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Transition shock, preceptor support and nursing competency among newly graduated registered nurses: A cross-sectional study

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ABSTRACT

Background: Transition shock is highly prevalent among newly graduated registered nurses in their early career. Preceptors are widely used to support them in acquiring clinical nursing competencies and to promote their successful transition to practice. However, the mechanism by which transition shock and preceptor support are linked to nursing competency among newly graduated registered nurses remains unknown.
Objectives: The aim of the study was to examine the relationship between transition shock, preceptor support, and nursing competency in a sample of newly graduated registered nurses.
Design: A descriptive, cross-sectional design.
Settings: Six tertiary hospitals in the southeast of mainland China.
Participants: Newly graduated registered nurses undertaking their professional role in the first year.
Methods: Convenience sampling was used to recruit 215 newly graduated registered nurses [184 female, 31 male] from six hospitals. Data on transition shock, preceptor support, and nursing competency were collected using questionnaires from November to December 2019.
Results: The nursing competency of critical thinking/research aptitude (mean = 2.68, SD = 0.63) was scored the lowest among participants. Transition shock ($r = -0.21$, $p < .01$) and perceptions of preceptor support ($r = 0.56$, $p < .01$) were statistically significantly correlated with nursing competency. Preceptor context, whether the assigned preceptor varied day by day, and the emotional challenges of transition shock were the main predictors of nursing competency ($F = 36.86$, $p = .00$), accounting for 34% of the variance in nursing competency.
Conclusions: Educational programs aimed at increasing critical thinking and research aptitude in the educational stage and the continuing educational stage can benefit newly graduated registered nurses. A well-organized transition program in hospitals including awareness and recognition of transition shock in newly graduated registered nurses is essential to enhance their competency in providing quality nursing. More support and assistance would be useful in promoting the preceptor's role in improving nursing competency of newly graduated registered nurses.

1. Introduction

Newly graduated registered nurses (NGRNs) encounter numerous challenges stemming from the gap between theory and practice, high patient workload, complicated interpersonal relationships, and a lack of nursing competence and skills during their first year of practice (Duchscher, 2009; Halpin et al., 2017; Labrague and McEnroe-Petitte, 2018). This process is known as "transition shock" (Duchscher, 2009).

Previous studies have examined various antecedents related to transition shock, including inadequate support, unrealistic performance expectations (e.g., performing nursing tasks in specialized area), bullying behaviors from senior colleagues, and work-life imbalance, which were found to aggravate the transition shock experience among NGRNs (Leong and Crossman, 2016; Woo and Newman, 2019). In

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addition, Kim and Yeo (2019) found that age, self-efficacy, working unit, desired unit, and nurses' work environment were related to the transition shock of newly graduated nurses.

The negative transition experience influences patient outcomes and NGRNs' work readiness for their professional role as registered nurses (Graf et al., 2020; Labrague and De Los Santos, 2020). Using a cross-sectional approach, Labrague and De Los Santos (2020) demonstrated that higher levels of transition shock are associated with adverse patient events. Taking a qualitative descriptive approach, Murray et al. (2019) indicated that NGRNs focus on time management and task completion over patient safety and holistic patient care during the transition period, which were potential sources of errors.

Considering the increasing complexity of healthcare services, there is increased attention on effective and safe nursing practice with a high demand on nursing competency (World Health Organization, 2019). Nursing competency, which refers to an integration of knowledge, skills, abilities, values, and attitudes in performing the professional role of a registered nurse (McMullan et al., 2003), is viewed as the core component of quality of nursing care and patient safety (Fukada, 2018). NGRNs are expected to demonstrate crucial competencies (e.g., abilities of clinical care, leadership, interpersonal relationship, legal/ethical practice, professional development, teaching-coaching, critical thinking, and research aptitude) in their professional role (Liu et al., 2007).

However, the nursing competency levels among newly graduated nurses were perceived as being marginally acceptable by nurse managers and nurse preceptors, with the lowest performing competencies being technical skills, critical thinking, communication, and professionalism (Gregg, 2020). Similarly, in a self-assessed nursing competency study in acute care hospital settings, Willman et al. (2020) identified the weak areas, requiring further training, in direct clinical practice and patient safety among NGRNs. Inadequate nursing competency was likely to leave NGRNs struggling in their nursing practice, with problems of low confidence and high levels of burnout, anxiety, and stress (Hu et al., 2017; Woo and Newman, 2019), leading to an inability to fulfill their role-related obligations and responsibilities as well as affecting their commitment to the organization (Karami et al., 2017).

