An Exploratory Study on the Mediating Effect of Clinical Competence in the Relationship Between Grit and Field Adaptation in Newly Graduated Nurses

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Abstract

Introduction: Even under difficult situations, individuals with psychological resources such as positive psychological capital and resilience are less likely to consider turnover. Grit is a psychological factor that predicts success at work in other industries, but little is known about its impact on newly graduated nurses.
Objectives: The study's purpose is to investigate newly graduated nurses' grit, clinical competence, and field adaptation as well as the mediating effect of clinical competence in the relationship between grit and field adaptation.
Methods: A total of 102 nurses from university hospitals located in W city took part in this investigation. Data were collected using a self-questionnaire and were analyzed using descriptive statistics, Pearson's correlation coefficient, multiple regression, and mediation analysis with the SPSS/26.0 program.
Results: Grit was remarkably related to clinical competence ($r = .53$, $p < .001$) and field adaptation ($r = .30$, $p = .003$). Clinical competence was significantly related to field adaptation ($r = .24$ $p = .02$). However, the role of clinical competence as a mediating factor in the relationship between grit and field adaptation was not found to be significant ($\beta = .11$, $p = .32$).
Conclusion: Grit boosted clinical competence and had a direct effect on field adaptation. In order for newly graduated nurses to retain a consistent level of enthusiasm in their work, it is necessary to develop a program or strategies to improve their grit.

Keywords

newly graduated nurses, grit, clinical competence, field adaptation, self-questionnaire, mediating effect

Introduction

With the Fourth Industrial Revolution's development of artificial intelligence, advancements in medical technology, longer life spans, and interest in health has increased, which raises social expectations for the medical service industry (Choi, 2014). Nurses offer the majority of medical services in hospitals, and securing competent nursing employees is a key factor in a hospital's ability to provide quality nursing care (Kim & Park, 2013). However, turnover rates of newly graduated nurses are a worldwide concern, even 35%–60% of new nurses leaving their jobs in the first year in some countries (Eckerson, 2018) and about one-third have strong intentions to resign within the first year (Rudman et al., 2014). In the 2016 data from the Korean Hospital Nurses Association, all nurses had a turnover rate of 12.4%, with newly graduated nurses having a turnover rate of 33.9% within a year, which was fairly high (Hospital Nurses Association, 2018). The high turnover rates of new nurse disrupts nursing work and has a negative impact on the quality of patient care and medical services, as well as adding to the cost of recruiting newly graduated nurses (Hospital Nurses Association, 2018; OECD, 2019).

Review of the Literature

According to previous studies, among the variables related to the turnover of newly graduated nurses, general

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characteristics at the individual level include age, career, marital status, and education level, and job-related characteristics include job satisfaction, organizational commitment, job stress, and emotional labor, etc. (Kim & Kim, 2011; Song, 2014). In particular, maladaptation to the field due to lack of clinical competence of newly graduated nurses may negatively affect job satisfaction and nursing identity, leading to turnover (Shin et al., 2010). Along with these individual and job-related characteristics, psychological characteristics such as positive psychological capital, ego resilience (Jung & Jeong, 2017; Hwang et al., 2017), and grit (Jeong et al., 2019) are also reported as factors related to the turnover of newly graduated nurses.

Field adaptation is defined as a process where a new employee learns the values, performance capabilities, expected behaviors, and rules of a particular role, thereby acquiring the necessary knowledge and skills to function in that role (Sohn et al., 2008). Field adaptation was found to have a substantial association with the turnover of newly graduated nurses, with the turnover rate being significantly lower when the field adaptation level was high (Ji, 2009). Clinical competence is the most commonly reported factor in field adaptation, and a nurse's lack of clinical competence contributes to turnover by preventing them from adapting adequately to clinical fields (Byeon et al., 2003). Accordingly, to reduce the inability of a newly graduated nurse to adapt to the clinical field, each hospital provides instructions to boost clinical competence (Ji, 2009).

