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A Study on the Stress of the National Exam, Self-Efficacy, and Career Preparatory Behavior of Dental Hygiene Majors

Eun-seo Jung[1], Yo-sup Shin[2], Yeong-seung Lee[3], Su-yeon Kim[4], Hyun-ji Choo[5], Dong-hyun Kim[6], Soo-kyung Kim[7]

[1]Adjuct Professor, Dept. of Dental Hygiene, Shinhan University, Korea (dentalmien@hanmail.net), First Author
[2]Bachelor, Dept. of Dental Hygiene, Shinhan University, Korea (yoye619@naver.com)
[3]Bachelor, Dept. of Dental Hygiene, Shinhan University, Korea (ysrwgd0321@naver.com)
[4]Bachelor, Dept. of Dental Hygiene, Shinhan University, Korea (stdus2204@naver.com)
[5]Bachelor, Dept. of Dental Hygiene, Shinhan University, Korea (fkdlrdpdms@naver.com)
[6]Bachelor, Dept. of Dental Hygiene, Shinhan University, Korea (ehdgus9906@naver.com)
[7]Professor, Dept. of Dental Hygiene, Shinhan University, Korea (lalikim2@hanmail.net), Corresponding Author

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ABSTRACT

This study was conducted on students who will take the national exam for dental hygienists to identify the stress of national exam and self-efficacy and to analyze the factors affecting career preparatory behavior. Method: This study was conducted on undergraduates who will take the national exam for dental hygienists. The final 323 subjects were analyzed using SPSS 21.0 program. Result: The stress of the national exam increases with the lower degree of self-efficacy. The self-efficacy increases with a higher degree of career preparatory behavior. Analysis results showed that satisfaction with the major, academic performance, stress of national exam, self-efficacy were the factors affecting on career preparatory behavior. Conclusion: The result of this study showed that the higher the stress of the national exam, the lower the self-efficacy, and the higher the degree of career preparatory behavior, the higher the self-efficacy. Therefore, it's recommended to support education to reduce stress during preparing for the national exam for dental hygienists.

1. Introduction

In general, the causes of stress experienced by college students these days vary, but the stress of college students in employment-related areas accounts for a significant portion (Lee & Yu, 2008; Lee & Kang, 2011; Lee, 2004). With the recent economic recession and social instability, youth unemployment has increased and getting a job has become more difficult, so the stress of seeking a job has also increased, and thus preparatory activities for employment have become important and active. These specific and practical career preparatory activities were defined as career preparatory

behaviors. Even if the consciousness and attitude regarding career paths are mature, it is difficult to achieve career goals reasonably and efficiently unless the preparatory behavior is accompanied properly. Therefore, it is an important process to be aware of practical and actual preparatory behavior in choosing and deciding a career path. In the case of students majoring in dental hygiene, it can be said that passing the national exam for dental hygienists is the first step in practical career preparatory behavior.

A dental hygienist preparing student for the national exam means a student who intends to take a state-administered exam to obtain a dental hygienist license. In general, they are exposed to a lot of stress, and the real cause of their pain is actually the national exam itself. Stress begins by choosing to prepare for the national exam. Most of the prior studies of test-related stress are mainly done on high school seniors. However, students preparing for the national exam for dental hygienists are preparing for the exam in a different life cycle from high school seniors (young adults vs adolescents). If they fail to pass the exam, the psychological and financial burden on them and their families will increase, and they are often unsure when they will pass the national exam, so the stress of dental hygiene majors is often higher than others may think.

Until now, prior studies have suggested that stress and self-efficacy are correlated. It is said that people with high self-efficacy have low physiological and psychological stress symptoms, and those who are relatively less stressed about job seeking tend to have a high level of self-efficacy (Moon & Kim, 2006; Lee, 2018). Self-efficacy is enhanced by the success of the tasks given to one. Self-efficacy is a belief in the attainment of a given task. In terms of career decisions, it can be said to be the self-efficacy of career decisions. The higher the self-efficacy of career decisions, the higher the level of career preparatory behavior (Lee, 2003). The higher self-efficacy one has in determining one's career, the less negative thinking about one's career, which leads to career preparatory behavior more easily (Kim, 2004). It can also be said that this affects not only the individual's interest in career decisions but also the level of goal selection, action plans, and practice. However, in the field of dental hygiene, there is not only a lack of research related to national exam stress but also a lack of research on the correlation between self-efficacy and career preparatory behavior.

