

The impact of positive psychological capital, problem solving ability and clinical competence on career adaptability in nursing students

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Abstract: The purpose of this study is to identify the factors affecting career adaptability in nursing students, focusing on positive psychological capital, problem-solving ability, and clinical competence. The study participants were fourth-year nursing students from one university in Chungbuk and one university in Gyeongbuk, with 151 questionnaires analyzed. The results indicated that positive psychological capital ($\beta=.87, p<.001$) was the significant factor affecting career adaptability ($F=197.050, p<.001$), explaining 78.6% of the variance. Based on these findings, it is recommended to use this study as foundational data for developing nursing education programs to enhance career adaptability in nursing students.

Keywords: Career Adaptability, Clinical Competence, Positive Psychological Capital, Problem Solving Ability.

1. Introduction

The youth employment rate (ages 15-29) in Korea is notably low among OECD member countries. In June 2023, the youth employment rate was 47%, which dropped to 45.9% by March 2024, marking a decrease of over 1% in nine months. Despite record high employment rates and record low unemployment rates in 2023, this increase in employment did not include the youth demographic, affecting university enrollment decisions significantly. Nursing students, upon entering their programs, have their career paths predetermined as healthcare professionals. As a result, they often lack deep reflection on their careers during university and immediately enter clinical nursing roles post-graduation [2]. This premature career determination can lead to job dissatisfaction and turnover. Therefore, enhancing career adaptability in nursing students is a crucial task.

Career adaptability refers to the readiness to cope with changing work and job conditions [3]. It is the degree to which individuals can prepare for anticipated tasks and unforeseen changes in future jobs [4]. Career adaptability involves the ability to explore opportunities, predict future situations, and make appropriate and feasible decisions within the vocational environment [5]. It is defined as the self-regulatory capacity to adapt to environmental changes and solve problems during career transitions [6]. Hence, it is an essential competency for nursing students approaching graduation.

Positive psychological capital, a concept gaining attention in organizational behavior and human resource management, encompasses self-efficacy, hope, optimism, and resilience [7]. Luthans et al. define it as a "positive psychological state of development characterized by having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; making a positive attribution (optimism) about succeeding now and in the future; persevering towards goals (hope) and, when necessary, redirecting paths to goals in order to succeed; and when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" [8]. Exploring the relationship between positive psychological capital and career adaptability in nursing students is crucial as it helps them make appropriate and executable decisions by exploring opportunities and

predicting future situations within the vocational environment [5].

Problem-solving ability is the capacity to accurately recognize and appropriately address various problems through creative, logical, and critical thinking during job performance. Problems in diverse and complex societies appear in increasingly multifaceted forms [10]. Nurses working in clinical settings face diverse and complex symptoms, requiring them to efficiently address health problems, making problem-solving ability an essential competency for nursing students [11-13]. Therefore, understanding the relationship between problem-solving ability and career adaptability is vital for preparing nursing students to handle changing job conditions effectively [3].

Clinical competence is the overall ability to apply effectively learned knowledge from nursing education to clinical nursing tasks and perform them efficiently. It involves the integration of appropriate knowledge, skills, attitudes, and judgments to competently fulfill nursing roles in clinical situations [14-16]. Clinical competence is a fundamental competency that new nurses must possess, highlighted by hospital administrators, preceptors, and the new nurses themselves as a critical element [17]. Examining the relationship between clinical competence and career adaptability is essential. This study aims to investigate the relationships among positive psychological capital, problem-solving ability, clinical competence, and career adaptability in nursing students and verify the influence of these factors. The findings will serve as foundational data for developing nursing education programs to enhance career adaptability in nursing students.

2. Materials and Methods

2.1. Designing of Study

This descriptive survey study aims to identify the factors affecting career adaptability in nursing students, focusing on positive psychological capital, problem-solving ability, and clinical competence.

2.2. Subjects

The study participants were nursing students from one university in Chungbuk and one university in Gyeongbuk. The purpose and methods of the study were explained to the students, and permission for data collection was obtained. Nursing students who agreed to participate and signed the questionnaire were included. The sample size was determined using the G*Power 3.1.9.7 program, considering a significance level of .05, an effect size of .15, a power of 0.80, and 9 predictor variables, requiring 114 participants. Considering the dropout rate, 180 participants were randomly sampled, and 151 questionnaires were used for the final analysis.

