Mediating Effect of Interpersonal Ability on Relationships among Professional self-concept, Self-esteem, Self-awareness of Nursing Students

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Abstract

This study is a descriptive study that attempts to identify the professional self-concept, self-esteem, self-awareness and interpersonal ability of nursing students, and to identify the factors affecting self-awareness and the mediating effect of interpersonal ability in the process. The subjects of this study were 180 nursing college students at the College of Nursing located in W city, Gangwon-do, and data were collected from April 1 to April 25, 2022. SPSS/WIN 25.0 was used for analysis, and the analysis was performed with subject frequency, mean and standard deviation, t-test and ANOVA, Pearson's correlation coefficient and three-step regression analysis. The results of this study showed that nursing students' professional self-concept, self-esteem and interpersonal ability had a positive correlation with self-awareness, and interpersonal ability showed a positive correlation with professional self-concept, self-esteem. In addition, interpersonal ability had a partial mediating effect on the relationship between professional self-concept, self-esteem and self-awareness.

Keywords: Nursing students, Professional self-concept, Interpersonal ability, Self-esteem, Self-awareness

1. Introduction

1.1 The Necessity of Research

Recently, changes in the medical environment, including hospitals, provide high-quality services for patients, and the efficient use of nurses for patient satisfaction is emerging. For that purpose, interpersonal ability of nurses is important, and self-awareness takes priority to improve interpersonal ability (Hong, 2021). Nurses must have self-awareness and effort to maintain a continuous and conscious relationship with patients and receive education to improve self-awareness from college education (Rasheed, 2015). In addition, it is necessary to develop and apply a program to promote interpersonal relationships among nursing students because self-awareness should be prioritized to improve interpersonal ability. With the development of the Internet and mobile, interpersonal relationships are actually decreasing and in order to enhance interpersonal ability, various cultural and cultural activities that involve interpersonal contact and interaction through university club activities, volunteer activities, and meetings with fellow classmates or senior's curriculum development is required.

In the medical field, there is a demand for efficient nursing performance that promotes the health, maintenance and promotion of nurses. For this, above all else, a firm attitude toward the nursing profession must be established from the university period (Kang, 2010). Nursing profession self-concept is formed in the early stages of

professional education and continues to develop through practical experience (Yeun & Kwon, 2007). Practical experience in nursing education is an important curriculum that enables nursing students to learn professional knowledge and experience as a nurse, and to learn values and attitudes, as well as the role of a professional nurse (Seo, 2007). Nursing students can influence the formation of self-concept of the nursing profession while undergoing clinical practice. When nursing students fail to meet their expectations during the clinical practice, they have negative perceptions about the nursing profession due to differences between theory and practice, such as disappointment and dissatisfaction (Yee, 2004). Park and Ha (2003) reported that nursing students experienced a decrease in their self-esteem due to their lack of roles and abilities during practical experience, and that self-esteem was decreased as they experienced noticing and sense of worthlessness in unfamiliar environments. Self-esteem contributes to effective functioning of human happiness, and has a great influence on social adaptation, behavioral style, and self-integration (Yeun & Kwon, 2007). Therefore, a method to form a nursing professional self-concept to enhance self-awareness of nursing students and systematization of educational programs to promote self-esteem are required. This study is to understand the relationship between nursing students' professional self-concept, self-esteem, and self-awareness, and to identify positive influencing factors on nursing students' self-awareness. In addition, interpersonal ability was attempted to be provided as a basic data to seek mediation methods as a medium.

This study is a descriptive research study to verify the mediating effect of interpersonal ability in understanding nursing students' professional self-concept, self-esteem, and self-awareness. The specific objectives are as follows. First, the level of professional self-concept, self-esteem and self-awareness of nursing students is identified. Second, the difference between professional self-concept, self-esteem, and self-perception according to the general characteristics of nursing students is identified. Third, the correlation between professional self-concept, self-esteem, self-awareness and interpersonal ability of nursing students is checked. Fourth, the mediating effect of interpersonal ability on the relationship between professional self-concept, self-esteem and self-awareness of nursing students is investigated.

