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Effects of pre-graduation characteristics and working environments on transition shock of newly graduated nurses: A longitudinal study

Eun-Young Kim, Jung Hee Yeo*

Dong-A University Department of Nursing, Busan, South Korea

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ABSTRACT

Background: The transition of newly graduated nurses to nursing practice is a considerable challenge and can lead to transition shock, which is defined as the difficulty experienced by newly graduated nurses during the transition from student to nurse. However, there have only been a few studies on the transition shock of newly graduated nurses and its influencing factors.

Objectives: The purpose of this study was to determine the effects of pre-graduation characteristics and working environments on the transition shock of newly graduated nurses.

Design: A prospective, longitudinal, and correlational design was used.

Settings: Data were collected from 5 nursing colleges in South Korea.

Participants: Participants included 312 newly graduated nurses who had graduated from the 5 nursing colleges in February 2016 and were working in hospitals.

Methods: A convenience sample of 526 undergraduate nursing students completed questionnaires, capturing demographic data and measuring grade point average, self-efficacy, and professional nursing values. After graduation, 317 of the participants responded to the second survey, which included measures of transition shock and working environments. Of these, 312 were used for the final analysis, excluding 5 with incomplete responses. Data were analyzed using descriptive, bivariate, and multivariate analyses as appropriate.

Results: The mean transition shock perceived by newly graduated nurses was 2.81 points on a 4-point scale. The factors significantly influencing transition shock were age, self-efficacy, working unit, desired unit, and nurse work environment.

Conclusions: In order to reduce transition shock of newly graduated nurses, it is necessary for undergraduate programs to enhance their self-efficacy. It is also optimal to assign nurses into their desired unit and to improve nurse work environments. These changes will not only mitigate the transition shock of newly graduated nurses but will also contribute to the provision of quality nursing services at a hospital level.

1. Introduction

The transition of newly graduated nurses to nursing practice is a considerable challenge. As the current healthcare environment is undergoing rapid and complex change, this is a significant burden. This burden, felt by newly graduated nurses in their transition from students to nurses, is called transition shock. In other words, transition shock is the reaction of emotions (such as doubt, confusion, disorientation, and loss) experienced by a newly graduated nurse due to the inconsistency between what was expected of them before graduation and what is expected of them in the workforce (Duchscher, 2009). In the transition process, newly graduated nurses in South Korea previously reported feeling confused by conflicting theories and realities, experiencing an incompatibility of work and personal life due to their overwhelming workload and subsequent loss of relationships (Sin and Kim, 2017). Most newly graduated nurses go through transition shock, although there are differences in severity (Kramer et al., 2013). After transition shock, newly graduated nurses undergo a process of adapting to clinical practice by reassessing and re-establishing their professional values (Duchscher, 2009). However, if they fail to overcome it, they will face the problem of either quitting or burning out at the beginning of employment (Martin and Wilson, 2011; Suzuki et al., 2006). In fact, the average turnover rate of newly graduated nurses in South Korea is 29.0%; twice that of seasoned nurses (13.9%) (Korean Hospital Nurses Association, 2015). It is therefore important to investigate the factors influencing transition shock to identify preventative intervention and

* Corresponding author at: Dong-A University Department of Nursing, Dongdaeshin-dong 3, Seo-gu, Busan 602-714, South Korea.
E-mail address: jheeyeo@dau.ac.kr (J.H. Yeo).

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thus improve nurses' retention rate.

Transition shock appears to be worse if the working environment is poor. Newly graduated nurses in poor work environments showed a higher transition shock than those in better work environments (Kramer et al., 2013). These more favorable work environments refer to adequate resources, strong nurse leadership, collegial relationships between nurses and physicians, ardent nurse participation in hospital affairs, and a solid nursing foundation for quality of care (Lake, 2002). Inadequate nurse work environments bring about nurses' dissatisfaction and burnout, because such environments make it difficult for nurses to perform their professional roles (Baernhold and Mark, 2009). Therefore, the transition shock of newly graduated nurses is considered to be higher in inadequate work environments.

