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Relationship among core competency, self-efficacy and transition shock in Chinese newly graduated nurses: a cross-sectional study

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ABSTRACT

Objectives To investigate how core competency and self-efficacy of newly graduated nurses affect their experience of transition shock, and to determine the relationship between these factors.

Design A cross-sectional study.

Methods 262 newly graduated nurses participated in a cross-sectional study by using demographic data, the transition shock scale, the competency inventory for registered nurses scale and the self-efficacy scale.

Results Among newly graduated nurses, the score of transition shock was 77.641±24.140, the score of core competency was 125 (109.5, 163.5) and the score of self-efficacy was 2.5 (2,3), all of which were at a moderate level. The core competency and self-efficacy of the newly graduated nurses had a negative impact on the transition shock (β=−0.151, p=0.026; β=−0.379, p<0.001). Additionally, self-efficacy played a mediating role in the relationship between core competency and transition shock, with a mediating effect accounting for 57.34% of the total effect.

Conclusions The transition shock of newly graduated nurses was at a moderate level, with the highest level of transition shock occurring within the first year of employment. Self-efficacy plays a mediating role in the relationship between core competency and transition shock. Nursing managers should create standardised training for newly graduated nurses within the first year of employment to reduce their transition shock. This will help improve newly graduated nurses' core competency, enhance self-efficacy and support the graduates. This will alleviate the impact of transition shock on newly graduated nurses, helping them transition smoothly and successfully.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Structural equation modelling is adopted so that the qualitative and quantitative analyses can explore the relationship among core competency, self-efficacy and transition shock.
⇒ This study summarises the influence between demographics posed on the transition shock among newly graduated nurses, enriching the study content.
⇒ The representativeness of the cross-sectional study cannot be generalised, because of samples from the same hospital.

INTRODUCTION

With the rapid socioeconomic development and an ageing population, there is a growing demand for healthcare services among the public. The importance of nursing as a discipline and profession is becoming increasingly prominent.[1] As a new force in hospitals, newly graduated nurses have a profound impact on the construction and development of hospitals and nursing care. Newly graduated nurses refer to those who have worked as nurses for less than 3 years.[2] Newly graduated nurses face challenges, such as heavy workloads, critically ill patients and complex interpersonal relationships.[3 4] Newly graduated nurses also have insufficient clinical experience, effective communication skills and low core competency.[5 6] Transition shock refers to the feeling and experience of confusion, doubt and unclear positioning that individuals experience when transitioning from known roles to unfamiliar roles, influenced by roles, relationships, knowledge and responsibilities.[3] Some study suggests that newly graduated nurses worldwide may experience varying degrees of transition shock, which can negatively affect their physical and mental health.[7] Elevated levels of transition shock can impede the transition process, resulting in heightened attrition rates and adverse events, thereby significantly impacting the cohesion of nursing teams and the safety of patients.[7 8] Therefore, it is crucial to reduce transition shock of newly graduated nurses, promote the swift adaptation to clinical nursing work, resolve their role transition issues and retain nursing talent to maintain the stability of nursing teams and boost the development of hospitals and nursing care.[9]

To achieve this goal, it is important to first understand the factors that affect transition shock among newly graduated nurses. Previous studies found that core competency influenced transition shock in newly graduated nurses.[10 11] Core competency[12 13] is a comprehensive ability that nurses must possess in clinical skills. It includes professional knowledge, attitudes, values, judgement and personal traits.[14] Core competency is the fundamental assurance for improving nursing service levels and ensuring patient safety.[15] Studies have shown[16 17] that the higher the nurse's core competency, the smaller their transition shock, and there is a negative correlation between nurse' core competency and transition shock. Yao *et al*[18] found that improving nurse's core competency can effectively reduce the degree of their transition shock.

The evidence showed that self-efficacy of newly graduated nurses was related to transition shock.[19 20] Currently, research on nurses' self-efficacy mainly focuses on general self-efficacy. General self-efficacy[21] refers to an individual's overall confidence in dealing with various challenges or facing new things. Nurses' general self-efficacy refers to their CI in completing a certain nursing task.[6 22] Self-efficacy can affect one's emotions and cognition and can strengthen or weaken an individual's level of motivation. Those with high levels of self-efficacy for a particular task will exert more effort and persist for a longer period of time and recover from setbacks more quickly.[23 24] Some studies suggest that there is a positive correlation between self-efficacy and nurses' core competency.[25] Research by Yue[19] showed that new nurses' self-efficacy was negatively correlated with transition shock because of strong adaptation.