Clinical competency is the nursing skills, problem-solving ability, and decision-making ability required for clinical practice, and it is necessary for field adaptation to have clinical competency in order to grow into professional nurses (Mika, 2018). Despite the relationship between field adaptation and clinical competence, clinical competence did not always result in field adaptation. The necessity for an attitudinal approach to the value of newly graduated nurses, professionalism, and other issues has been addressed in addition to clinical competence (Lee, 2007). Not all newly graduated nurses considers turnover, even if an individual's general qualities or functional attributes such as clinical performance are the same. Even under difficult situations, individuals with psychological resources such as positive psychological capital defined as an individual's motivational propensities and positive psychological state of development (Luthans et al., 2015) and resilience (Hwang et al., 2017) are less likely to consider turnover (Jung & Jeong, 2017; Hwang et al., 2017). Positive psychological capital permits one to have the resilience and optimism to rise again in the face of adversity such as mistakes and failures when performing challenging nursing tasks (Luthans et al., 2015), and resilience allows them to overcome difficulties and stress in nursing when working together. It has been shown to minimize the risk of turnover by relieving stress (Tusaie & Dyer, 2004) and promoting higher-level functions and adaptation (Jung & Jeong, 2017; Hwang et al., 2017).

Grit is a psychological factor that predicts achievement in an individual's workplace, which recently gained a lot of attention. In numerous occupations and age groups, grit has been found to predict individual achievement, career path, and life satisfaction (Jeong et al., 2019). Duckworth and researchers (Charness et al., 2005; Ericsson & Ward, 2007; Sohn, 2005) demonstrated that grit, a long-term effort and passion to achieve the individual's goals, is a common trait of individuals who have similar innate intelligence and talents but have attained outstanding achievements different from others. They called this as an ability beyond intelligence and sincerity in predicting success. Recent study has shown that individual differences in grit may help explain why two individuals with the same level of ability in a particular field can attain substantially different levels of achievement (Lee, 2014). Therefore, grit can be considered an important personality trait for nurses experiencing high burnout and job stress in a three-shift work environment, as it allows them to strive toward long-term goals without giving up in challenging situations. So far, studies have been done on the association between grit and academic achievement for college students (Duckworth et al., 2007) or the relationship between grit and leader well-being (Seguin, 2019) for nursing leaders.

The purpose of this study is to investigate the grit, clinical competence, and field adaptation of newly graduated nurses, as well as the mediating effect of clinical competence in the relationship between grit and field adaptation.

Methods

Study Design

This is an exploratory study to determine the mediating effect of clinical competence in the relationship between grit and field adaptation and to investigate the field adaptation, clinical competence, and the degree of grit, which are the main factors for turnover of newly graduated nurses who have worked in the university hospital.

Setting

This study was conducted at, a tertiary hospital located in W city, Republic of Korea. The inclusion criteria for the participants were newly graduated nurses with less than 1 year of working at the time of the study.

Sampling

A total of 102 individuals who volunteered to participate after a detailed explanation of the study's purpose were included in this study to examine the factors affecting the field adaptation of newly graduated nurses. Using the G-power 3.1.2 program, the correlation coefficient values required for correlation analysis on a single population

(Cohen, 1988; Kang, 2019) were set to .30 (the median value), the significance level of the two-sided test was set to .05, and the power to be .80 and .84 were calculated as the number of study subjects. Therefore, the number of participants in this study was of a sufficient subject size.

Ethical Considerations

The Sangji University institutional review board (IRB No. IRB-45) approved this study to ensure ethical consideration of the subjects. For nurses who desired to participate voluntarily in the study, the researcher provided a written explanation that included the study's purpose, voluntary involvement, anonymity, and a consent form. After the subject signed the consent form, the researcher requested him/her to complete the questionnaire. All data were kept under participant's confidentiality and processed anonymously.