Nursing education programs should be designed to prepare nursing students with the knowledge, skills, and values needed to perform their future jobs as professional nurses (Kumaran and Carney, 2014). If educational preparation is done well in undergraduate programs, it will be easier to transition from being a student to a nurse. As transition shock appears in the process of transitioning from school to workplace, it was necessary for this study to include pre-graduation characteristics. These pre-graduation characteristics included academic achievement, self-efficacy, and professional nursing values to understand their impact on the transition shock of newly graduated nurses. Academic achievement represents academic and clinical ability and is typically measured by grade point average (GPA). Self-efficacy is the belief that successful work can be performed (Bandura, 2012), and it positively influences the development of knowledge and skills needed to act in a professional capacity following graduation (Henderson et al., 2016). Finally, professional nursing values are standards for actions that are preferred by nurses and provide a framework for evaluating their own behavior (Weis and Schank, 2000). Transition shock is considered to arise because of the conflict between the professional values learned in school and the bureaucratic values of the real world (Kramer, 1974). Therefore, it is necessary to understand the impact of the professional nursing values developed in undergraduate programs on transition shock after graduation.

Self-efficacy and professional nursing values affect the process of preparing professional nurses during undergraduate programs, and academic achievement is the outcome of showing one's achievement level in the university. The purpose of this study was to identify how these pre-graduation characteristics affect transition shock in newly graduated nurses. In addition, we examined the relative influence of pre-graduation characteristics and working environments on predicting transition shock, as well as the factors that impact transition shock.

2. Methods

2.1. Design and Sample

This study used a prospective, longitudinal, and correlational design. The participants comprised newly graduated nurses who had graduated from 5 nursing colleges in February 2016 and were working in hospitals in South Korea. The first survey questionnaire was distributed to 716 nursing students, and 526 (79.1%) were returned. The second survey was conducted 4 months after they began work at the hospital, with 317 (60.3%) participants responding. Of these, 5 were excluded due to incomplete responses, leaving 312 participants for the final analysis. According to a power analysis carried out using G*Power 3.1.9.2, the required sample size for multiple regression analysis (with 17 independent variables, for a desired power level of 0.95, an α value of 0.05, and a medium effect size of 0.15) was 222. Thus, the sample size of 312 was satisfactory for this study, with a statistical power of 0.99.

2.2. Measures

2.2.1. Pre-Graduation Characteristics

Academic achievement refers to the cumulative grades achieved from years 1 to 4, measured by GPA. Participants' GPAs were categorized into two groups: lower than 3.5 and 3.5 and above. **Self-efficacy** was measured using the Korean version of the General Self-Efficacy Scale developed by Schwarzer et al. (1997). This scale consists of 10 items measured on a 4-point scale, with a higher score indicating higher self-efficacy. The Cronbach's alpha of the original scales was 0.88 (Schwarzer et al., 1997); in this study, it was 0.71.

Professional nursing values were measured using the scale developed by Yeun et al. (2005). The scale is composed of 5 subscales: “self-concept of the profession” (9 items), “social awareness” (8 items), “professionalism of nursing” (5 items), “the roles of nursing service” (4 items), and “originality of nursing” (3 items). These 29 items were measured using a 5-point scale, with a higher score indicating higher professional nursing values. The Cronbach's alpha of the original scale was 0.92 (Yeun et al., 2005); in this study, it was 0.87.

2.2.2. Working Characteristics

Working characteristics included the type of employment, number of beds, type of hospital, working unit, desired unit, monthly income, pre-education, preceptorship, and nurse work environments.

Nurse work environments were measured using the Korean version of the Practice Environment Scale of the Nursing Work Index (PES-NWI) (Cho et al., 2011). This scale is composed of 29 items scored using a 4-point scale, which were then summed to form 5 subscales (“nurse participation in hospital affairs,” “nursing foundation for quality of care,” “nurse manager ability/leadership/support of nurses,” “staffing–resource adequacy,” and “collegial nurse–physician relationship”). With this measure, a higher score indicated a better work environment. The Cronbach's alpha of the Korean PES-NWI was 0.93 (Cho et al., 2011); in this study, it was 0.87.