Considering the significant impact of core competency and self-efficacy on the impact of transition shock, as well as the inter-relationships between things, it is necessary to explore the inter-relationships between the three variables and determine the impact path in order to take intervention measures to mitigate the impact of transition shock in newly graduated nurses.

Structural equation models (SEM) is a multivariate statistical framework that is used to model complex relationships between directly observed and indirectly observed (latent) variables. At present, there are few studies reporting the inter-relationships among the three variables, and few studies using SEM to explore the impact of core competency and self-efficacy on transition shock.[26]

Therefore, this study aims to use SEM to explore the relationship among core competency, self-efficacy and transition shock, and determine the impact path in order to provide a scientific basis for nursing managers to formulate intervention strategies to alleviate transition shock among newly graduated nurses.

METHODS

Study design

This was a descriptive, cross-sectional study.

Setting and sample

Convenience sampling was used to select newly graduated nurses from a tertiary hospital in Jiangsu Province from 23 February 2023 to 15 March 2023 as study subjects. Inclusion criteria: registered nurses; working for less than 3 years. Exclusion criteria: newly graduated nurses not on duty due to sick leave, maternity leave.

According to the multifactor sample size calculation method, the sample size should be 5–10 times that of the research variables. This study had a total of 26 variables. Considering a 20% lost follow-up rate, the sample size should be between 156 and 312. The sample size of this study was 265.

Instruments

Demographic information

General information included gender, age, years of employment, professional title, education level, department, marital status, the only child or not, native place, internship unit, work experience in other hospitals, rotation experience in critical care, weekly overtime hours and monthly night shifts.

Transition shock of newly graduated nurses scale

The scale was developed by Xue *et al*[27] based on the theory of transition shock. It includes 27 items across four dimensions: physical dimension (six items), psychological dimension (eight items), knowledge and skill dimension (five items) and social–cultural and developmental dimension (eight items). The Likert 5-point rating scale was used, with 'completely inappropriate, somewhat inappropriate, moderately appropriate, very appropriate and completely appropriate' assigned scores of 1–5 points, yielding a total score between 27 and 135 points. A higher score indicates a greater degree of transition shock. The vast sample test conducted in China confirmed that the scale possessed satisfactory reliability and validity.[27 28] Cronbach's α for this scale is 0.918,[27] and in this study, it is 0.915.

The Competency Inventory for Registered Nurses Scale

The Competency Inventory for Registered Nurses Scale was developed by Liu *et al*.[29] It consists of 55 items across seven dimensions: critical thinking and research competence dimension (eight items), clinical nursing dimension (10 items), leadership dimension (nine items), interpersonal relationship dimension (eight items), legal and ethical practice dimension (eight items), professional development dimension (six items) and education and consultation dimension (six items). A Likert 5-point rating scale was used, with 'no ability, some ability, moderate ability, sufficient ability and high ability' assigned scores of 0–4 points. The total score ranges from 0 to 220 points, with a higher score indicating a higher level of core competency for registered nurses. The scale has been translated and applied in many countries with good reliability and validity.[2 30] Cronbach's α for this scale is 0.91[29] and it is 0.985 in this study.

The General Self-Efficacy Scale

The scale was developed in the 1980s by Schwarzer *et al*.[31] It was translated into Chinese and revised by Wang *et al*,[32] with good reliability and validity. The scale includes a total of 10 items, using a Likert 4-point rating scale with 'completely incorrect, somewhat accurate, mostly accurate and completely accurate' assigned scores of 1–4 points. The final score is one-tenth of the total score, ranging from 1 to 4 points, with a higher score indicating a higher level of general self-efficacy. Cronbach's α for this scale is 0.87[20] and it is 0.951 in this study.

Data collection

This study used an electronic questionnaire to survey newly graduated nurses and informed consent from all participants was obtained. The questionnaire was entered into the 'Wen juan xing' software (https://www.wjx.cn/) and a QR code was generated. Prior to the survey, permission was obtained from the nursing department of the hospital. The responsible teaching and management personnel for newly graduated nurses distributed the QR code to the newly graduated nurses through WeChat group, informing them of the purpose and significance of the survey, as well as how to fill out the questionnaire. To ensure the authenticity and quality of the questionnaire, this study conducted an anonymous survey, with each WeChat IP only allowed to fill out the questionnaire once. A total of 265 questionnaires were distributed to newly graduated nurses, and 265 valid questionnaires were collected, resulting in a response rate of 100%. Three invalid questionnaires were removed due to incomplete or logically inconsistent information, with 262 valid questionnaires being collected, resulting in an effective response rate of 98.87%.