Study Instruments

Field Adaptation. The field adaptation evaluation tool for newly graduated nurses developed by Sohn et al. (2008) was used to measure field adaptation. The evaluation area consisted of 39 items in seven areas which were personal characteristics, group characteristics, nursing identity, job performance, job satisfaction, organizational commitment, and burnout. Each item is scored on a Likert scale ranging from 1 point (strongly agree) to 5 points (not at all), with higher scores suggesting higher field adaptation. The tool's reliability was Cronbach's $\alpha = .98$ in Sohn et al.'s study; however, we used Cronbach's $\alpha = .62$ in this investigation.

Clinical Competence. Choi (2005) modified and supplemented Lee et al.'s (1990) clinical competence measurement tool based on Schwirian's Six-Dimension Scale. The scale consists of 45 items and each item's score is on a Likert scale ranging from 1 point for "very poor" to 5 points for "very good," with a higher score indicating a higher level of clinical competence. The tool's reliability was Cronbach's $\alpha = .96$ when it was developed by Lee et al., Cronbach's $\alpha = .92$ in Choi's study, and Cronbach's $\alpha = .96$ in this study.

Grit. The Original Grit Scale (Grit-O) questionnaire developed by Duckworth measures 12 items and suggests a new concept of grit. Persistence of effort and consistency of interest are the two areas in this scale questionnaire. Each area has six items, and all items was rated on a 5-point scale from 1 point (Strongly disagree) to 5 points (Strongly agree). Lee (2014) adapted Duckworth's Grit-O for use in Korea, and this adapted tool was utilized to measure grit.

The characteristics of persistence of effort and consistency of interest make up grit, and the higher the score, the better. Cronbach's $\alpha = .79$ is used in Lee's study, whereas Cronbach's $\alpha = .75$ is used in this study.

The questionnaire included a total of 14 items to identify the general characteristics of the subjects such as age, gender, educational level, marital status, religion, working period at the current workplace, workplace, nursing job choice motivation, satisfaction with new nurse education, satisfaction with the current department, pay satisfaction, and nursing job satisfaction.

Data Collection Procedure

From July 29 to August 9, 2019, data were obtained using self-report questionnaires completed by nurses working in hospital. The subjects who freely volunteered for this study via a recruitment notice received a written explanation of the study. They completed the questionnaire after signing the consent form.

Statistical Analysis

The general characteristics of subjects were frequency and percentage, and grit, clinical competence, and field adaptation were calculated as mean and *SD*. Student's *t*-test and ANOVA test were performed to determine the differences in grit, clinical competence, and field adaptation by subject's general characteristics. The Pearson's correlation coefficient is used to confirm the relationship between the subject's clinical competence, field adaptation, and grit. Using Baron and Kenny's three-step mediating effect verification (Baron & Kenny, 1986) and multiple regression analysis, the mediating effect of grit in the relationship between clinical performance and field adaptation was identified. The statistical significance of the indirect effect through parameters was evaluated by bootstrapping using the PROCESS program. Data analysis was performed using SPSS statistical program 26.0 (SPSS Inc., Chicago, IL, USA). The alpha levels were set at < .05 (in a two-tailed test).

Results

General Characteristics of Subjects and Differences of Grit, Clinical Competence, and Field Adaptation

The average age of the study participants was 24 years, and 83.3% of them are female. In terms of educational level, 80.4% of subjects had a bachelor's degree. Most subjects (94.2%) were single, and 65.7% of the subjects were not religious. The average time of working period at the current workplace was roughly 6 months. The majority of the current workplaces were the internal ward (27.5%), intensive care unit (23.5%), and surgical ward (20.6%). As for the nursing job choice motivation, 30.4% was for employment, 22.5% for aptitude or interest, and 21.6% for inducement from family. When asked how they felt about their current physical health status, the majority answered was below moderate. In terms of satisfaction with new nurse education,

more than 90% of the subjects showed moderate or higher satisfaction. About 80% of the participants showed moderate or higher satisfaction with the current department, pay satisfaction, and satisfaction with the nursing job.

With regard to the differences in grit, clinical competence, and field adaptation by subject characteristics, gender ($p = .05$), nursing career choice motivation ($p = .03$), and nursing job satisfaction ($p = .007$) were the factors with a significant difference in grit. In clinical competence, there were significant differences in age ($p = .04$), awareness of one's current health status ($p = .01$), and nursing job satisfaction ($p = .003$). However, there was no significant difference in field adaptation by subject characteristics (Table 1).