2.2.3. Transition Shock

Transition shock was measured using the Transition Shock Scale for Newly Graduated Nurses, developed by Kim et al. (2017). This scale consists of 6 subscales: “conflict between theory and practice,” “overwhelming workload,” “loss of social support,” “shrinking relationship with coworkers,” “confusion in professional nursing values,” and “incompatibility in work and personal life.” A total of 18 items were measured using a 4-point scale, with a higher score indicating a stronger transition shock. The Cronbach's alpha was 0.89 (Kim et al., 2017); in this study, it was 0.91.

2.3. Ethical Considerations

The study was reviewed and approved by the Institutional Review board of D. University (No. 2-104709-AB-N-01-201511-HR-036-02). The purpose, risks, and benefits of the study were explained to potential participants and their confidentiality was assured. Following this, individuals who wished to participate provided written informed consent. All data were then anonymized, coded, and processed confidentially.

2.4. Data Collection

Data collection was conducted twice, once prior to graduation and again following graduation when the participants were in professional nursing roles. The first survey was conducted in 5 universities that were selected for convenience, from December 2015 to February 2016. Consent was received from the departmental chairs and a public notice was posted on noticeboards in the universities (e.g., in classrooms, department offices, elevators), asking for students to contact the research team if they wished to participate in this study. Informed consent was then received from all participants. The research team

provided detailed answers to any questions and provided the necessary contact information. Participants were then instructed to complete the questionnaires in private and seal them in envelopes provided by the research team to ensure confidentiality. The survey questionnaires were sent back to the researchers by mail.

The second survey was conducted between July and December 2016, 4 months after the participants graduated and commenced work in hospitals. Data were collected using an online survey system previously detailed in the first survey.

2.5. Data Analysis

All data were processed using IBM SPSS Statistics for Windows, Version 25.0 Armonk, NY: IBM Corp. Descriptive statistics were conducted to check the basic features of the data, including the linearity, normality, and homoscedasticity of the study variables. The characteristics of the participants were described by means, standard deviations, frequencies and percentages. Analysis of variance and *t*-tests were used to determine differences in transition shock by pre-graduation characteristics and working characteristics. Furthermore, the correlation between transition shock and nurse work environment was assessed using Pearson's correlation coefficient. The effects of pre-graduation characteristics and working environments on transition shock were then examined using hierarchical multiple regression analyses. The assumptions for multiple regression analyses, including the multicollinearity between independent variables, were also interrogated. The tolerance was lower than 1.0 (range = 0.91–0.98), the variance inflation factor was 1.02–1.10 (i.e., lower than the standard of 10), and the Durbin-Watson statistic was 1.837. Thus, no problems regarding multicollinearity and autocorrelation were found and the assumptions of the multiple regression analyses were met.

3. Results

3.1. Characteristics of Participants

Table 1 shows the characteristics of the participants. The mean age of participants was 22.8 (± 2.2) years and the majority (90.7%) were female. Approximately half of the sample (47.1%) cohabitated with their parents, and most (82.0%) had families with middle–income economic status. Over three-fifths (61.6%) had a GPA of lower than 3.5 points, and the mean self-efficacy score (on a 4-point scale) and mean professional nursing score (on a 5-point scale) were 2.8 (± 0.4) and 3.8 (± 0.6), respectively.

Of all study participants, 72.8% reported being in permanent employment. Most of the hospitals where the participants were working had > 700 beds (47.4%) and were general hospitals (48.7%). Working units included 55.4% general units and 44.6% special units (such as intensive care units, emergency rooms, and operating rooms). Of the participants, 50% had been assigned to their desired unit, and most had received pre-education (87.2%) and preceptorship (78.2%). Almost half of the participants (42.6%) received a monthly income between 2 million and 2.5 million won. Participants perceived the mean nurse work environment as 2.5 (± 0.4) on a 4-point scale.