A systematic review indicated that both personal (e.g., personality, academic background, clinical placements experience, interpersonal relationships with other colleagues, and recognition of nursing expertise from other healthcare workers) and organizational factors (e.g., the orientation program, unit/shift stability, workload perceived by NGNs, unit culture) influence NGRNs' competency development (Charette et al., 2019). However, few studies have considered the influence of transition shock perceived by NGRNs on developing nursing competency in the hospital context.

The term "preceptor" refers to a person instructing or providing guidance (Kennard, 1991). More functions of preceptors were drawn out in precepting NGRNs, through roles such as safety administrators, competency validators, and socializers (Powers et al., 2019; Lyman et al., 2020). Recent evidence indicates that preceptor support (e.g., feedback and encouragement), especially from experienced colleagues, plays an important role in the development of nursing competency and mitigating transition shock among NGRNs in the first year of their professional transition period (Rush et al., 2019; Powers et al., 2019; Irwin et al., 2018). A systematic review showed that positive preceptorship is correlated with increased confidence of NGRNs in performing professional skills, which enhances their willingness to participate in the nursing profession and increases their professional readiness for a registered nurse role (Irwin et al., 2018). In addition, researchers advocate that preceptor role models could help NGRNs develop clinical reasoning abilities in the dynamic clinical situation (Powers et al., 2019).

However, preceptors face challenges in precepting NGRNs in nursing practice due to the stress caused by the additional demands of time, energy, and responsibilities of the preceptor role, which is aggravated by the lack of support and understanding from colleagues at the unit and hospital level (Lewis and McGowan, 2015). Clipper and Cherry (2015) found that NGRNs with well-trained preceptors had more positive perceptions toward their ability to provide safe care for patients compared with those whose preceptors did not receive structured training, thereby emphasizing the importance of preceptor development and support in facilitating NGRNs with competency improvement. Thus, the perceptions of preceptor experience including preceptor activities and preceptor context (i.e., the arrangements for preceptors in the hospital context; Blegen et al., 2015) should also be considered when exploring the relationship between preceptor support and nursing competency.

What remains unknown, however, is to what degree the transition shock and preceptor support are related to nursing competency among NGRNs in the hospital context. Given that exploring the relationship between transition shock, preceptor support, and nursing competency relates to NGRNs' adaptation to the professional role, the provision of quality nursing services, and patient safety, it may potentially inform policies and interventions aiming to effectively enhance nursing competency among NGRNs. Therefore, the purpose of this study was to explore the relationship between transition experience, preceptor support, and nursing competency among NGRNs.

The framework for this study was designed by integrating Benner's (1982) novice to expert model of skill acquisition and Duchscher's stages of transition theory and transition shock model (Duchscher, 2008, 2009). According to Benner's novice to expert model comprising novice, advanced beginner, competent, proficient, and expert stages, NGRNs are considered an advanced beginner who still need preceptor support and guidance from competent nurses. Duchscher's transition theory structured the evolution process of changes within a NGRN's first year into three stages: "doing" (the first 3–4 months post orientation; learn how to do everything), "being" (the next 4–8 months; gain increased knowledge and skill competency), and "knowing" (view nursing work in a holistic approach) (Duchscher, 2008). Duchscher's transition shock model—another component of the transition theory—stressed that NGRNs may experience physical, intellectual, emotional, developmental, and sociocultural changes throughout the "doing" stage. In this stage, "doing" is the key to enable NGRNs to adjust to the hospital context, acquire skills, and progress to the next stage; therefore, we believe that exploring the relationship between transition shock, preceptor support, and nursing competency would provide insights on how to enable a new nurse to become competent.

2. Methods

2.1. Aim

The aim of the study was to explore the relationship between transition shock, preceptor support, and nursing competency among NGRNs, and to identify the predictors of nursing competency.

2.2. Design

A descriptive, cross-sectional design was used.