Level of Grit, Clinical Competence, and Field Adaptation

The respondents' average grit score was 3.12 in the range of 1–5, their average interest consistency, which was a subfactor, was 2.99 and their effort persistence was 3.25. In the range of 1–5, the average clinical competence was 3.18 and the field adaptation was 2.82 (Table 2).

Correlation Among Grit, Clinical Competence, and Field Adaptation

The correlation between three variables was initially explored to assess the mediating effect of clinical competence on the relationship between grit and field adaptation of newly graduated nurses. As a result of the analysis, grit was significantly related to clinical competence ($r = .53$, $p < .001$) and field adaptation ($r = .30$, $p = .003$). Also, clinical competence was significantly related to field adaptation ($r = .24$ $p = .02$) (Table 3).

Mediating Effects of Clinical Competence on the Relationship Between Grit and Field Adaptation

The assumptions of regression analysis were verified before assessing mediating effects. First, the Durbin–Watson index for autocorrelation was 1.99–2.03, which was close to 2 and appeared independently. The variance inflation factor was 1.00 to 1.39, which was less than 10, so there was no collinearity between independent variables.

The mediating effect of clinical competence in the process of grit affecting field adaptation was performed in three steps according to Baron and Kenny. Grit had a significant effect on clinical competence ($\beta = .53$, $p < .001$) in the first step, which is a mediating effect, with a 28% explanatory power. In the second step, grit had a significant effect on the dependent variable field adaptation ($\beta = .29$, $p = .003$), with an explanatory power of about 9%. When grit and clinical competence were analyzed together as independent variables and field adaptation as a dependent variable in the third step, only

grit ($\beta = .24$, $p = .04$) was found to have a significant effect on field adaptation. When mediating clinical competence, the indirect effect was not significant ($\beta = .11$, $p = .32$) (Table 4).

Discussion

Although numerous prior studies on field adaptation related to the turnover of newly graduated nurses have been undertaken, until now, few studies have shown the relationship between a personality trait and field adaptation or clinical competence of newly graduated nurses. This study looked into how the personal trait of grit is related to the field adaptation and the mediating effect of clinical competence in order to find a way to improve the field adaptation of newly graduated nurses.

The average grit score of newly graduated nurses with less than 1 year of experience was 3.12 in this study, which was the same as 3.12 (Jeong et al., 2019) of the study results for nurses who were not newly graduated and was lower than 3.98 (Seguin, 2019) for nursing managers. Similar to the findings of the previous study on nurses, the grit score was higher in the group that considered aptitude or interest in the motivation for choosing a nursing career, and the nurses felt much more satisfaction with the current nursing job, according to each subject's characteristics (Jeong et al., 2019). Grit is composed of two factors: persistence of effort and consistency of interest. The persistence of effort in this study was higher (3.25) than the consistency of interest (2.99), which was similar to the previous study results (Jeong et al., 2019). In grit, consistency of interest means that attention is invariably placed on the same best goal, and the source of this consistency of interest is interest (Duckworth, 2016), and continuing interest becomes consistency of interest, that is, grit can grow when newly graduated nurses set high-level goals and work hard to achieve them. However, it may be difficult for newly graduated nurses to maintain continuous interest in one task due to the burden of doing many tasks on their own after a short training period, providing nursing services and dealing with emergency situations, and emotional labor due to interpersonal relationships. Therefore, it is vital to provide continuous support and encouragement, such as improving the work environment, to increase the consistency of interest in newly graduated nurses, so that they can be proud of their profession. This allows newly graduated nurses to pursue their passion on their own, and it is believed that if nurses set their own goals to achieve in the nursing profession and remain persistent in their efforts to succeed, it would help them in adjusting to the clinical field.