Data analysis

Statistical analysis was performed using SPSS V.26.0 and AMOS V.26.0 software. Frequency (percentage) was used to represent count data, mean±SD was used for normally distributed metric data and M (P25, P75) was used for non-normally distributed data. Independent sample t-test and one-way analysis of variance were used for single-factor analysis. Spearman's rank correlation was used to analyse the correlation between variables. Multiple linear regression analysis was used to determine the influencing factors of transition shock.

SEM was used to explore the impact path of core competency and self-efficacy on transition shock among newly graduated nurses. Bootstrap method was used for significant testing by repeatedly randomly sampling from the original data 5000 times. The model used the new nurses' transition shock as the latent internal variable, core competency as the external latent variable and self-efficacy as the mediating variable. At the same time, the years of employment and weekly overtime times were used as external latent variables to construct a SEM. The model was adjusted, fitted and validated using the maximum likelihood method. A p-value of <0.05 was considered statistically significant.

Patient and public involvement

None.

RESULTS

Characteristics of participants

A total of 262 newly graduated nurses were included in this study, with the majority being female (226, 86.26%) and male nurses accounting for 36 individuals (13.74%). The mean age was M=24.210, SD=2.188 years old. In terms of years of nursing experience, the majority (130, 49.62%) had been working as a nurse for less than a year, followed by 92 nurses (35.11%) with 1–2 years of experience and 40 nurses (15.27%) with 2–3 years of experience. In terms of education level, most nurses had obtained a bachelor's degree (160, 61.07%), while 93 nurses (35.50%) had a college degree and 9 nurses (3.44%) held a master's degree or higher. See table 1 for more information.

Transition shock, self-efficacy and core competency level of newly graduated nurses

The mean score of the transition shock for newly graduated nurses was (M=77.641, SD=24.140), the score of self-efficacy was 2.5 (2, 3) points, and the score of core competency was 125 (109.5, 163.5) points(See table 2). Single-factor analysis of transition shock showed that there were statistically significant differences in the length of nursing experience, marital status, professional title and weekly overtime hours of newly graduated nurses(See table 1).

The correlation between transition shock and core competency and self-efficacy of newly graduated nurses

Spearman's correlation analysis showed that transition shock was negatively correlated with core competency and self-efficacy (r=−0.455, r=−0.345, respectively, all p<0.001). Core competency was positively correlated with self-efficacy (r=0.506, p<0.001) (see table 3).

Multiple regression analysis on factors impacting newly graduated nurses' transition shock

The dependent variable was the transition shock of newly graduated nurses, and the independent variables were two variables with statistically significant differences in correlation analysis (core competency and self-efficacy) and three variables with statistically significant differences in single-factor analysis on years of employment, weekly overtime times and marital status . Both core competency and self-efficacy were entered into the regression equation as original numerical values, while years of employment (within 1 year=1, 1–2 years=2 and 2–3 years=3), weekly overtime times (none=1, 1–2 times/week=2, 3–4 times/week=3 and more than five times/week=4) were treated as ordered variables and marital status (unmarried=1, married=2) was treated as a binary variable, with corresponding values being used for regression analysis.