2. Methods

2.1 Study Design

This study was attempted to verify the relationship between nursing students' professional self-concept, self-esteem, and self-awareness, and to verify the mediating effect of interpersonal relationships in the process of nursing students' professional self-concept and self-esteem affecting self-awareness. It is a descriptive correlation study.

2.2 Subjects and Data Collection Methods

The population of this study was nursing students enrolled in the first to fourth grades of the College of Nursing located in W city, Gangwon-do, who understood the purpose of the study and agreed to participate in the study. The number of samples in the study was compared with the mean using the G*Power program (Faul et al., 2009), and the minimum number of samples was 172 based on a significance level of .05, a power of 95%, and an effect size of .15. For the data, 180 copies that understood and agreed to the purpose of this study were used for the final analysis in consideration of the dropout rate due to insincere responses and insufficient data. The subjects' questionnaires were collected from April 1 to April 25, 2022.

2.3 Instruments

2.3.1 The Professional Self-Concept

The professional self-concept scale was developed by Arthur (1990) and modified by Kim (2001), using a tool used by Jeon (2015). This tool consists of 27 items in 5 sub-domains: 7 items of flexibility, 5 items of skill, 4 items of leadership, 7 items of satisfaction, and 4 items of communication. Each item is composed of a 4-point Likert scale ranging from 1 point of 'not at all' to 4 points of 'strongly agree', and the higher the score, the higher the professional self-concept. In the previous study, Cronbach's α=.87, and in this study, Cronbach's α=.92.

2.3.2 Self-Esteem

The self-esteem scale was developed by Rosenberg (1979) and used by Chung (2014). This tool consists of a total of 10 items with 5 positive and 5 negative items, and each item is on a 5-point Likert scale ranging from 1 point of 'not at all' to 5 points of 'strongly agree'. Higher scores indicate higher self-esteem. In previous studies, Cronbach's α=.75, and in this study, Cronbach's α=.93.

2.3.3 Self-Awarness

The self-awareness scale was developed by Fenigstein et al. (1975) and used by Hong (2021). This tool has a total of 20 items in 3 sub-domains: 9 items of private self-awareness, 5 items of fair self-awareness, and 6 items of social anxiety. For each item, a Likert 5-point scale was used from 1 point of 'not at all' to 5 points of 'strongly agree'. In the previous study, Cronbach's α=.80, and in this study, Cronbach's α=.97.

2.3.4 Interpersonal Ability

The interpersonal ability scale is a measuring tool used by Hong (2021) using the Interpersonal Competence Questionnaire (ICQ) developed by Buhrmester et al. (1988). This tool consists of 31 items in total and consists of 5 items: 8 items for relationship formation and initiation, which are sub-domains, 7 items for claiming rights or displeasure, 6 items for consideration for others, 6 items for conflict management, and 3 items for appropriate self-opening. Each item is on a 5-point Likert scale ranging from 1 point for 'not very good' to 5 points for 'very good', with higher scores indicating better interpersonal ability. In the previous study, Cronbach's α=.85, and in this study, Cronbach's α=.96.

2.4 Data Analysis Method

Data analysis was performed using SPSS/WIN25.0 program. The subjects' general characteristics, professional self-concept, self-esteem, and self-awareness were confirmed by descriptive statistics of frequency and percentage, mean and standard deviation. The average difference of each variable according to the general characteristics of the subject was verified by t-test and ANOVA, and the post-hoc analysis was verified by Dunnett T3. The correlation between the subject's professional self-concept, self-esteem, self-awareness, and interpersonal ability was analyzed using Pearson's correlation coefficients. In order to understand the mediating effect of interpersonal ability in the relationship between the subject's professional self-concept, self-esteem, and self-awareness, it was used the mediating effect verification procedure according to the 3-step regression analysis combination suggested by Baron and Kenny. After the regression analysis, the significance test of the mediating effect was applied with Bootstrapping using the Process macro.

