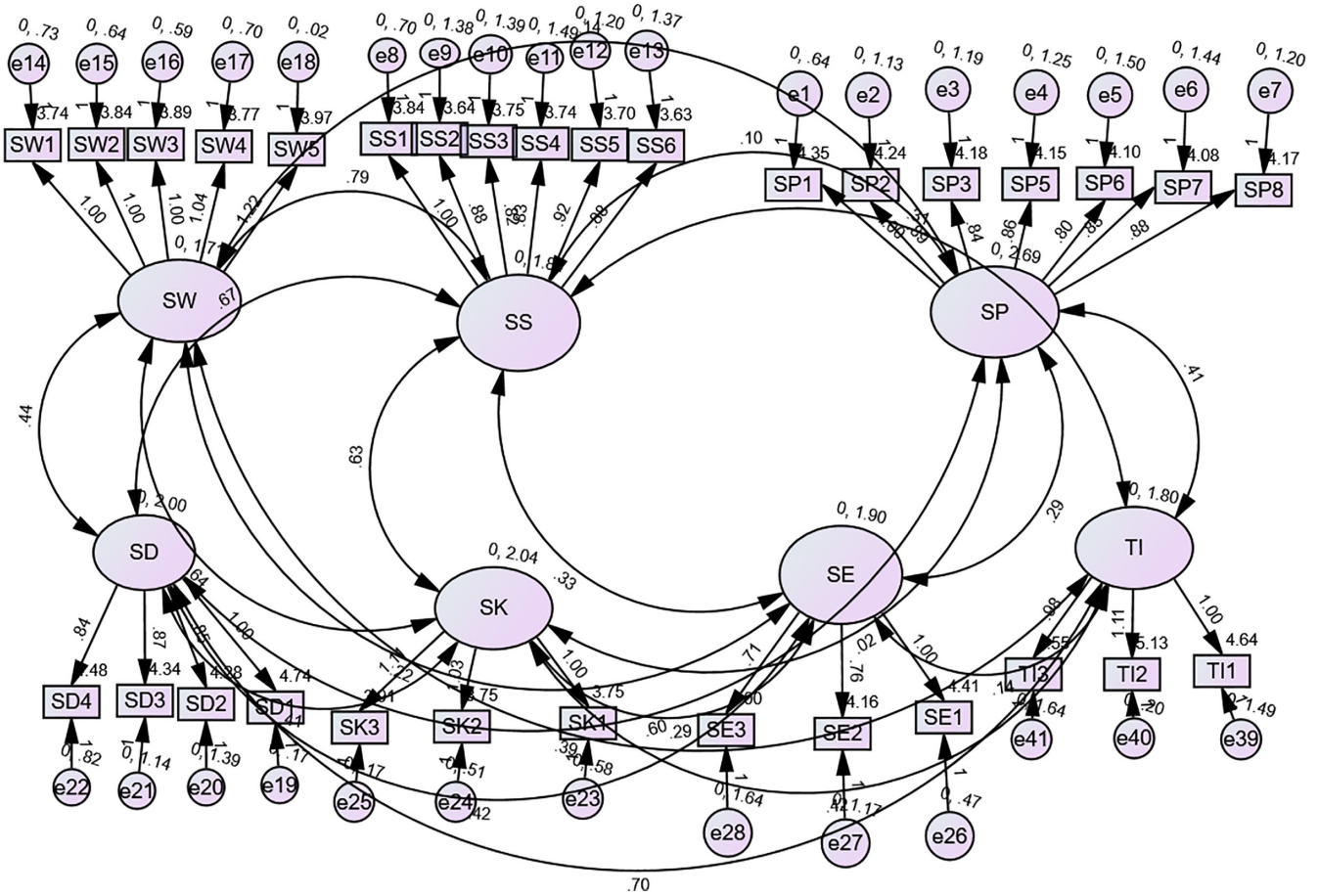

FIGURE 2 Confirmatory factor analysis for nurses' job stress factors and turnover intention