Table 1 Single-factor analysis of transition shock

Variables	N	The score of transition shock	F/t	P value
Years of employment				
Within 1 year[1]	130	82.415±25.520		
1–2 years[2] (<2 years)	92	73.294±22.120*		
2–3 years[3] (≥2 years)	40	72.125±21.248†	5.244	0.006
Department				
Emergency department	38	78.026±25.216		
Internal medicine	98	77.071±25.621		
Surgery department	75	77.480±22.612		
ICU	33	78.909±26.470		
Anaesthesia department and operating room	15	78.733±16.096		
Outpatient department	3	76.000±21.071	0.04	0.999
Age				
<25 years old	171	79.252±23.787		
≥25 years old	91	74.615±24.638	1.483	0.139
Gender				
Male	36	74.028±31.359		
Female	226	78.217±22.816	−0.770	0.446
Marital status				
Unmarried	247	78.425±24.284		
Married	15	64.733±17.674	2.148	0.033
The only child or not				
Yes	103	77.796±26.665		
No	159	77.541±22.440	0.083	0.934
Native place				
Native	76	80.000±26.301		
Non-native	186	76.677±23.205	1.011	0.313
Internship unit				
The same hospital	90	77.956±25.515		
Other hospitals	172	77.477±23.463	0.152	0.879
Professional title				
No professional titles[1]	134	82.090±24.888		
Nurse[2]	76	72.947±23.724*		
Senior nurse	52	73.039±20.803	4.792	0.009
Education level				
college degree	93	78.882±26.368		
Bachelor degree	160	77.519±22.881		
Master degree or above	9	67.000±21.575	0.999	0.370
Work experience in other hospitals				
Yes	43	74.116±26.847		
No	219	78.333±23.577	−1.048	0.296
Rotation experience in critical care				
Yes	170	75.953±23.563		
No	92	80.761±25.001	−1.543	0.124
Monthly night shifts				
None	25	81.240±31.893		
1–4	106	74.811±22.714		
5–8	98	79.531±23.979		
9–12	22	77.455±25.118		
>12	11	80.273±17.001	0.683	0.604

Continued

Table 1 Continued

Variables	N	The score of transition shock	F/t	P value
Weekly overtime frequencies				
None[1]	98	71.194±22.371		
1–2 times/week[2]	128	78.734±23.931*		
3–4 times/week[3]	24	85.458±24.908†		
>5 times/week[4]	12	103.000±16.895‡§¶	8.316	<0.001

1,2,3,4, represents different groups.
*Group 1 and group 2 were compared, p<0.05.
†Group 1 and group 3 were compared, p<0.05.
‡Group 1 and group 4 were compared, p<0.05.
§Group 2 and group 4 were compared, p<0.05.
¶Group 3 and group 4 were compared, p<0.05.
ICU, intensive care unit.

The results showed that years of employment, weekly overtime times, self-efficacy and core competency all entered the regression equation, with F=24.048, p<0.001, R^2=0.320 and adjusted R^2=0.306. In other words, years of employment, weekly overtime times, self-efficacy and core competency could explain 30.6% of the variation in transition shock, as shown in table 4.

The relationship among transition shock, core competency and self-efficacy among newly graduated nurses

The model fitting results were as follows: χ^2/df=1.908 (<3.000), RMSEA (root mean square error of approximation) =0.059 (<0.080), NFI (non-normed fit index) =0.976 (>0.900), CFI (comparative fit index) =0.988 (>0.900) and GFI (goodness-of-fit index) =0.936 (>0.900). The model fitting index showed that the model fitted well.

In the model, high core competency was observed to increase self-efficacy and to significantly influence transition shock. In addition, high self-efficacy can reduce the impact of transition shock. Years of employment was observed to positively impact core competency and negatively impact transition shock. Also, weekly overtime times was found to negatively impact self-efficacy, and positively impact transition shock (see online supplemental material 1).

With the model, the direct effect of core competency on transition shock was −0.151. Its indirect effect, mediated by self-efficacy, was −0.203, making a total effect of −0.151 + (−0.203) = −0.354. The direct effect of years of employment on transition shock was −0.179. Its indirect effect, mediated by core competency in path 1 and by core competency and self-efficacy in path 2, was −0.049, making a total effect of −0.179 + (−0.049) = −0.228. The direct effect of weekly overtime times on transition shock was 0.261. Its indirect effect, mediated by self-efficacy, was 0.039, making a total effect of 0.261+0.039 = 0.300 (see table 5).

Table 2 The score of transition shock, self-efficacy and core competency of newly graduated nurses