The average clinical competence in this study's subjects was 3.18, which was higher than 2.85 (Kim & Park, 2013) or 2.83 (Shin et al., 2010) reported in previous studies on newly graduated nurses, but this was attributable to the different measurement tools used. The subjects of this study scored about 63.60 on a scale of 100, and those in the previous study scored 71.25 and 70.75, indicating that the subjects of this study had low scores. Also, the more dissatisfied with

Table 1. Differences of Grit, Clinical Competence, and Field Adaptation According to the General Characteristics of Subjects (n = 102).

Characteristics	Categories	N (%) (m ± SD)	Grit Mean ± SD	t/F (p)	Clinical competence Mean ± SD	t/F (p)	Field adaptation Mean ± SD	t/F (p)
Gender	Male	17 (16.7)	3.33 ± 0.29	4.76 (.03)	3.31 ± 0.34	1.40 (.24)	2.90 ± 0.16	2.69 (.104)
	Female	85 (83.3)	3.08 ± 0.45		3.16 ± 0.50		2080 ± 0.23	
Age (years)	20–29	97 (95.1)	3.11 ± 0.44	2.17 (.144)	3.16 ± 0.47	4.35 (.04)	2.82 ± 0.22	0.14 (.707)
	30–39	5 (4.9)	3.40 ± 0.33		3.61 ± 0.45		2.86 ± 0.31	
		24.51 ± 2.29 (years)		-		-		-
Education level	College	19 (18.6)	3.04 ± 0.36	0.55 (.462)	3.01 ± 0.63	2.86 (.094)	2.82 ± 0.23	0.01 (.912)
	University	82 (80.4)	3.13 ± 0.45		3.22 ± 0.43		2.82 ± 0.23	
	Missing	1 (1.0)						
Marital status	Single	96 (94.1)	3.11 ± 0.44	1.32 (.254)	3.16 ± 0.46	3.77 (.055)	2.81 ± 0.22	0.68 (.410)
	Married	6 (5.9)	3.32 ± 0.37		3.55 ± 0.71		2.89 ± 0.26	
Religion	Yes	35 (34.3)	3.21 ± 0.38	2.46 (.12)	3.30 ± 0.51	3.29 (.073)	2.81 ± 0.21	0.20 (.657)
	No	67 (65.7)	3.07 ± 0.46		3.12 ± 0.45		2.83 ± 0.23	
Working period at the current workplace[a]		5.81 ± 3.36 (months)	3.12 ± 0.44	-	3.18 ± 0.48	-	2.82 ± 0.23	-
Workplace	Internal ward	28 (27.5)	3.13 ± 0.39	1.75 (.132)	3.10 ± 0.54	1.47 (.205)	2.76 ± 0.26	0.85 (.520)
	Surgical ward	21 (20.6)	2.92 ± 0.49		3.25 ± 0.35		2.84 ± 0.21	
	Pediatric ward	7 (6.9)	3.41 ± 0.40		3.59 ± 0.55		2.93 ± 0.18	
	Intensive care unit	24 (23.5)	3.19 ± 0.39		3.18 ± 0.40		2.83 ± 0.19	
	Emergency room	5 (4.9)	3.02 ± 0.62		3.23 ± 0.49		2.86 ± 0.32	
	Others[b]	17 (16.7)	3.16 ± 0.41		3.08 ± 0.55		2.83 ± 0.23	
Characteristics	Categories	N (%) (m ± SD)	Grit Mean ± SD	t/F (p)	Clinical competence Mean ± SD	t/F (p)	Field adaptation Mean ± SD	t/F (p)
Nursing job choice motivation	Inducement	22 (21.6)	2.95 ± 0.30	2.27 (.05)[c]	3.05 ± 0.39	1.27 (.281)	2.80 ± 0.29	0.30 (.914)
	Job	31 (30.4)	3.02 ± 0.45		3.13 ± 0.41		2.83 ± 0.23	
	Service mind	13 (12.7)	3.23 ± 0.39		3.22 ± 0.70		2.80 ± 0.20	
	Aptitude/interest	23 (22.5)	3.28 ± 0.50		3.34 ± 0.44		2.81 ± 0.19	
	Profession	11 (10.8)	3.30 ± 0.43		3.29 ± 0.58		2.89 ± 0.21	
	Others	2 (2.0)	3.08 ± 0.24		2.83 ± 0.20		2.76 ± 0.38	
Perceived current physical health status	Very healthy	6 (5.9)	3.38 ± 0.34	1.95 (.109)	$3.55 \pm 0.40^{ab*}$	3.41 (.012)	2.95 ± 0.36	1.79 (.136)
	Healthy	15 (14.7)	3.34 ± 0.53		3.39 ± 0.34^{ab}		2.80 ± 0.19	
	Moderate	35 (34.3)	3.09 ± 0.44		3.24 ± 0.38^{ab}		2.87 ± 0.20	
	Unhealthy	38 (37.3)	3.05 ± 0.38		3.00 ± 0.57^{ab}		2.76 ± 0.24	
	Very unhealthy	8 (7.8)	3.00 ± 0.47		3.17 ± 0.40^{ab}		2.87 ± 0.19	
Satisfaction with new nurse education	Very satisfied	8 (7.8)	3.32 ± 0.50	1.58 (.187)	3.42 ± 0.49	0.68 (.608)	2.93 ± 0.22	0.90 (.467)
	Satisfied	43 (42.2)	3.19 ± 0.38		3.17 ± 0.49		2.84 ± 0.21	
	Moderate	41 (40.2)	3.00 ± 0.48		3.15 ± 0.47		2.78 ± 0.22	