3.2. Transition Shock

The mean transition shock that participants perceived was 2.8 (± 0.5) on a 4-point scale. Within this, the mean scores for subscales of transition shock were 2.8 (± 0.5) for “conflict between theory and practice,” 2.9 (± 0.6) for “overwhelming workload,” 2.3 (± 0.7) for “loss of social support,” 3.1 (± 0.7) for “shrinking relationship with coworkers,” 2.8 (± 0.6) for “confusion in professional nursing values,” and 2.7 (± 0.8) for “incompatibility in work and personal life” (Table 2).

Table 1
Characteristics of participants (n = 312).

	Category	Mean ± SD or n (%)
Pre-graduation characteristics		
Age (years)		22.8 ± 2.2
Gender	Female	283 (90.7)
	Male	29 (9.3)
Living with parents	Yes	147 (47.1)
	No	165 (52.9)
Family economic status	High	18 (5.8)
	Middle	255 (82.0)
	Low	38 (12.2)
Grade point average	< 3.5	191 (61.6)
	≥3.5	119 (38.4)
Self-efficacy		2.8 ± 0.4
Professional nursing values		3.8 ± 0.6
Working characteristics		
Type of employment	Permanent	227 (72.8)
	Temporary	85 (27.2)
Number of beds	< 300	54 (17.3)
	≥300– < 500	78 (25.0)
	≥500– < 700	32 (10.3)
	≥700– < 1000	73 (23.4)
	≥1000	75 (24.0)
Type of hospital	Tertiary general hospital	143 (45.8)
	General hospital	152 (48.7)
	Hospital	17 (5.4)
Working unit	General unit	173 (55.4)
	Special unit	139 (44.6)
Desired unit	Yes	156 (50.0)
	No	156 (50.0)
Pre-education	Yes	272 (87.2)
	No	40 (12.8)
Preceptorship	Yes	244 (78.2)
	No	68 (21.8)
Monthly income (10,000 won)	< 200	99 (31.7)
	≥200– < 250	133 (42.6)
	≥250	80 (25.6)
Nurse work environment		2.5 ± 0.4

Table 2
Transition shock.

Subscales	Mean ± SD
Conflict between theory and practice	2.8 ± 0.5
Overwhelming workload	2.9 ± 0.6
Loss of social support	2.3 ± 0.7
Shrinking relationships with coworkers	3.1 ± 0.7
Confusion in professional nursing values	2.8 ± 0.6
Incompatibility in work and personal life	2.7 ± 0.8
Total	2.8 ± 0.5

3.3. Difference in Transition Shock by Characteristics of Participants

The differences in transition shock by participant characteristics investigated in this study are shown in Table 3. Transition shock showed statistically significant differences in age ($r = -0.19$, $p = .001$), self-efficacy ($r = -0.26$, $p < .001$), working unit ($t = 2.89$, $p = .034$), desired unit ($t = 2.55$, $p = .011$), and nurse work environment ($r = -0.48$, $p < .001$).

3.4. Effects of Pre-Graduation and Working Characteristics on Transition Shock

Table 4 shows the results of the hierarchical multiple regression analysis, which examined the relative influence of pre-graduation characteristics and working characteristics in predicting transition shock. In the first model, 9.0% of the variance in transition shock was explained by pre-graduation characteristics. In the second model, which included the working characteristics, the variance explained increased to 29.0%. The second model revealed that age ($\beta = -0.03$,

Table 3
Difference of transition shock by characteristics of participants.