Variables	Number of items	Range of total score	Average score	Standardised score
Transition shock	27	27–135	77.641±24.140	2.876±0.894
Physical dimension	6	6–30	19.771±5.720	3.295±0.953
Psychological dimension	8	8–40	23.084±7.887	2.886±0.986
Knowledge and skill dimension	5	5–25	14.313±5.024	2.863±1.005
Social–cultural and developmental dimension	8	8–40	20.473±7.928	2.559±0.991
Self-efficacy	10	1–4	2.5 (2, 3)	2.5 (2, 3)
Core competency	55	50–220	125 (109.5, 163.5)	2.273 (1.991, 2.973)
Critical thinking and research competence dimension	8	6–32	17 (15, 22.5)	2.125 (1.875, 2.813)
Clinical nursing dimension	10	7–40	22 (19.75, 29.25)	2.2 (1.975, 2.925)
Leadership dimension	9	7–36	22.5 (18, 27)	2.5 (2, 3)
Interpersonal relationship dimension	8	7–32	18.5 (16, 24)	2.313 (2, 3)
Legal and ethical practice dimension	8	8–32	22.5 (16,24)	2.813 (2,3)
Professional development dimension	6	5–24	13.5 (12,18)	2.25 (2,3)
Education and consultation dimension	6	2–24	12.5 (11.75,18)	2.083 (1.958,3)

Table 3 Correlation analysis between transition shock and core competency and self-efficacy of newly graduated nurses (r, n=262)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Transition shock	1.000	–	–	–	–	–	–	–	–	–	–	–	–	–
Physical dimension	0.825***	1.000	–	–	–	–	–	–	–	–	–	–	–	–
Psychological dimension	0.938***	0.738***	1.000	–	–	–	–	–	–	–	–	–	–	–
Knowledge and skill dimension	0.888***	0.646***	0.792***	1.000	–	–	–	–	–	–	–	–	–	–
Social–cultural and developmental dimension	0.916***	0.653***	0.805***	0.797***	1.000	–	–	–	–	–	–	–	–	–
Self-efficacy	−0.455***	−0.313***	−0.426***	−0.498***	−0.419***	1.000	–	–	–	–	–	–	–	–
Core competency	−0.345***	−0.206**	−0.304***	−0.398***	−0.355***	0.506***	1.000	–	–	–	–	–	–	–
Critical thinking and research competence dimension	−0.292***	−0.166**	−0.260***	−0.369***	−0.293***	0.509***	0.936***	1.000	–	–	–	–	–	–
Clinical nursing dimension	−0.320***	−0.199**	−0.273***	−0.391***	−0.324***	0.519***	0.941***	0.913***	1.000	–	–	–	–	–
Leadership dimension	−0.348***	−0.194**	−0.309***	−0.398***	−0.370***	0.461***	0.960***	0.879***	0.895***	1.000	–	–	–	–
Interpersonal relationship dimension	−0.356***	−0.219***	−0.315***	−0.409***	−0.362***	0.477***	0.964***	0.882***	0.905***	0.949***	1.000	–	–	–
Legal and ethical practice dimension	−0.358***	−0.215***	−0.317***	−0.396***	−0.372***	0.438***	0.938***	0.840***	0.867***	0.942***	0.937***	1.000	–	–
Professional development dimension	−0.313***	−0.180**	−0.274***	−0.372***	−0.325***	0.463***	0.950***	0.916***	0.881***	0.921***	0.933***	0.926***	1.000	–
Education and consultation dimension	−0.266***	−0.137*	−0.234***	−0.328***	−0.278***	0.467***	0.904***	0.910***	0.872***	0.861***	0.850***	0.817***	0.862***	1.000

*P<0.05; **p<0.01; ***p<0.001.

Table 4 Multiple linear regression analysis of influencing factors of transition shock of newly graduated nurses (n=262)

Variables	B	SE	β	T	P value
Constant	124.922	8.653		14.437	<0.001
Years of employment	−4.031	1.756	−0.122	−2.296	0.022
Weekly overtime frequencies	7.761	1.612	0.252	4.814	<0.001
Self-efficacy	−1.324	0.231	−0.357	−5.741	<0.001
Core competency	−0.078	0.038	−0.128	−2.078	0.039
Marital status	−10.086	5.438	−0.097	−1.855	0.065

*R^2=0.320, adjusted R^2=0.306, F=24.048, p<0.001.

DISCUSSION

The level of transition shock for newly graduated nurses

The score of transition shock was M=77.641, SD=24.140, which accounted for 57.51% of the total score. The standardised score was M=2.876, SD=0.894, indicating a moderate level, which is similar to the results of studies conducted by Su *et al*.[19 33 34] In terms of each dimension of the scale, the scores of the physical and psychological dimension were the highest, followed by the knowledge and skill dimension, as well as the social–cultural and developmental dimension. This indicated that newly graduated nurses were mostly affected in the physical and psychological dimensions during the transition period, which is inconsistent with the results of Cao *et al*,[35] where the knowledge and skill dimension scored the highest. This may be because this study only included newly graduated nurses who have been employed within 3 years, while Cao *et al*'s study only included those within their first year of employment. Newly graduated nurses who had worked for 2–3 years had improved their professional knowledge and skills, which may have reduced the impact of transition shock. This study demonstrated that newly graduated nurses encountered a multitude of stressors and were required to promptly acclimate to the clinical environment on commencing their professional practice.