2.3. Participants and settings

The study engaged NGRNs from six tertiary hospitals in Shandong Province, the southeast of mainland China. Across the six hospitals, there are 1480 open beds and 50 NGRNs per hospital on average. To enhance the quality of healthcare services of NGRNs, the National Health Commission of the People's Republic of China (2016) introduced a transition program in tertiary hospitals. This program included basic training related to theoretical knowledge and procedural skills, including theoretical and practical training in the specialty area. The basic training of theoretical knowledge was provided to familiarize NGRNs with the hospital context (e.g., legal practice, hospital roles/

regulations, safety management, and infection prevention measures) and to enhance the proficiency of procedural skills (e.g., hand hygiene, cardiopulmonary resuscitation, oral care, etc.). The basic training ranged from two weeks to one month. Regarding the professional training in specialty areas (e.g., Intensive Care Unit, Cardiovascular Care Unit, Emergency Intensive Care Unit, etc.), including 22 specialties, NGRNs had 2 years of clinical rotation to obtain optimal clinical exposure. All participants had undergone an eight-month clinical placement during their degree program and had graduated from college or university in July 2019, and thereafter commenced the transition program at their hospitals. Participants who matched the following criteria were recruited: a registered nurse; were currently employed in a public hospital; had preceptors in the clinical setting; had no more than one year of work experience.

2.4. Sample size

The minimum sample size was calculated using the PASS program (version 11.0), which indicated that a sample size of 154 achieves 90% power to detect an R-Squared of 0.10 attributed to five independent variables using an *F*-Test with a significance level (alpha) of 0.05 (Cohen, 1988). Considering 30% of nonresponse and missing data, the calculated sample size was 200. Based on convenience sampling, a total of 320 newly graduated nurses were invited to participate in the study, of which 215 responded (67.19% response rate).

2.5. Measures

Transition shock was measured using the Transition Shock of Newly Graduated Nurses Scale, developed by Xue et al. (2015) in mainland China. This scale consisted of 27 items scored on a 5-point Likert scale (ranging from 1 = totally disagree to 5 = totally agree). This scale was grouped into 4 subscales: emotional (8 items), sociocultural and developmental (8 items), physical (6 items), and knowledge and skills (5 items). Higher scores indicated a stronger transition shock. Content validity was tested, and the item Content Validity Indices exceeded 0.86. The reported Cronbach's α coefficients varied from 0.86 to 0.94 (Xue et al., 2015). In this study, the Cronbach's α coefficients varied from 0.86 to 0.96.

The Preceptor Evaluation Survey was used to examine preceptor experience, and was adapted from Blegen et al. (2015). This scale consisted of 23 items, which were scored on a 5-point Likert scale (ranging from 1 = disagree to 5 = agree). The items were grouped into two subscales: preceptor activities (18 items) and preceptor context (5 items). The reported Cronbach's α coefficient varied from 0.86 to 0.97 (Blegen et al., 2015). In this study, the Cronbach's α coefficient varied from 0.96 to 0.98.

The Competency Inventory for Registered Nurses (CIRN) was used to assess the generic competencies of registered nurses and was developed in mainland China by Liu et al. (2007). The 55 items were scored on a 5-point Likert-type scale (ranging from not competent at all = 0 to very competent = 4). The items were grouped into 7 subscales as follows: clinical care (9 items), leadership (10 items), interpersonal relation (8 items), legal/ethical practice (8 items), professional development (6 items), teaching-coaching (7 items), critical thinking/research aptitude (10 items). Considering that participants in this study were NGRNs who were not supposed to act as a preceptor and make orientation programs for new nurses, two items of "Takes up the preceptor role to support new nurses in adapting to a new working environment" and "Initiates the appropriate orientation programs for new nurses" were removed from the subscale of teaching-coaching. Finally, the CIRN included 53 items. Higher scores indicated higher competency. The CIRN has demonstrated good reliability with Cronbach's α of 0.91 for the overall scale and 0.72–0.90 for the subscales. In this study, the Cronbach's α varied from 0.95 to 0.97.

Other variables included participants' demographic data and working characteristics. The demographic data collected included age, sex, and educational level. Working characteristics with preceptors in the hospital were assessed using eight questions adapted from the questionnaires by Blegen et al. (2015) to determine the arrangements for preceptors in the hospital—for example, the item "Whether the NGRN's assigned preceptor varied day by day" required a "yes = 1" or "no = 0" response.