In response, this study was conducted to find out how self-efficacy and career preparatory behavior are related to the increasing stress of national exam takers to become dental hygienist, to present related basic data, and to find out the direction of the university and academic involvement in the rational and diverse career preparatory of students in dental hygiene departments.

2. Research method

2.1 Research subjects and procedures

This study selected students from the department of dental hygiene at the three-year and four-year colleges who applied for the 46th National exam of Dental Hygiene in 2019 with convenient sampling method. The data were collected through self-administered surveys, explaining the purpose and contents of the research to the subjects and obtaining their consent. The minimum sample size

required for multiple regression analysis was calculated using the G*power 3.1 for windows. A minimum of 178 people was required, with a significance level of 0.05, an effect size of 0.15, a verification power of 0.95, and 11 variables. Considering the elimination rate, about 323 people were selected as the research subjects. Among the 323 subjects, a total of 323 data were used for the final analysis without errors such as missing entries.

2.2 Research tools

The questionnaire of this study was revised and supplemented to suit the purpose of this study by referring to the preceding studies to find out how it affects dental hygiene majors' stress for the national exam, self-efficacy, and career preparatory behavior. For the national exam stress, 15 questions used in the study of Kim (2015) and Lee (2006) were used, and the measurement of each question was based on the 5 point Likert scale, which means that the higher the score, the higher the stress level, and each item had Cronbach's α =0.795. For self-efficacy, 15 questions used in the study of Kim (2010) and Park (2015) were used, and the measurement of each question was based on the 5 point Likert scale, which means that the higher the score, the higher the self-efficacy, and each item had Cronbach's α =0.892. For the career preparatory behavior, 15 questions used in Kim's (2018) study were used, and the measurement of each question was based on the 5 point Likert scale, which means that the higher the score, the higher the degree of career preparatory behavior, and each item had Cronbach's α =0.803.

2.3 Analysis method

The collected data were processed using frequency and percentage to identify the general characteristics of respondents, stress from national exams, self-efficacy, and career preparatory behavior using the SPSS 21.0 for windows. T-test and One-way ANOVA were performed to identify the stress, self-efficacy, and career preparatory behavior by the general characteristics, and for those who showed statistical significance after One-way ANOVA used Sheffe as a post-analysis. Pearson's correlation analysis was conducted to identify the correlation between stress of the national exam, self-efficacy, and career preparatory behavior. Multiple regression analysis was conducted to identify factors that affect the stress of the national exam.

3. Research results

3.1 General characteristics of the research subjects

For educational institutions, three-year college students accounted for 56.3 percent, higher than 43.7 percent of four-year college students. For age, 69.7 percent were those aged 20-21, which were higher than 30.3 percent of aged 22 or older. For the location of the colleges, Seoul and Gyeonggi-do were the highest with 64.7 percent. For the time of selecting the major, 53.9 percent

chose to major in dental hygiene during high school. For the reason to choose the dental hygiene field, 51.7% cited "a higher chance to get a job after graduation." For the level of satisfaction with their major, 452 percent said that they were satisfied. For academic performance, 52.9 percent answered "average" (see Table 1).

Table 1. General characteristics of the research subjects

Characteristics	Description	N	%
Educational institution	3-year college	182	56.3
	4-year college	141	43.7
Age	20-21	225	69.7
	22 or older	98	30.3
Location	Seoul and Gyeonggi	209	64.7
	Gangwon	28	8.7
	Chungcheong	22	6.8
	Jeolla	18	5.6
	Gyeongsang	46	14.2
Time of selecting the major	Before entering high school	5	1.5
	During high school	174	53.9
	After college entrance exam or other	144	44.6
Motive	Aptitude and liking	32	9.9
	Chance to get a job after graduation is high	167	51.7
	Recommended by parents or teachers	82	25.4
	Grades in high school or other	42	13
Satisfaction with the major	Satisfied	146	45.2
	Average	126	39.0
	Not satisfied	51	15.8
Academic performance	Good	79	24.5
	Average	171	52.9
	Poor	73	22.6
Total		323	100.0

3.2 Stress of the national exam by general characteristics

The stress of the national exam was found to be 3.01 ± 0.65 for three-year college students, higher than four-year college students of 2.79±0.67 ($p<0.01$). For the location of colleges, Jeolla-do had the highest stress of the national exam with 3.41±0.47, and as a result of post-analysis, Jeolla-do showed the difference from Seoul, Gyeonggi-do, Gangwon-do, Chungcheong-do, and Gyeongsang-do ($p<0.01$). For the satisfaction with the major, the group of "average" showed the highest stress level with 3.03±0.66, and the "average" group was different from the "satisfied" group ($p<0.01$) as a result of post-analysis. For academic performance, the "poor" group showed the highest stress level with 3.22 ±0.71, and as a result of post-analysis, "poor" was different from "average" and "good" ($p<0.001$) (see Table 2).