In terms of learning, newly graduated nurses are required to participate in the hospital's standardised training. At the same time, they need to quickly grasp the environment, core systems, workflow and responsibilities of each shift in the department. Newly graduated nurses with more than 1 year of work experience are expected to independently take care of patients. Therefore, newly graduated nurses need to absorb new knowledge, and they face great physical and mental pressure in both learning and working. Faced with departments with many critically ill patients, newly graduated nurses often have to work overtime due to inadequate competency. These factors make them prone to physical discomfort such as fatigue and sleep disorders, leading to higher scores in the physical aspect of transition shock.[36] In addition, lack of life experience, work experience and communication skills make newly graduated nurses less confident when dealing with complex interpersonal relationships such as patient–nurse interactions and doctor–nurse interactions. There is a gap between the theoretical knowledge and practical skills in newly graduated nurses,[37] which can lead to feelings of tension and uncertainty when facing complex clinical problems. As newly graduated nurses are in the rotation period, they may feel a low sense of belonging to the department,

Table 5 Effect analysis of the impact factors on the transition shock of newly graduated nurses

Effect	Path	Estimated value	SE	P value	95% CI
Direct effect	Core competency→transition shock	−0.151	0.068	0.026	−0.284 to −0.018
Indirect effect	Core competency→self-efficacy→transition shock	−0.203	0.051	<0.001	−0.312 to −0.111
Total effect	Core competency→transition shock	−0.354	0.064	<0.001	−0.474 to −0.220
Direct effect	Years of employment→transition shock	−0.179	0.054	0.001	−0.282 to −0.073
Indirect effect	1: Years of employment→core competency→transition shock 2: Years of employment→core competency→self-efficacy→transition shock	−0.049	0.022	0.008	−0.100 to −0.012
Total effect	Years of employment→transition shock	−0.228	0.056	0.001	−0.335 to −0.115
Direct effect	Weekly overtime frequencies→transition shock	0.261	0.058	<0.001	0.147 to 0 .373
Indirect effect	Weekly overtime frequencies→self-efficacy→transition shock	0.039	0.020	0.028	0.004 to 0.084
Total effect	Weekly overtime frequencies→transition shock	0.300	0.060	<0.001	0.181 to 0.416

which contributes to higher scores in terms of their psychological well-being.[19]

The results of the multiple factor analysis showed that newly graduated nurse transition shock was related to their years of employment and weekly overtime frequencies. The highest transition shock score (M=82.415, SD=25.520) was observed in newly graduated nurses with less than 1 year of work experience, and the longer the work experience, the smaller the transition shock, which is consistent with the findings of previous studies by Kaldal *et al*.[38 39] Powers *et al*[40] found that the first year of employment is a critical period for newly graduated nurses to transition from being students to clinical nurses. During this period, newly graduated nurses leave the structured school environment and enter professional clinical practice, which can cause transition shock, leading to an impact on patient safety events and turnover rates. Previous research indicates that 25% of newly graduated nurses leave their positions during their first year of employment.[40] As their work experience increases, newly graduated nurses' clinical expertise, interpersonal relationship management and communication skills continue to improve, and they gradually adapt to the complex clinical work environment, resulting in a reduction in transition shock. The results of this study also showed that the more weekly overtime frequencies a newly graduated nurse has, the greater the transition shock they experience. Nurses with more overtime have a higher workload, increasing physical fatigue. This may be due to inadequate core competency (within 1 year, new nurses scored 114.5 (110, 153) points on core competency), leading to difficulty in completing their job responsibilities on time.[7] This can increase the nurse's psychological pressure, lower self-confidence and exacerbate their level of transition shock.