mediating variables such as organizational commitment and job satisfaction to ascertain whether stressors on their own can still influence newly recruited nurses' intention to leave the healthcare profession. Another limitation of the study was that only female nurses were considered for the survey analysis since there were just six responses from male nurses. Though the study followed an acceptable approach in related literature (Tao et al., 2018; Wang et al., 2012) to exclude the six male respondents from the final survey analysis, it does not allow generalizability of results. The few male responses could have emanated from concentrating on just twenty county hospitals in Jiangsu province, China, hence affecting the study's generalizability. Further studies should consider increasing the scope to include more hospitals in different provinces. A nationwide survey of job stress and turnover intention would be preferable.

7 | IMPLICATIONS OF THE STUDY

This present study also has both theoretical and practical implications. Regarding the theoretical implications, this study has extended the work of Sheu et al., (1997) to newly recruited nurses. The research has demonstrated that the perceived stress scale developed primarily to test the perceived stressors that affect nursing students' behaviour during their clinical practices can also be employed in other domains of healthcare studies. Of the six job stressors in the perceived stress scale, only four have been demonstrated to impact newly recruited nurses' intentions significantly. Moreover, the six stressors' validity and reliability in the perceived stress scale have received further endorsement in this current study. Practically, this study has demonstrated that stressors are vital in determining whether newly recruited nurses will continue the nursing profession or not. Therefore, it is essential to develop a sound mentorship system to prepare and support freshly hired nurses, especially in their first year of employment.

8 | CONCLUSION

This study has shown that nurses' job stress factors could increase newly recruited nurses' intention to quit their jobs. Among the PSS, nurses' job stress factors such as stress from taking care of patients, stress from roles and workload, stress from co-workers and daily life, and stress from lack of professional knowledge and skills proved to have a significant impact on their turnover intention. On the contrary, stress from unit managers, supervisors and physicians, and