2.3. Study Tool

2.3.1. Career Adaptability

Career adaptability was measured using the Career Adapt-Ability Scale (CAAS) developed by Savickas and Porfeli [18] and modified by Yoon [19]. It consists of 20 items on a 5-point Likert scale, with higher scores indicating higher career adaptability. The Cronbach's α for this study was .84

2.3.2. Positive Psychological Capital

Positive psychological capital was measured using a tool based on the four components (self-efficacy, hope, optimism, and resilience) proposed by Luthans et al. [20], modified for the Korean context by Lee et al. [21]. It consists of 17 items on a 5-point Likert scale, with higher scores indicating higher positive psychological capital. The Cronbach's α in Lee et al.'s study [21] was .91, and in this study, it was .93.

2.3.3. Problem Solving Ability

Problem-solving ability was measured using a tool developed by Lee et al. [22] for adults. It consists of 16 items on a 5-point Likert scale, with higher scores indicating higher problem-solving ability. The Cronbach's α in Lee et al.'s study [22] was .88, and in this study, it was .97.

2.3.4. Clinical Competence

Clinical competence was measured using a tool based on the SIX-Dimension Scale developed by Wonhee Lee et al. [23] and modified by Park [24]. This tool consists of 15 items divided into three subdomains: nursing process (5 items), nursing skills (5 items), and education collaboration (5 items). Each item is rated on a 5-point Likert scale, with higher scores indicating higher clinical competence. The Cronbach's α in the tool development study was .96, and in Park's study [24], it was .94. In this study, the Cronbach's α was .93.

3. Results

3.1. Differences In Career Adaptability According to General Characteristics

The analysis of differences in career adaptability according to the general characteristics of the participants is shown in Table 1. The differences in career adaptability according to general characteristics were statistically significant in university satisfaction ($F=4.27, p=.016$). Post hoc analysis revealed that students with moderate university satisfaction scored significantly higher than those with high satisfaction.

Table 1.
Differences in career adaptability according to general characteristics.

Characteristics	Categories	N (%)	M \pm SD	t/F(p) shceffe
Gender	Men	47(29.2)	3.03 \pm 1.50	-0.16(.872)
	Women	114(70.8)	2.99 \pm 1.30	
Religion	Yes	32(19.9)	2.90 \pm 1.53	-0.44(.655)
	No	129(80.1)	3.03 \pm 1.31	
College Satisfaction	Upper ^a	40(24.8)	2.48 \pm 1.51	4.27(.016) a<b
	Middle ^b	106(65.8)	3.20 \pm 1.30	
	Lower ^c	15(9.3)	2.99 \pm .87	
Satisfaction with major	Upper	75(46.6)	2.80 \pm .17	1.64(.197)
	Middle	80(49.7)	3.18 \pm .13	
	Lower	6(3.7)	3.15 \pm .24	
Grade level	Upper	36(22.4)	3.06 \pm 1.50	0.21(.809)
	Middle	101(62.7)	3.02 \pm 1.35	
	Lower	24(14.9)	2.84 \pm 1.12	
Reason for application to nursing college	Aptitude and interest	78(48.4)	2.96 \pm 1.39	0.53(.709)
	Recommendation	21(13.0)	2.97 \pm 1.13	
	High employment rate	55(34.2)	3.15 \pm 1.35	
	Based on high school grade	3(1.9)	2.31 \pm 1.50	
	Others	4(2.5)	2.46 \pm 1.90	

3.2. Correlation Between Positive Psychological Capital, Problem Solving Ability, Clinical Performance Ability, And Career Adaptability of Nursing Students

The correlations between positive psychological capital, problem-solving ability, clinical performance ability, and career adaptability are shown in Table 2. Career adaptability showed a positive correlation with positive psychological capital ($r=.888, p<.001$) and problem-solving ability ($r=.245, p=.002$). This indicates that higher career adaptability is associated with higher positive psychological capital and

problem-solving ability. Clinical performance ability did not show a statistically significant correlation with career adaptability ($r=.10$, $p=.185$).

Table 2.

Correlation between positive psychological capital, problem solving ability, clinical competence and career adaptability of nursing students.