(continued)

Table 1. Continued.

Characteristics	Categories	N (%) (m ± SD)	Grit Mean ± SD	t/F (p)	Clinical competence Mean ± SD	t/F (p)	Field adaptation Mean ± SD	t/F (p)
	Unsatisfied	9 (8.8)	3.19 ± 0.38		3.23 ± 0.49		2.81 ± 0.33	
	Very unsatisfied	1 (1.0)	3.08		2.84		2.64	
Department you wanted to work in	Yes	84 (82.4)	3.13 ± 0.45	0.09 (.763)	3.22 ± 0.42	2.87 (.093)	2.82 ± 0.22	0.19 (.662)
	No	18 (17.6)	3.09 ± 0.40		3.01 ± 0.67		2.80 ± 0.28	0.97 (.426)
Current department satisfaction	Very satisfied	7 (6.9)	3.54 ± 0.52	2.15 (.08)	3.52 ± 0.57	1.30 (.276)	2.91 ± 0.23	
	Satisfied	41 (40.2)	3.13 ± 0.43		3.17 ± 0.52		2.84 ± 0.25	
	Moderate	39 (38.2)	3.03 ± 0.43		3.12 ± 0.44		2.81 ± 0.20	
	Unsatisfied	14 (13.7)	3.15 ± 0.37		3.27 ± 0.35		2.74 ± 0.23	
	Very unsatisfied	1 (1.0)	3.08		2.84		2.64	

Characteristics	Categories	N (%) (m ± SD)	Grit Mean ± SD	t/F (p) Scheffe	Clinical competence Mean ± SD	t/F (p) Scheffe	Field adaptation Mean ± SD	t/F (p)
Pay satisfaction	Very satisfied	2 (2.0)	3.96 ± 0.65	2.36 (.06)	3.77 ± 0.64	0.95 (.442)	2.74 ± 0.07	0.36 (.840)
	Satisfied	34 (33.3)	3.11 ± 0.45		3.16 ± 0.49		2.84 ± 0.23	
	Moderate	42 (41.2)	3.06 ± 0.42		3.14 ± 0.52		2.82 ± 0.23	
	Unsatisfied	19 (18.6)	3.21 ± 0.39		3.26 ± 0.36		2.78 ± 0.25	
	Very unsatisfied	4 (3.9)	3.15 ± 0.28		3.19 ± 0.38		2.75 ± 0.13	
Nursing job satisfaction	Very satisfied	3 (2.9)	3.86 ± 0.49[a]	3.80 (.007) a > b*	3.86 ± 0.48[c]	4.42 (.003) a < b<c**	2.94 ± 0.34	0.52 (.719)
	Satisfied	37 (36.6)	3.20 ± 0.37[ab]		3.34 ± 0.37[ab]		2.85 ± 0.20	
	Moderate	38 (37.3)	3.06 ± 0.39[b]		3.04 ± 0.48[b]		2.79 ± 0.23	
	Unsatisfied	19 (18.6)	3.08 ± 0.53[b]		3.15 ± 0.43[ab]		2.80 ± 0.25	
	Very unsatisfied	4 (3.9)	2.75 ± 0.31[b]		2.80 ± 0.89[a]		2.83 ± 0.28	