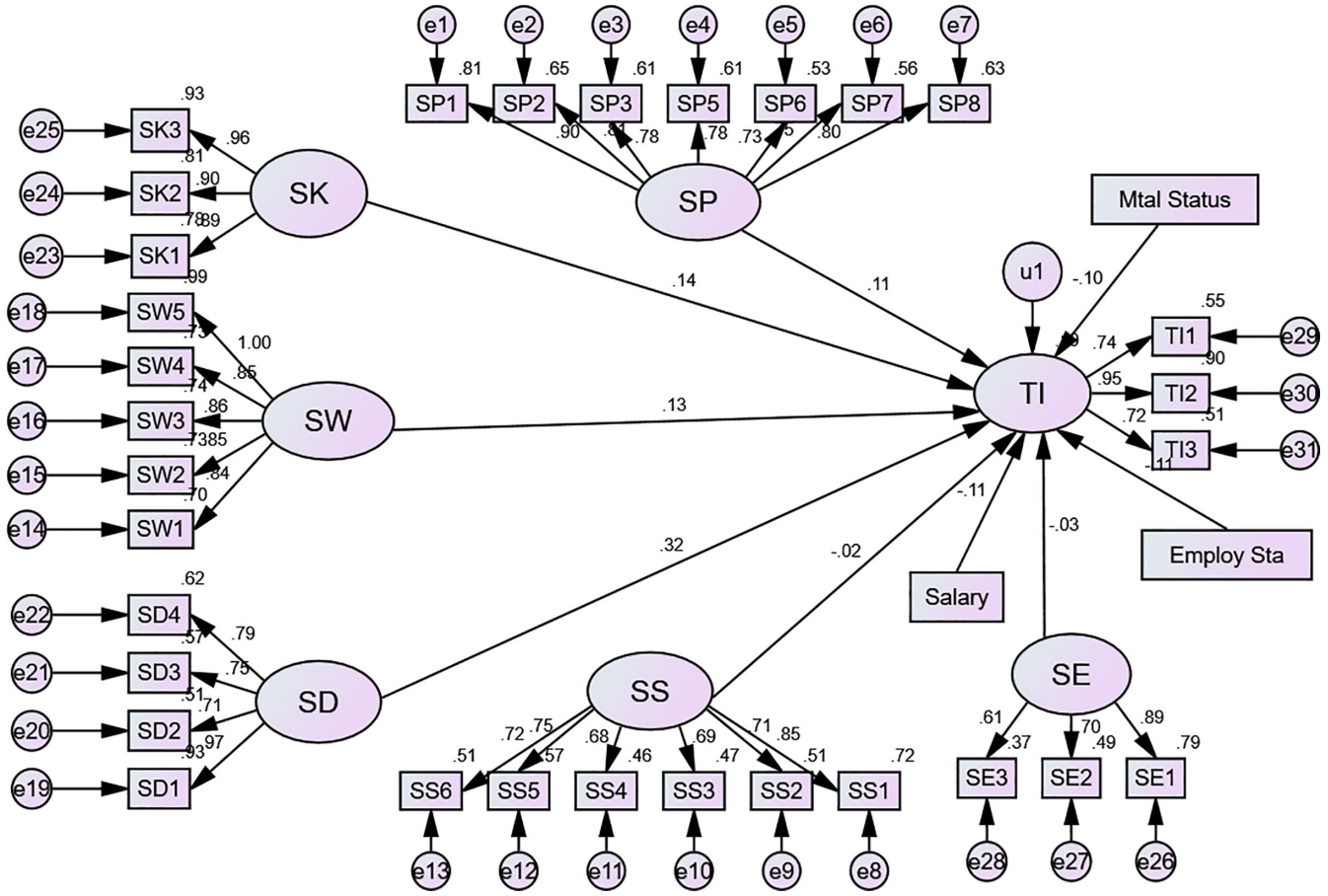

FIGURE 3 Structural model for the effect of job stress factors on turnover intention

TABLE 6 Path analysis of the effect of stress factors on turnover intention

Hypotheses	Independent variables		Dependent variable	Standardized (β)	Unstandardized (β)	SE.	CR.	*p*	Remarks
H1	SP	--->	TI	0.111	0.09	0.032	2.836	.005	Supported
H2	SS	--->	TI	−0.018	−0.018	0.039	−0.45	.652	Not supported
H3	SW	--->	TI	0.129	0.131	0.039	3.386	***	Supported
H4	SD	--->	TI	0.323	0.303	0.039	7.86	***	Supported
H5	SK	--->	TI	0.137	0.128	0.036	3.536	***	Supported
H6	SE	--->	TI	−0.026	−0.025	0.04	−0.629	.529	Not supported
	Control variables								
	Employment Status	--->	TI	−0.115	−0.312	0.102	−3.053	.002	
	Salary	--->	TI	−0.106	−0.153	0.054	−2.824	.005	
	Marital status	--->	TI	−0.098	−0.29	0.111	−2.605	.009	

Abbreviations: CR, critical ratio; SD, stress from co-workers and daily life; SE, standard error; SE, stress from the working environment; SK, stress from lack of professional knowledge and skills; SP, stress from taking care of patients; SS, stress from unit managers, supervisors, and physicians; SW, stress from roles and workload; TI, turnover intention.

***$p < .001$.

stress from the environment could not significantly influence turnover intention. This study's findings and implications may be considered as a signpost for health authorities and nursing managers to implement informed strategies to address newly recruited nurses' specific work-related stressors purposely. Addressing these critical issues will undoubtedly smoothen nurses' transition into their new roles and, consequently, increase their retention while lowering their potential turnover rate.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

LLZ and ADTK: Conception, design and data acquisition of this study. ADTK, PEQ and JOM: Writing of this manuscript from literature searching, data collection and analysis, and the final write-up. PEQ and ADTK: Write-up and editing of this paper with critical revision of the manuscript for relevant intellectual content.

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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