Variables	Categories	Mean ± SD	t/F or r (p)
Pre-graduation characteristics			
Age			−0.19 (0.001)
Gender	Male	2.63 ± 0.63	−1.88 (0.060)
	Female	2.82 ± 0.49	
Living with parents	Yes	2.82 ± 0.49	0.65 (0.517)
	No	2.78 ± 0.51	
Family economic status	High	2.78 ± 0.36	0.43 (0.648)
	Middle	2.81 ± 0.51	
	Low	2.73 ± 0.53	
Grade point average	< 3.5	2.78 ± 0.51	1.16 (0.246)
	≥3.5	2.85 ± 0.49	
Self-efficacy			−0.26 (< 0.001)
Professional nursing values			−0.11 (0.057)
Working characteristics			
Type of employment	Permanent	2.81 ± 0.52	−0.04 (0.964)
	Temporary	2.80 ± 0.47	
Number of beds	< 300	2.80 ± 0.60	0.67 (0.612)
	≥300– < 500	2.79 ± 0.54	
	≥500– < 700	2.77 ± 0.44	
	≥700– < 1000	2.88 ± 0.47	
	≥1000	2.74 ± 0.44	
Type of hospital	Tertiary general hospital	2.80 ± 0.46	0.65 (0.520)
	General hospital	2.82 ± 0.52	
	Hospital	2.67 ± 0.67	
Working unit	General unit	2.89 ± 0.45	2.89 (0.034)
	Special unit	2.69 ± 0.52	
Desired unit	Yes	2.73 ± 0.48	2.55 (0.011)
	No	2.88 ± 0.52	
Pre-education	Yes	2.80 ± 0.49	0.09 (0.924)
	No	2.81 ± 0.57	
Preceptorship	Yes	2.79 ± 0.49	−0.55 (0.585)
	No	2.83 ± 0.57	
Monthly income (10,000 won)	< 200	2.83 ± 0.50	0.44 (0.644)
	≥200– < 250	2.81 ± 0.48	
	≥250	2.76 ± 0.55	
Nurse work environment			−0.48 (< 0.001)

$p = .023$), self-efficacy ($\beta = -0.13$, $p < .001$), working unit ($\beta = -0.11$, $p = .012$), desired unit ($\beta = -0.12$, $p = .013$), and nurse work environment ($\beta = -0.58$, $p < .001$) all significantly predicted transition shock.

4. Discussion

This study examined the associations of pre-graduation and working characteristics with transition shock experienced by newly graduated nurses in South Korea. The mean transition shock of newly graduated nurses was found to be 2.8 on a 4-point scale, higher than the 2.41 previously found by Kramer et al. (2013) using a similar scale. Within the transition shock, the subscale of "shrinking relationship with coworkers" had the highest score, 3.1, followed by "overwhelming workload" at 2.9, and "conflict between theory and practice" and "confusion in professional nursing values," both at 2.8. These findings showed that newly graduated nurses have the most difficulty with coworkers, followed by work performance.

This study found that pre-graduation characteristics (age and self-efficacy) and working environments (working unit, desired unit, and nurse work environment) were significant factors affecting the transition shock of newly graduated nurses. Specifically, higher self-efficacy was associated with lower transition shock; therefore, it is likely that newly graduated nurses who developed self-efficacy in their undergraduate program show greater confidence when providing nursing care in a complex medical environment (Henderson et al., 2016). Therefore, undergraduate programs require the implementation of strategies to improve self-efficacy, as well as nursing knowledge and skills.

Academic achievement (GPA) is considered to be the outcome of university education (Gurin et al., 2002), and therefore, we expected a higher GPA to be associated with a lower transition shock in newly graduated nurses. However, this study found that GPA was not a significant factor in affecting transition shock. Although GPA has been a standard for predicting job performance and selecting new employees, the association between GPA and job performance is extremely low (Roth et al., 1996). In order to ensure that the educational outcomes of nursing undergraduate programs improve job performance in hospitals, it will be necessary for university education to be designed more suitably for the workplace. In Korea, the nursing curriculum emphasizes nursing knowledge and skills, rather than negotiation skills and relationship building. Therefore, GPA reflects the acquisition of nursing knowledge and skills, but does not represent the degree of relationship building and leadership skills. It is necessary to redesign nursing education to include negotiation skills and relationship building in order to provide students with tools that can be used to both acquire employment and perform well. This could have benefits in decreasing the placement of graduates in less suitable or less preferable environments.