Note: [a]One subject who has worked for more than 1 year (15 months) was included.
[b]Operation room, outpatient, etc.
[c]As a result of the Scheffe test, there was no significant difference between each group.
*p = .06, **p = .08.

Table 2. Level of Grit, Clinical Competence, and Field Adaptation (n = 102).

Variables	Mean ± SD	Min–Max	Range
Grit	3.12 ± 0.44	1.83–4.42	1–5
Consistency of interests	2.99 ± 0.42	1.83–4.17	1–5
Persistence of effort	3.25 ± 0.54	1.83–4.67	1–5
Clinical competence	3.18 ± 0.48	1.47–4.53	1–5
Field adaptation	2.82 ± 0.23	2.18–3.33	1–5

Table 3. Correlation Among Grit, Clinical Competence, and Field Adaptation (n = 102).

	Grit r (p)	Clinical competence r (p)	Field adaptation r (p)
Grit	1	.529 (p < .001)	.294 (.003)
Clinical competence	.529 (p < .001)	1	.237 (.02)
Field adaptation	.294 (.003)	.237 (.02)	1

the current nursing job, the lower the clinical competence score. Clinical competence is improved by directly performing nursing activities, and include problem solving ability in various clinical situations, knowledge for safe nursing, and safety of nursing behavior. Therefore, in order for newly graduated nurses to have adequate clinical competence and to better adapt to the clinical field, they need an integrated ability to solve patient problems based on nursing knowledge in addition to nursing activities and basic nursing skills (Shin et al., 2010). In this regard, only 12% of nursing care activities have direct experience, including nursing practices, on the experience of nursing care activities among nursing students (Cho & Kwon, 2007). Therefore, it is necessary to improve the situation in which nursing students' direct care in nursing activities is completely inadequate in clinical practice and increase the integrated ability to solve patient problems based on nursing knowledge in the curriculum.

The average field adaptation of the participants was 2.82, similar to the 2.79 (Kim & Park, 2013) and 2.95 (Ji, 2009) of the previous study conducted on newly graduated nurses using the same evaluation method, but it should be noted that there were differences in the working environment of the study subjects. There was no significant difference in the field adaptation according to the characteristics of the study subjects. While research results (Luthans et al., 2007) show that a positive psychological trait can be useful as a job-related factor with the integrated concept of self-efficacy, hope, optimism, and resilience as influencing factors in relation to field adaptation of newly graduated nurses, the study result (Woo et al., 2016) reported that only optimism is effective among them. It was also reported that work-related harassment is a factor influencing on-the-job adaptation (Woo et al., 2016).

Therefore, in order to improve the field adaptation of newly graduated nurses, it is necessary to develop an attitude to overcome the difficulties of the workplace with optimism and provide opportunities to properly learn what is lacking in the work of newly graduated nurses within the organization.

In this study, the higher the grit, the higher is the field adaptation. This is a personal trait among the factors influencing the field adaptation of newly graduated nurses. A positive psychological trait (Luthans et al., 2007) and optimism (Woo et al., 2016) were reported to be significant to the field adaptation, and high grit scores were associated with increased personal achievement and decreased burnout (Seguin, 2019). As it is reported that people with high grit have long-term distinct goals and make persistent efforts to achieve them (Duckworth, 2016), it was noted to be the outcome of increased effort to achieve the goal of field adaptation as a newly graduated nurse.