The current state of transition shock in newly graduated nurses suggests that nursing managers should pay more attention to transition shock, especially for newly graduated nurses within their first year of employment. The establishment of a complete and standardised training system for newly graduated nurses and the implementation of diversified teaching and training programmes can help them to improve their professional competency. Immersive communication workshops[41] and group psychological counselling[42] can teach newly graduated nurses to understand and respect patients, learn self-regulation skills and relieve stress, thereby improving their communication skills and psychological resilience,[43] and promoting the adoption of positive coping strategies.[44] Nursing managers should also monitor and evaluate the professional competency and psychological status of newly graduated nurses, intervene in a timely manner when issues arise[40] and help newly graduated nurses to successfully transition into their new roles.

The negative correlation between core competency, self-efficacy and transition shock in newly graduated nurses

This study found a negative correlation between newly graduated nurses' self-efficacy and transition shock (r=−0.455, p<0.001), which is consistent with the results of Kim *et al*.[19 45] Self-efficacy is an important psychological resource for newly graduated nurses. Nurses with high levels of self-efficacy are more resilient when facing complex clinical nursing work, and are better equipped to solve clinical nursing problems effectively. These experiences help to facilitate their adaptation to clinical nursing work, ultimately alleviating the impact of transition shock.[20 45]

Furthermore, there is a negative correlation between newly graduated nurses' core competency and transition shock (r=−0.345, p<0.001), indicating that the higher level of core competency, the lower level of their transition shock. This finding is consistent with previous research by Ma *et al*.[10 16] One of the main reasons for transition shock in newly graduated nurses is their inadequate professional knowledge and skills. Charette *et al*[37] pointed out that newly graduated nurses generally have insufficient knowledge and skills, making it difficult for them to think critically and solve problems in the clinical environment, which result in transitional shock.[46] Dev *et al*[47] suggested that joint education from nursing schools and clinical mentors can bridge the gap between theoretical and practical learning and improve critical thinking skills, thereby effectively mitigating the impact of transition shock.[18]

More importantly, this study demonstrated a positive correlation between newly graduated nurses' core competency and self-efficacy (r=0.506, p<0.001), which is consistent with the findings of previous research by Na *et al*.[16 17]This may be because nurses with higher core competency have greater job competency, enabling them to utilise their knowledge and skills effectively when faced with difficult clinical problems. This will lead to increased social support and enhance their confidence and self-efficacy.

The mediating effect of self-efficacy between core competency and transition shock in newly graduated nurses

The results of this study indicated that the core competency of newly graduated nurses can directly affect their level of transition shock (β=−0.151, p=0.026), and self-efficacy partially mediates the relationship between core competency and transition shock (β=−0.203, p<0.001). This suggests that nursing managers should focus on improving the self-efficacy of newly graduated nurses while enhancing their core competency. In this study, the core competency of newly graduated nurses was at a moderate level, with the lowest score in critical thinking/research ability, which is consistent with the findings of Chen *et al*.[8] The self-efficacy score was also at a moderate level, consistent with the results of Li *et al*[48] and lower than the findings of Yue.[19] Nursing managers can improve the judgement skills and competency of newly graduated nurses by perfecting standardised training systems, including case-based scenario simulation workshops and problem-oriented teaching, in addition to traditional

theoretical knowledge and skills training and assessment.[49] They can also strengthen the training of preceptors and enhance their qualifications by establishing a nursing mentorship programme.[40 50 51] This programme can help newly graduated nurses and their preceptors establish a communication mechanism, create an atmosphere of mutual respect and understanding, alleviate newly graduated nurses' psychological pressure, improve their mental health level, and reduce the level of transition shock.

Limitations

This study's limitations include the fact that the research subjects were only selected from newly graduated nurses in one hospital. As a result, the representativeness of the results was relatively limited. In the future, multicentre and large-sample studies should be conducted to further validate the model and the relationships between variables. Additionally, the core competency, self-efficacy and transition shock of newly graduated nurses are dynamic processes that change over time. Future longitudinal studies can be conducted to explore the developmental trajectories of newly graduated nurses' core competency and self-efficacy at different stages and their impact on transition shock.

CONCLUSIONS

In summary, the study results indicate that newly graduated nurses experience a moderate level of transition shock, with the highest level occurring within the first year of employment. The core competency of newly graduated nurses can directly affect the level of transition shock and can also indirectly affect it through self-efficacy. Nurse managers need to strengthen standardised training for newly graduated nurses within the first year of employment, improve their core competency and adopt effective psychological strategies to enhance their self-efficacy. This will help newly graduated nurses better adapt to their clinical transition period, alleviate the impact of transition shock and facilitate a smooth transition.

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