3. Results

3.1 Frequency Analysis of General Characteristics of Study Subjects

The average age of the subjects was 21.5±1.2 years old, and the general characteristics are as follows (Table 1). As for the gender of the subjects, 158 female students accounted for 87.8%. In terms of grade, 4th grade had the highest percentage, with 55 (30.6%) fourth graders, 49 (27.2%) third graders, 40 second graders (22.2%), and 36 first graders (20.0%). Regarding religion, 102 (56.7%) answered 'no', and 133 (73.9%) answered 'moderate' in terms of economic status. Regarding type of residence, 87 people (48.3%) with their parents and 74 people (41.1%) alone showed the highest. In terms of academic achievement, 135 students (75.0%) answered that they were satisfied with their academic level the most.

Table 1. General Characteristics of Subjects(N=180)

Variables	Categories	n(%)	M±SD	Range
Age			21.51±1.23	19-23
Gender	Male	22(12.2)		
	Female	158(87.8)		
Grade year	1	36(20.0)		
	2	40(22.2)		
	3	49(27.2)		
	4	55(30.6)		
Religion	Yes	78(43.3)		
	No	102(56.7)		
Economic Status	High	26(14.4)		
	Middle	133(73.9)		
	Low	21(11.7)		
Type of residence	With family	87(48.3)		
	Alone	74(41.1)		
	with friend	9(5.0)		
	Other	10(5.6)		
Academic achievement	Excellent	30(16.7)		
	Satisfactory	135(75.0)		
	Not satisfactory	15(8.3)		

3.2 Differences in Professional Self-Concept, Self-Esteem and Self-Awareness According to General Characteristics

It was verified whether there were differences in professional self-concept, self-esteem, and self-awareness according to the general characteristics of subjects, and Dunnett T3 was used for post-hoc analysis (Table 2).

Economic status showed significant differences in professional self-concept (F=13.45, p<.001), self-esteem (F=13.98, p<.001), and self-awareness (F=17.27, p<.001). As a result of the post-hoc analysis, the professional self-concept, self-esteem, and self-awareness were all found to be higher in the group with the economic status 'award' than the other groups. Regarding housing type, there were significant differences in professional self-concept (F=22.96, p<.001), self-esteem (F=21.96, p<.001), and self-awareness (F=16.93, p<.001). As a result of the post-hoc analysis, the professional self-concept and self-esteem were found to be higher in the 'alone' group than in the other groups. Self-awareness was found to be higher in the 'with family' group than in the other groups. Academic achievement showed significant differences in professional self-concept (F=12.54, p<.001), self-esteem (F=11.72, p<.001), and

self-awareness (F=12.40, p<.001). As a result of the post-hoc analysis, it was found that the group with the 'high' level of education had a higher level than the other groups.

3.3 Correlation Between Variables

The correlation between the subject's professional self-concept, self-esteem, self-awareness and interpersonal ability is as follows (Table 3). The subject's professional self-concept showed a significant positive correlation with self-esteem, self-awareness, and interpersonal ability. Self-esteem showed a significant positive correlation with self-awareness and interpersonal ability, and self-awareness showed a significant positive correlation with interpersonal ability.

Table 2. Difference of Professional Self-Concept, Self-Esteem, Self-awareness by General Characteristics of Participants(N=180)

Variables	Categories	Professional Self-Concept			Self-Esteem			Self-awareness		
		M±SD	t/F	Dunnett T3	M±SD	t/F	Scheffe	M±SD	t/F	Scheffe
Gender	Male	2.84± .79	-1.29		2.99±1.13	.85		3.13±1.05	-1.41	
	Female	3.04± .64			3.20± .92			3.47± .98		
Grade year	1	2.94± .76	.37		3.02±1.03	.82		3.30±1.20	.41	
	2	3.05± .58			3.33± .91			3.54± .94		
	3	2.97± .68			3.11± .99			3.38±1.00		
	4	3.07± .63			3.24± .87			3.47± .88		
Religion	Yes	2.99± .69	-.44		3.20±1.04	.29		3.47±1.07	.56	
	No	3.03± .64			3.16± .87			3.39± .93		
Economic Status	High[a)]	3.23± .36	13.45***	a>b,c	3.45± .59	13.98***	a>b,c	3.60± .63	17.27***	a>b,c
	Middle[b)]	3.07± .61			3.27± .88			3.56± .93		
	Low[c)]	2.37± .85			2.23±1.16			2.32±1.06		
Type of residence	With family	3.05± .58	22.96***	b>a,c,d	3.27± .86	21.96***	b>a,c,d	3.55± .96	16.93***	a>b,c,d
	Alone	3.18± .53			3.37± .74			3.55± .79		
	with friend	2.78± .86			2.83±1.23			3.35±1.19		
	Other	1.62± .00			1.20± .00			1.50± .00		
Academic achievement	Excellent	3.31± .40	12.54***	a>b,c	3.54± .57	11.72***	a>b,c	3.95± .72	12.40***	a>b,c
	Satisfactory	3.02± .62			3.21± .90			3.41± .95		
	Not satisfactory	2.33± .89			2.18±1.25			2.48±1.17		