2.6. Ethical consideration

The study was reviewed and approved by the Ethical and Institutional Review Board of the study hospital [KYLL-2018(LW)-042]. First, we consulted with the manager of nursing department in the hospitals. Then, the purpose, method, and risks of this study were explained to the prospective participants by the assistants of the nursing departments through their online management groups. Participants were also informed that they would be able to withdraw from the study at any time. Following this, written informed consent was obtained from individuals who wished to participate. Data was collected using an online survey from November to December 2019. The survey was created with WENJUANXING (www.wjx.cn) and was distributed to the participants through their online management groups. Participants were expected to complete the survey in one week. All surveys were given a personal identification to protect data confidentially and anonymity. Permissions to use and/or adapt the existing measures were received from the respective copyright holders through email.

2.7. Data analysis

IBM SPSS Statistics for Windows (Version 22 Armonk, NY: IBM Corp) was used for data analysis. Descriptive statistics were conducted to examine the normality and homoscedasticity of the study variables including demographic variables, and the variables of transition shock, preceptor support, and nursing competency. Analysis of variance and *t*-tests were used to determine differences in nursing competency by demographic characteristics and working characteristics with preceptors in the hospitals. Furthermore, Pearson's correlation was performed for the relationships between transition shock, preceptor support, and nursing competency. Finally, stepwise multiple regression analyses were conducted to examine the effects of transition shock and preceptor support on nursing competency among NGRNs. The assumptions for stepwise multiple regression analyses, including the multicollinearity between independent variables, were also processed. The tolerance was lower than 1.0 (range from 0.96 to 0.98), the variance inflation factor ranged from 1.00 to 1.11 (i.e., lower than the standard of 10), and the Durbin-Watson statistic was 1.81 (close to 2.00). Thus, no problems regarding multicollinearity and autocorrelation were found, and the assumptions of the multiple regression analyses were met. The p value $<.05$ was considered statistically significant.

3. Results

3.1. Participants' description

Of the 320 NGRNs recruited to participate in the study, 215 finally responded (67.19% response rate). The mean age of the participants was 22.77 years (SD = 1.54 years) ranging from 18 to 30 years. Table 1 shows the demographic variables of the participants. Most were female (n = 184, 85.58%). In addition, 127 held an associate degree, and 132 had participated in the rotating shifts. In terms of the arrangements for preceptors in the hospital, 81.40% NGRNs worked one-on-one with the preceptor on patient assignments, and most (n = 163, 75.81%) had the same schedule with their preceptor. A majority of the participants (72.60%) reported that the preceptor had a reduced patient load while precepting the NGRNs.

Table 1
Relationships between demographic variables, preceptor support and nursing competency (n = 215).

Variables			Nursing competency				
		n	%	Mean	SD	*F/t*	*p*
Sex	Female	184	85.60	3.90	0.62	−0.80	0.43
	Male	31	14.40	3.99	0.76		
Education level	Associate	127	59.10	3.98	0.68	2.01	0.14
	Bachelor	85	39.50	3.81	0.58		
	Master	3	1.40	4.13	0.30		
The NGRNs participated in the rotating shifts	Yes	132	61.40	3.92	0.60	0.24	0.81
	No	83	38.60	3.90	0.70		
The NGRNs' assigned preceptor varied day by day	Yes	43	20.00	3.64	0.74	−3.12	0.00
	No	172	80.00	3.98	0.59		
The preceptor worked one on one with NGRNs on patient assignments	Yes	175	81.40	3.93	0.66	0.90	0.37
	No	40	18.60	3.83	0.53		
The preceptor shared clinical assignment with the NGRNs	Yes	172	80.00	3.92	0.65	0.39	0.70
	No	43	20.00	3.88	0.60		
The preceptor was active in asking if NGRNs had any problems	Yes	183	85.10	3.94	0.64	1.37	0.17
	No	32	14.90	3.78	0.64		
The preceptor was available for questions	Yes	33	15.30	3.92	0.64	0.13	0.90
	No	182	84.70	3.91	0.64		
The preceptor had a reduced patients workload while precepting a NGRNs	Yes	156	72.60	3.91	0.64	−0.00	0.99
	No	59	27.40	3.91	0.65		

Notes: NGRNs = newly graduated registered nurses; SD = standard deviation.