Table 2. Stress of the national exam by general characteristics

Characteristics	Description	Mean±SD	t/F	*p**
Educational institution	3-year college	3.01±0.65	2.931	0.004
	4-year college	2.79±0.67		
Age	20-21	2.94±0.63	1.034	0.302
	22 or older	2.86±0.74		
Location	Seoul and Gyeonggi	2.76±0.65[a]	7.822	0.003
	Gangwon	3.18±0.43[b]		
	Chungcheong	3.16±0.75[b]		
	Jeolla	3.41±0.47[b]		
	Gyeongsang	3.15±0.68[b]		
Time of selecting the major	Before entering high school	3.25±0.51	0.973	0.379
	During high school	2.93±0.65		
	After college entrance exam or other	2.88±0.69		
Motive	Aptitude and liking	2.83±0.77	1.562	0.199
	Chance to get a job after graduation is high	2.97±0.65		
	Recommended by parents or teachers	2.95±0.62		
	Grades in high school or other	2.73±0.72		
Satisfaction with the major	Satisfied	2.78±0.62[a]	5.456	0.005
	Average	3.03±0.66[b]		
	Not satisfied	3.02±0.76[ab]		
Academic performance	Good	2.78±0.71[a]	10.288	<0.001
	Average	2.86±0.59[a]		
	Poor	3.22±0.71[b]		

3.3 Self-efficacy by general characteristics

Self-efficacy by age was found to be 3.39±0.55 for those who were 22 or older, which is higher than those who were 20-21. For the motive to choose the major, "aptitude and liking" had the highest self-efficacy with 3.57±0.45, and as a result of post-analysis, it showed the difference from "chance to get a job after graduation is high," "recommended by parents or teachers," and "grades in high school or other" ($p<0.01$). For the satisfaction with the major, the group of "satisfied" showed the highest self-efficacy with 3.43±0.48, and it was different from the "average" and "not satisfied" ($p<0.001$) as a result of post-analysis. For academic performance, the "good" group showed the highest self-efficacy with 3.51±0.57, and as a result of post-analysis, it was different from "average" and "poor" ($p<0.001$) (see Table 3).

Table 3. Self-efficacy by general characteristics

Characteristics	Description	Mean±SD	t/F	*p**
Educational institution	3-year college	3.18±0.57	-1.22	0.22
	4-year college	3.26±0.56		
Age	20-21	3.14±0.56	-3.64	<0.001
	22 or older	3.39±0.55		
Location	Seoul and Gyeonggi	3.22±0.51	1.16	0.32
	Gangwon	3.34±0.56		
	Chungcheong	3.23±0.78		
	Jeolla	3.29±0.84		
	Gyeongsang	3.07±0.57		
Time of selecting the major	Before entering high school	3.12±0.59	0.74	0.47
	During high school	3.18±0.62		
	After college entrance exam or other	3.26±0.49		
Motive	Aptitude and liking	3.57±0.45[a]	5.03	0.002
	Chance to get a job after graduation is high	3.18±0.54[b]		
	Recommended by parents or teachers	3.14±0.61[b]		
	Grades in high school or other	3.23±0.58[b]		
Satisfaction with the major	Satisfied	3.43±0.48[a]	24.71	<0.001
	Average	3.11±0.49[b]		
	Not satisfied	2.87±0.70[c]		
Academic performance	Good	3.51±0.57[a]	19.26	<0.001
	Average	3.18±0.51[b]		
	Poor	2.97±0.56[a]		

3.4 Career preparatory behavior by general characteristics

Career preparatory behavior by age was found to be 3.19±0.59 for those who were 22 or older, which is higher than those who were 20-21 with 2.96±0.65 ($p<0.01$). For the satisfaction with the major, the group of "satisfied" showed the highest degree of career preparatory behavior with 3.12±0.60, and it was different from the "average" ($p<0.05$) as a result of post-analysis. For academic performance, the "good" group showed the highest degree of career preparatory behavior with 3.29±0.61, and as a result of post-analysis, it was different from "average" and "poor" ($p<0.001$) (see Table 4).