In this study, professional nursing values developed in undergraduate programs were assumed to lower transition shock by facilitating the transition from student to nurse. The results showed that these values did not significantly affect their transition shock. However, it has been previously reported that nurses have fewer professional nursing values than nursing students (LeDuc and Kotzer, 2009). This is

Table 4
Effects of pre-graduation and working characteristics on transition shock.

Variables[a]	Model 1			Model 2		
	β	SE	p	β	SE	p
Pre-graduation characteristics						
Age	−0.03	0.01	0.007	−0.03	0.01	0.023
Self-efficacy	−0.25	0.05	< 0.001	−0.13	0.05	< 0.001
Working characteristics						
Working unit				−0.11	0.06	0.012
Desired unit				−0.12	0.05	0.013
Nurse work environment				−0.58	0.07	< 0.001
R^2	0.09			0.29		
Adjusted R^2	0.08			0.28		
F (p)	14.87	(< 0.001)		21.43	(< 0.001)	

[a] Dummy variables: Working unit (General unit = 1, Special unit = 0); Desired unit (Yes = 1, No = 0).

related to “confusion in professional nursing values” among the subscales of the transition shock scale. As such, repeated research is needed to confirm the findings of this study.

Pre-graduation characteristics (including GPA, self-efficacy, and professional nursing values) are proxies for how well nursing students are prepared for the transition from school to workplace. However, our findings show that GPA and professional nursing values, but not self-efficacy, did not significantly affect the transition shock. These results make it clear that there may be gaps between nursing curricula and healthcare industry requirements, and efforts are needed to reduce them. The Institute of Medicine in the United States recommends the development and implementation of residency programs to support nurses' transition to practice. Nurse residency programs consist of two areas: the orientation of clinical knowledge and skills, and the entry-to-practice content for professional development, concepts, and skills (Cline et al., 2017). South Korea has not yet decided on nurse residency programs, but it will be necessary to introduce such programs to deal with the clinical issues and alleviate the transition shock of newly graduated nurses.

In this study, the work characteristic factors that influenced transition shock were the working unit, the desired unit, and the nurse work environment. These results revealed that the transition shock of newly graduated nurses was lower for those working in special units or assigned to their desired units. Therefore, it would be optimal to place nurses in their desired units. Our results show that nurse work environments have a significant effect on transition shock, which is consistent with findings from a previous study in the United States (Kramer et al., 2013). Together, these findings make it clear that Korean hospitals should improve nurses' working environments to reduce transition shock and increase the retention in newly graduated nurses.

This transition shock is not limited to South Korea; high transition shock is related to the quitting of jobs, which leads to nurse shortages (Suzuki et al., 2006), a long-standing international issue (Buchan et al., 2013). To solve this problem, it is necessary to identify the factors influencing transition shock and make efforts to intervene. The findings of this study can therefore provide evidence for interventions and policy decisions to combat this issue.

One limitation of this study is that the data were collected in conveniently selected nursing colleges, which may limit the generalizability of the study results. However, using a prospective and longitudinal design, our findings provide evidence for pre-graduation characteristics and working environments as important factors in reducing the transition shock of newly graduated nurses. However, further investigations using greater sample sizes and other geographical locations are needed to reach robust conclusions about the predictors of transition shock and thus improve our understanding.

5. Conclusion

The study results suggest that lower self-efficacy, working in a general unit or undesired unit, and poor work environments in South Korean hospitals may be responsible for higher transition shocks. In order to reduce the transition shock of newly graduated nurses, it is necessary for undergraduate programs to enhance their self-efficacy, and it is optimal to assign nurses in their desired units and improve their working environments. These strategies will not only mitigate the transition shock of newly graduated nurses, but will also contribute to the provision of quality nursing services at a hospital level.

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