3.2. Transition shock, preceptor experience, and nursing competency

The mean overall score for the transition shock perceived by the participants (on a 5-point scale) was 3.05 (SD = 0.79). The physical subscale reported the highest score (mean = 3.36, SD = 1.01) in the transition shock scale, followed by knowledge and skills (mean = 3.16, SD = 0.82). The sociocultural and developmental subscale had the lowest score (mean = 2.63, SD = 0.88) (Table 2).

The mean overall score for the perception of preceptor experience (on a 5-point scale) was 4.10 (SD = 0.88). The mean scores for subscales of preceptor experience were 4.09 (SD = 0.80) for "preceptor activity" and 4.10 (SD = 0.82) for "preceptor context" (Table 2).

As shown in Table 2, mean overall score for nursing competency (on a 5-point scale) was 2.91 (SD = 0.64). In terms of the level of self-evaluated competence, legal/ethical practice had the highest score (mean = 3.09, SD = 0.72) among the nursing competency aspects, while critical thinking/research aptitude reported the lowest score (mean = 2.68, SD = 0.63). In addition, an independent sample *t*-test revealed a statistically significant difference between nursing competency and "whether the NGRN's assigned preceptor varied day by day" ($t = -3.12$, $p < .01$) (Table 2).

Table 2
Transition shock, preceptor experience and nursing competency among NGRNs (n = 215).

Variables	Domain	Minimum	Maximum	Mean	SD
Transition shock	Emotional	1.00	5.00	3.03	0.83
	Sociocultural and developmental	1.00	4.88	2.63	0.88
	Physical	1.00	5.00	3.36	1.01
	Knowledge and skills	1.00	5.00	3.16	0.82
	Overall	1.00	4.68	3.05	0.79
Preceptor experience	Preceptor activity	1.00	5.00	4.09	0.80
	Preceptor context	1.00	5.00	4.10	0.82
	Overall	1.00	5.00	4.10	0.80
Nursing competency	Clinical care	0.00	4.00	2.81	0.65
	Leadership	0.00	4.00	2.91	0.69
	Interpersonal relation	0.00	4.00	2.98	0.70
	Legal/ethical practice	0.00	4.00	3.09	0.72
	Professional development	0.00	4.00	2.93	0.72
	Teaching-coaching	0.00	4.00	2.97	0.73
	Critical thinking/ research aptitude	0.30	4.00	2.68	0.63
	Overall	0.04	4.00	3.91	0.64

Notes: NGRNs = newly graduated registered nurses; SD = standard deviation.

3.3. Relationships between transition shock, preceptor experience, and nursing competency and the predictors of nursing competency

As shown in Table 3, transition shock was statistically significantly correlated with nursing competency ($r = -0.21$, $p < .01$). Of all the subdomains of transition shock, only emotional ($r = -0.22$, $p < .01$) and sociocultural and developmental subscales ($r = -0.31$, $p < .01$) had a statistically significant negative correlation with nursing competency. However, the relationships between the physical aspect of transition shock and nursing competency ($r = -0.09$, $p > .05$), as well as knowledge and skills and nursing competency ($r = -0.13$, $p > .05$) were not statistically significant. Perceptions of preceptor experience was statistically significantly correlated with nursing competency ($r = 0.56$, $p < .01$). Both preceptor activity ($r = 0.55$, $p < .01$) and preceptor context ($r = 0.56$, $p < .01$) were also correlated with nursing competency.

Table 4 presents the results of stepwise multiple regression analysis, which examined the predictors of nursing competency. The statistically significant factors, such as whether the NGRNs' assigned preceptor varied day by day, the emotional and sociocultural developmental aspect of transition shock, and preceptor experience (i.e., preceptor activity and preceptor context) were entered into the regression model. Preceptor context, whether the NGRNs's assigned preceptor varied day by day, and the emotional aspect of transition shock were the main predictors of nursing competency. These factors accounted for 34% of variance in nursing competency ($F = 36.86$, $R^2 = 0.34$, $\Delta R^2 = 0.34$, $p < .01$). Of the three factors, preceptor context accounted for 41% of the variance in nursing competency.

Table 3
Correlations between transition shock, preceptor experience and nursing competency (n = 215).

Variables	Domain	Nursing competency
Transition shock	Emotional	−0.22**
	Sociocultural and developmental	−0.31**
	Physical	−0.09
	Knowledge and skills	−0.13
	Overall	−0.21**
Preceptor experience	Preceptor activity	0.55**
	Preceptor context	0.56**
	Overall	0.56**

** $p < .01$.

Table 4
Factors predicting nursing competency (n = 215).