*p<.05 **p<.01 ***p<.001

Table 3. Correlation between Professional Self-Concept, Self-Esteem, Self-Awareness (N=180)

	Professional Self-Concept	Self-Esteem	Self-Awareness	Interpersonal Ability
Professional Self-Concept	1			
Self-Esteem	.93***	1		
Self-Awareness	.83***	.86***	1	
Interpersonal Ability	.73***	.70***	.70***	1

**p<.001

3.4 Mediating Effect of Interpersonal Ability on The Relationship Subject's Professional Self-Concept, Self-Esteem, and Self-Awareness

The mediating effect of interpersonal ability on the relationship between the subject's self-awareness, professional self-concept, and self-esteem was verified. The verification was carried out using a three-step test according to the method of mediating effects of Baron and Kenny. As a result of checking the residual chart to confirm multicollinearity between independent variables before regression analysis, the Durbin-Watson index was 1.915, confirming the independence of the error term, and the VIF index was 7.362, which was less than 10, so there was no problem of multicollinearity between independent variables.

Bootstrapping method using SPSS Process macro was applied to test the significance of the indirect effect of the path from subject's professional self-concept and self-esteem to self-awareness via interpersonal ability. The number of resampled samples measured by bootstrapping was 10,000, and a 95% confidence interval was used.

3.4.1 Verification of The Mediating Effect of Interpersonal Ability in The Realtionship Between Self-Awareness and Professional Self-Concept

As a result of testing the effect of independent variables on mediating effects in the first step of the mediating effect verification process, professional self-concept showed a significant effect on interpersonal ability (β=.73, p<.001). As a result of examining the effect of the independent variable on the dependent variable in step 2, it was found that the professional self-concept had a significant effect on self-awareness (β=.84, p<.001). Step 3 is the test result for the influence of the independent variable and the parameter on the dependent variable. As a result, it was found that professional self-concept (β=.70, p<.001) and interpersonal ability (β=.18, p<.001) had a significant effect on self-awareness, respectively. As for the effect of professional self-concept on self-awareness, the 3-step regression coefficient (β=.70) was lower than the 2-step regression coefficient (β=.84). When the professional self-concept affects self-awareness, there was a partial mediating effect of interpersonal ability, and the explanatory power was 71.3% (Table 4).

As a result of bootstrapping testing the significance of the mediating effect of interpersonal ability in the effect of subject's professional self-concept on self-awareness, The indirect effect indicating the effect of professional self-concept on self-awareness when interpersonal ability was used as a parameter was .14. At the 95% confidence interval, the lower limit (Boot. LLCI) and upper limit (Boot. ULCI) of all path coefficients were .03 to .24 and did not contain 0, confirming that the mediating effect of interpersonal ability was statistically significant (Table 5).

3.4.2 Veriffication of The Mediating Effect of Interpersonal Ability in The Relationship Between Self-Awareness and Self-Esteem

In step 1 of the mediating effect verification process, self-esteem was found to have a significant effect on interpersonal ability (β=.70, p<.001), and in step 2, self-esteem was found to have a significant effect on self-awareness (β= .86, p<.001). In the last three stages, self-esteem (β=.73, p<.001) and interpersonal ability (β=.18, p<.001) were found to have a significant effect on self-awareness. As for the effect of self-esteem on self-awareness, the 3-step regression coefficient (β=.73) was lower than the 2-step regression coefficient (β=.86). This shows that interpersonal ability has a partially mediated effect on the effect of self-esteem on self-awareness. The explanatory power of this was 75.9% (Tabel 4).