	Positive psychological capital	Problem solving ability	Clinical competence	Career adaptability
Positive psychological capital	1			
Problem solving ability	0.236** (0.003)	1		
Clinical competence	0.109 (0.169)	0.611*** (<0.001)	1	
Career adaptability	0.888*** (<0.001)	0.245** (0.002)	0.105 (0.185)	1

3.3. Factors Affecting the Career Adaptability of Nursing Students

The results of the multiple regression analysis to identify the factors affecting career adaptability in nursing students are shown in Table 3. Before conducting the regression analysis, conditions of multicollinearity, independence, normality, and homoscedasticity were verified. The multicollinearity test showed a tolerance limit of 0.854 for positive psychological capital, above 0.1, and the variance inflation factor (VIF) was 1.013, below 10. The condition index ranged from 1.000 to 16.021, below 30, excluding multicollinearity issues. The Durbin-Watson statistic was 1.887, close to 2, indicating no autocorrelation. Residual analysis showed standardized residuals ranged from -2.177 to 2.255, satisfying homoscedasticity and normality.

The regression analysis revealed that positive psychological capital ($\beta=.87$, $p<.001$) significantly influenced career adaptability ($F=197.050$, $p<.001$), explaining 78.6% of the variance.

Table 3.

Factors affecting the career adaptability of nursing students.

Variables	B	SE	β	t	p	Adj R^2	F	p	D-watson
Constant	0.058	0.280		0.20	0.837	0.786	197.05	<0.001	1.887
Positive psychological capital	0.933	0.040	0.878	23.32	<0.001				
Problem solving ability	0.086	0.079	0.051	1.08	0.280				
Career adaptability	-0.038	0.079	-0.022	-0.47	0.634				

4. Discussion

This study aimed to identify the factors affecting career adaptability in nursing students. The average career adaptability score of nursing students was 2.99 (1-5 scale), lower than the average of 3.72 reported in a study targeting all university students [19] and the average of 4.02 in a study targeting third and fourth-year nursing students [16]. This study focused on fourth-year students about to graduate. However, recent plans to increase the number of medical school admissions announced in January 2024 have led to strong opposition from the medical community, causing faculty and resident departures and creating staffing gaps in hospitals. With the court dismissing the injunction against increasing medical school admissions [25], staffing shortages are expected to continue, potentially

affecting the recruitment of new nurses in 2025. The uncertainty in employment prospects likely contributed to the lower career adaptability scores in this study compared to other studies.

The study results showed that positive psychological capital ($\beta=.87$, $p<.001$) was the significant factor affecting career adaptability, explaining 78.6% of the variance. Similar results were found in studies targeting university students [26], where positive psychological capital significantly influenced career adaptability. Other studies [19] also found that positive psychological capital had a significant impact on career adaptability. Higher positive psychological capital correlates with higher career adaptability, as confirmed by these studies. In a study by Yoo and Seo [27], positive psychological capital significantly influenced college life adaptation. Positive psychological capital helps individuals maintain a positive self-concept in daily and challenging situations, adapt to changing environments, and achieve their goals, leading to positive outcomes [20]. Therefore, strategies to enhance positive psychological capital are necessary to improve career adaptability in nursing students. Specific strategies include developing mentoring programs with senior nurses, supporting self-management and stress management programs, organizing employment camps and social support programs through study groups, and developing self-leadership programs.

Problem-solving ability ($\beta=.05$, $p=.280$) and clinical competence ($\beta=-.02$, $p=-.634$) were not identified as influencing factors for career adaptability in this study.

While direct comparison is difficult due to a lack of prior research on the relationship between problem-solving ability and career adaptability, career identity, based on self-understanding and the ability to make decisions about one's current position and future desires, was not found to be an influencing factor in a study targeting nursing students [29]. Although problem-solving ability is essential for nursing students to efficiently address diverse health problems in clinical settings, its relationship with career adaptability needs further exploration.

Clinical competence, defined as the ability to competently perform nursing roles by integrating appropriate knowledge, skills, attitudes, and judgments in clinical situations [30], is a critical nursing competency that nursing students must prepare for, potentially influencing career adaptability [16]. However, in this study, clinical competence was not identified as an influencing factor for career adaptability, contrary to findings in other studies [16,31]. The differing results may be due to the focus on fourth-year students in this study, who may have rated their clinical competence lower due to impending employment. Repeated studies are needed to explore the impact of clinical competence on career adaptability further.

The study results confirm that positive psychological capital significantly influences career adaptability, suggesting the need for strategies to enhance positive psychological capital from the early years of nursing education to improve career adaptability. Given the study's limitations, including the regional sample of nursing students, generalizing the findings should be done cautiously. Based on the study results, it is recommended to use these findings as foundational data for developing nursing education programs to enhance career adaptability in nursing students.

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