Variables	R^2	*B*	*SE*	*β*	*t*	*p*
Constant		2.57	0.26		10.29	0.00
Preceptor context	0.31	0.41	0.05	0.52	9.03	0.00
The NGRN's assigned preceptor varied day by day	0.33					
Yes		−0.20	0.09	−0.12	−2.20	0.03
No[ref]						
Emotional aspect of transition shock	0.34	−0.10	0.04	−0.12	−2.19	0.03

Notes: Stepwise multiple regression analysis was performed to examine the predictors of nursing competency among NGRNs. For nursing competency, preceptor context ($\beta = 0.52$, $p < .01$), variance in NGRN's assigned preceptor on a daily basis ($\beta = -0.12$, $p = .03$), and emotional aspect of transition shock ($\beta = -0.12$, $p = .03$) were statistically significant and accounted for 34% of the variance. NGRNs = newly graduated registered nurses; SE = standard error; ref. = reference.

4. Discussion

Nursing competency is crucial for nurses to effectively offer professional care to patients, particularly within a hospital context with complicated care and increased labor needs (Fukada, 2018). Since NGRNs are a vital backup force for nursing professionals, it is crucial to understand factors influencing the development of NGRNs' nursing competency. The findings of this study indicated that perceptions of transition shock and preceptor support influenced the development of nursing competency among NGRNs. These findings may help improve nursing competency planning, thereby facilitating successful induction of an effective NGRN workforce.

The findings of this study revealed that the level of nursing competency in legal/ethical obligations and responsibilities in clinical practice was scored the highest among NGRNs, while the lowest competency score was given for critical thinking/research aptitude. These results are consistent with those of Gregg (2020), who reported that critical thinking was one of the lowest scoring aspects of the competencies demonstrated by NGRNs. High levels of knowledge, but lower levels of practice, were widely reported in NGRNs (Charette et al., 2019). Furthermore, the knowledge-practice gap makes it difficult for NGRNs to analyze and solve problems critically in the clinical setting (Lee and Oh, 2020). The situation worsens when NGRNs are expected to manage many patients in the hospital setting, especially when the patients' condition is uncertain (Kukkonen et al., 2020). Therefore, improving critical thinking competency during the educational stage is crucial. One possible solution is by joint teaching by educators and preceptors in a simulated or clinical setting in undergraduate degree programs to shorten the knowledge-practice gap, thereby increasing critical thinking skills (Graf et al., 2020; Dev et al., 2020). This may help to better prepare nursing students and NGRNs to enter the workforce. Furthermore, nurse managers should assign appropriate workloads to allow NGRNs to reflect on clinical problems and provide continuous training and subsequent evaluation on critical thinking competency for NGRNs.

Additionally, Chen et al. (2020) indicated that critical thinking disposition was positively associated with research competency among clinical nurses. In turn, research activities, particularly in evidence-based nursing research, could enhance the competency of critical thinking through extensive and intensive study (Futami et al., 2020). Therefore, greater efforts are required to implement educational programs aimed at increasing critical thinking and research aptitude in nursing students, which can be improved further after registration.

Currently, transition programs provided for NGRNs mainly focus on professional knowledge and skills to shorten the knowledge-practice gap (Rush et al., 2019), and consequently, the perceptions of individuals' emotional, sociocultural, and developmental experience during the transition period were neglected. Specifically, frustrations about the inability to cope with their designated roles and responsibilities, complicated interpersonal relationships, and relentless anxieties with unfamiliar working contents and procedures lowered NGRNs' confidence in learning and mastering the knowledge and skills (Woo and Newman, 2019; Nour and Williams, 2019). Contrarily, Roze des Ordons et al. (2018) indicated that compassionate approaches, for example, providing a support system and sharing personal experience in managing distress could help prevent discouragement and build up confidence in performance competency. Other strategies, such as communication skills improvement and team activities that integrate NGRNs into the unit, were also recommended to promote NGRNs' adaptability to the clinical setting (Pasila et al., 2017; Stacey et al., 2020). Therefore, a successful transition program involving awareness and recognition of transition shock as well as coping strategies regarding emotional, sociocultural, and developmental experience may be an effective approach to improve NGRNs' nursing competency as a whole in the initial transition period.