Also, the higher the grit, the higher the clinical competence, was similar to the previous study (Ko & Gu, 2020) in which grit had a significant effect on clinical competence in newly graduated nurses. This indicates that grit showed high predictive power for academic achievement (Kim & Park, 2017; Choi, 2018) and job performance (Andrei et al., 2017). Newly graduated nurses with high grit means that they have made persistent efforts to enhance the knowledge and skills necessary for clinical practice.

When analyzing the effects on field adaptation, the regression coefficient value ($\beta = .24$) of the result of the analysis using a newly graduated nurse's grit and clinical competence as independent variables has decreased when compared with the value ($\beta = .29$) of the grit (stage 2) alone, showing some of the effects of grit on field adaptation and mediated clinical competence. However, the indirect effects of mediating clinical competence were not statistically significant, indicating further research.

Through this study, it is necessary to find various strategies to enhance grit as a way to improve the field adaptation that is directly related to the turnover of newly graduated nurses. Since the consistency of interest of newly graduated nurses must adapt to clinical practice, set long-term goals to grow into professional nurses, and have a passion for achieving this goal, nursing organizations should actively support and encourage newly graduated nurses to have this goal setting and passion. It is also important to create a supportive work environment in which newly graduated nurses can communicate their problems and seek solutions together when they are frustrated and stressed due to their inexperience. Therefore, newly graduated nurses maintain persistence in field adaptation.

Strengths and Limitations

This study is significant because it examined the impact of grit among personal traits in relation to the improvement of field adaptation of newly graduated nurses, as well as how

Table 4. Mediating Effects of Clinical Competence on the Relationship Between Grit and Field Adaptation (n = 102).

Variables	B (SE)	β	T (p)	R^2 (Adj. R^2)	F (p)
Step 1. Grit → clinical competence	0.582 (0.093)	.529	6.233 (p < .001)	0.28 (0.273)	38.85 (p < . 001)
Step 2. Grit → field adaptation	0.151 (0.049)	.294	3.079 (.003)	0.087 (0.077)	9.482 (.003)
Step 3. Grit, clinical competence → field adaptation					
(1) Grit → field adaptation	0.121 (0.058)	.235	2.085 (.04)	0.096 (0.077)	5.240 (.007)
(2) Clinical competence → field adaptation	0.053 (0.053)	.113	0.999 (.32)		

grit influences clinical competence. However, there were limitations that the selection of subjects was conducted in only single institution, and grit, field adaptation, and clinical competence were measured in a self-reported questionnaire, which might affect the generalization of the findings. Future research should include a larger number of subjects, and a longitudinal study is needed to further understand how grit influences field adaptation.

Implication to Practice

If we are interested in promoting the retention of newly graduated nurses, we need to focus on the individual's psychological as well as general characteristics and job-related traits related to job turnover. In this study, newly graduated nurses with higher grit among individual psychological characteristics showed higher clinical competence and field adaptation. Therefore, in order to reduce the turnover intention of newly graduated nurses, it is necessary to find a means to enhance the grit, such as finding and focusing on one's interests in the clinical field and forming a supportive organizational culture so that the passion of newly graduated nurses can continue.

Conclusion

The purpose of this study was to examine the mediating effect of clinical competence on the relationship between grit and field adaptation among newly graduated nurses at a local university hospital. The study indicated that grit enhanced clinical competence and had a direct effect on field adaptation, but it had no significant effect when clinical competence was mediated. Grit was found to be a factor in enhancing clinical competence and field adaptation in this study, despite the fact that the mediating effect of clinical competence was not significant. Program development or intervention should be in place to improve the grit so that newly graduated nurses continue to maintain consistency of interest in work in nursing organizations. To further define the correlation between grit and field adaptation, a larger number of research subjects and a longitudinal study are necessary to provide causal evidence for the relationship. Additional research is also needed since the mediating effect of clinical competence in the relationship between grit and field adaptation was not significant in this study.

Finally, it is vital to develop a program that enhances grit for newly graduated nurses and to perform research to confirm the effect after applying it.

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