As a result of bootstrapping testing the significance of the mediating effect of interpersonal ability in the effect of subject's self-esteem on self-awareness, the indirect effect indicating the effect of self-esteem on self-awareness using interpersonal ability as a parameter was .13. At the 95% confidence interval, the lower limit (Boot. LLCI) and upper limit (Boot. ULCI) of all path coefficients were .04 to .22 and did not include 0, confirming that the mediating effect of interpersonal ability was statistically significant (Table 5).

Table 4. Mediating Effect of Interpersonal Ability on Self-Awareness

Step	Variables	B	β	t	Adj. R^2	F
Step1	Professional Self-Concept → Interpersonal Ability	.82	.73	14.50***	.539	210.39***
Step2	Professional Self-Concept → Self-Awereness	1.25	.84	20.42***	.699	417.03***
Step3	Professional Self-Concept → Interpersonal Ability	1.05	.70	11.85***	.713	223.72***
	→ Self-Awereness	.24	.18	3.13**		
Step1	Self-Esteem → Interpersonal Ability	.55	.70	13.30***	.496	177.04***
Step2	Self-Esteem → Self-Awareness	.90	.86	22.77***	.743	518.66***
Step3	Self-Esteem → Self-Awareness	.76	.73	14.14***	.759	282.20***
	→ Interpersonal Ability	.24	.18	3.52**		

Variables	step 1			step 2			step 3		
	Interpersonal Ability			Self-Awareness			Self-Awareness		
	B	β	t	B	β	t	B	β	t
Professional Self-Accept	.65	.58	4.25***	.38	.25	2.55*	.25	.16	1.59
Self-Esteem	.12	.16	1.17	.65	.62	6.15***	.62	.59	6.00***
Interpersonal Ability							.20	.15	2.88**
Adj. R2	.540			.751			.761		
F	106.11***			270.59***			190.63***		

*p<.05, **p<.01, ***p<.001*

Table 5. Bootstrapping Results on Mediating Effect of Interpersonal Ablility(N=180)

Variables	Indirect effect	Boot. SE	95% CI	
			Boot. LLCI	Boot. ULCI
Professional Self-Concept → Interpersonal Ability → Self-Awareness	.14	.05	.03	.24
Self-Esteem → Interpersonal Ability → Self-Awareness	.13	.04	.04	.22

Boot.: Bootstrapping, LLCI: Lower limit confidence interval, ULCI: Upper limit confidence interval

4. Conclusion

This study analyzes the relationship among nursing students' professional self-concept, self-esteem, self-awareness, and interpersonal ability. And, it is a study to confirm the effect of professional self-concept and self-esteem on self-awareness and the mediating effect of interpersonal ability of nursing students.

As a result of this study, self-awareness of nursing students showed a relatively high correlation with professional self-concept, self-esteem, and interpersonal ability. Nursing students' professional self-concept and self-esteem acted as major factors influencing self-awareness, and interpersonal ability were found to play a partial mediating role in these processes, confirming that they were important factors in self-awareness.

In the nursing education curriculum, the contents of self-awareness and self-understanding and communication skills are dealt with for treatment and cooperative

relationship formation between the subject and various types of people including nursing professionals in hospitals. However, nursing education is urgently required to enhance professional practical skills that can make good use of own situation and to faithfully perform one's professional tasks based on a positive self-concept. In addition, nursing students should become professional nurses and have self-awareness through continuous efforts to establish a therapeutic relationship with patients in the clinical field, and it has implications for the development and application of various programs to develop interpersonal ability.

This study has great significance in examining factors that affect self-awareness and interpersonal ability in more detail through previous studies. However, this study has limitations in generalizing the results of this study as it was targeted at university students from one urban nursing college. In addition, it is presumed that there may exist mediating variables that are different from interpersonal ability as a factor affecting self-awareness, and it is considered that a follow-up study is necessary for this.

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