Preceptors, as experienced nurses, provide predominant knowledge and skills to NGRNs in clinical practice, and their attitudes and behaviors affect the competency development of NGRNs (Voldbjerg et al., 2020). In addition, preceptor activities (e.g., providing feedback based on NGRNs' strengths and weakness and helping NGRNs on how to make decisions regarding patients) provide opportunities for NGRNs to learn to care for patients, thereby promoting NGRNs' familiarity with the practical skills. Though the importance of the preceptor's role is emphasized in practice, limited attention has been given on how to strengthen their ability to perform their roles and tasks in hospitals (Rush et al., 2019). A study by Chan et al. (2019) demonstrated that nurse preceptors scored lowest on providing feedback and evaluation in clinical teaching behaviors, with critical thinking, prioritizing, teaching techniques, conflict management, and teamwork as their most important training needs. Thus, formal training programs for preceptors may be implemented as needed. Moreover, regular evaluation and updated feedback toward preceptor activity may be given by both NGRNs and nurse managers during the transition period to optimally fulfill preceptor role and promote the benefits of preceptorship.

Moreover, the preceptor context played an important role in predicting nursing competency of NGRNs. This result was consistent with that of Blegen et al. (2015), who reported that a higher level of support for the preceptor is linked to a higher level of nursing competency among NGRNs in the hospital. Preceptor context in the hospital such as workload, colleague support, preceptor training/skills development program, and flexible scheduling have been reported to influence preceptor activity and quality (Edward et al., 2017). A recent systematic review suggested that preceptors experienced increased levels of stress due to preceptor role and patient workload, which led to unwillingness to be a preceptor (Quek and Shorey, 2018). Additionally, a supportive environment, such as support exhibited by colleagues, was found to have enhanced NGRNs' access to support and their transition (Doughty et al., 2018), whereas a negative sociocultural and developmental environment, where NGRNs feel less respected and inferior to senior nurses in the hierarchy, limited their inquiry on clinical practice and hindered their help-seeking behaviors with regard to senior nurses (Kim and Yeo, 2019; Voldbjerg et al., 2020). Hence, nurse managers are encouraged to make more efforts to cultivate a supportive unit culture, balance preceptor role, and allow for sufficient time for the preceptor to precept NGRNs in the hospital setting, such as decreasing patient workload.

Additionally, this study recommended a fixed one-on-one preceptor relationship in a unit, which is similar to a previous study that showed that this relationship offered advantages of enhancing the interaction between preceptor and NGRNs as well as supporting NGRNs to perform practical skills safely to improve nursing competency (Nugent, 2008; Irwin et al., 2018). Although assigning one preceptor to one NGRN might be challenging in the hospital setting due to staffing shortages and deficient suitable preceptors (Wierzbinski-Cross et al., 2015), it might be

a cost-effective method in improving nursing competency and long-term nurse retention. Further studies are needed to confirm this finding.

The study had several limitations. First, it employed a cross-sectional design; hence, a longitudinal study should be designed to examine the causal relationships between transition shock, preceptor support, and nursing competency among NGRNs. Second, a convenient sampling method may limit the generalizability of the study results. Third, regarding the preceptor context, the NGRN's assigned preceptor varied day by day and the emotional aspect of transition shock only accounted for 34% of variance in nursing competency; thus, other predictors may be explored in future studies.

5. Conclusion

This study found that a fixed one-on-one preceptor relationship, preceptor context, and transition shock influenced the development of nursing competency in NGRNs in mainland China. The findings revealed that critical thinking is the weak link in nursing competency among NGRNs. This result emphasized the importance of providing educational programs aimed at increasing critical thinking and research aptitude in the educational stage and of further improving these skills after registration. A well-organized transition program in the hospital context, which includes awareness and recognition of transition shock of NGRNs, is essential to equip them with the competency and confidence needed to provide efficient and effective nursing care. Moreover, preceptor support through formal training based on needs, regular evaluation and updated feedback toward preceptor activities, a supportive unit culture, and balancing the preceptor's role may result in the improvement of nursing competency among NGRNs.

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CRediT authorship contribution statement

Feifei Chen: Conceptualization, Methodology, Writing - Original draft preparation, Reviewing and Editing.

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Hong Dong: Supervision, Writing - review & editing.

Declaration of competing interest

None declared.

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