Table 4. Career preparatory behavior by general characteristics

Characteristics	Description	Mean±SD	t/F	*p**
Educational institution	3-year college	2.98±0.66	-1.729	0.085
	4-year college	3.10±0.61		
Age	20-21	2.96±0.65	-3.069	0.002
	22 or older	3.19±0.59		
Location	Seoul and Gyeonggi	3.01±0.63	1.672	0.156
	Gangwon	3.09±0.53		
	Chungcheong	3.26±0.67		
	Jeolla	3.21±0.74		
	Gyeongsang	2.90±0.66		

Characteristics	Description	Mean±SD	t/F	*p**
Time of selecting the major	Before entering high school	3.12±0.31	0.616	0.541
	During high school	2.99±0.68		
	After college entrance exam or other	3.07±0.60		
Motive	Aptitude and liking	3.27±0.36	1.861	0.136
	Chance to get a job after graduation is high	3.02±0.68		
	Recommended by parents or teachers	2.98±0.60		
	Grades in high school or other	2.97±0.70		
Satisfaction with the major	Satisfied	3.12±0.60[a]	3.292	0.038
	Average	2.92±0.60[b]		
	Not satisfied	3.02±0.81[ab]		
Academic performance	Good	3.29±0.62[a]	10.166	<0.001
	Average	3.00±0.57[b]		
	Poor	2.84±0.73[b]		

3.5 Correlation of stress of the national exam, self-efficacy, and career preparatory behavior

The correlation among stress on national exams, self-efficacy, and career preparatory behavior is as shown in Table 5. There was a weak negative correlation between stress and self-efficacy ($r = -0.140$, $p<0.001$). The higher the stress of the national exam, the lower the self-efficacy. There was a very strong positive correlation between self-efficacy and career preparatory behavior ($r = 0.540$, $p<0.001$). The higher the degree of career preparatory behavior, the higher the self-efficacy.

Table 5. Correlation of stress of the national exam, self-efficacy, and career preparatory behavior

	Stress	Self-efficacy	career preparatory behavior
Stress	1		
Self-efficacy	-0.140*	1	
career preparatory behavior	0.043	0.540*	1

p<0.001 by pearson's correlation analysis

3.6 Factors affecting career preparatory behavior

To find out the factors affecting career preparatory behavior, age, satisfaction with the major, academic performance that showed significant results in the univariate analysis were set as variables, and multiple regression analyses were conducted with stress of the national exam and self-efficacy as independent variables and career preparatory behavior as the dependent variable. The results are as follows (see Table 6). The regression model was significant ($F=23.452$, $p<0.001$), and the model's explanatory power was 32.8%. The factors affecting career preparatory behavior were satisfaction with the major ("satisfied" and "average" ($p<0.01$)), academic performance ("good" ($p<0.000$)), and self-efficacy ($p<0.001$). In other words, those who answered that they are "satisfied" with their major or "average" showed a passive attitude toward their career preparatory behavior,

and those who answered that they are "good" at their academic performance showed higher stress of the national exam, and the higher the self-efficacy, the more active in their career preparatory behavior.

Table 6. Factors affecting career preparatory behavior

Characteristics	B	SE	β	t	p*
(Constant)	0.672	0.241		2.792	0.006
Age (20-21 vs 22 or older)	0.085	0.066	0.061	1.298	0.195
Satisfaction with the major (satisfied vs not satisfied)	-0.301	0.094	-0.234	-3.205	0.001
Satisfaction with the major (average vs not satisfied)	-0.286	0.089	-0.219	-3.210	0.001
Academic performance (good vs poor)	0.233	0.095	0.157	2.454	0.015
Academic performance (average vs poor)	0.110	0.078	0.086	1.401	0.162
Stress of the national exam	0.132	0.045	0.138	2.908	0.004
Self-efficacy	0.619	0.058	0.552	10.765	<0.001
R^2=0.343, adj R^2=0.328, F=23.452, p<0.001					

*by multiple regression analysis

4. Summary and thoughts

The stress of seeking a job among young people has been on the rise as unemployment has increased recently due to the economic recession and social instability. In addition, the importance of career preparatory behavior related to employment is emerging, and in the case of dental hygiene departments, the national exam for dental hygienists itself is an important example of career preparatory behavior. The purpose of this study is to identify the stress of the national exam and self-efficacy of dental hygiene majors and to provide basic data on the career preparatory behavior by reducing stress and promoting self-efficacy.

For stress level by general characteristics of the research subjects, three-year colleges showed higher stress of the national exam than four-year ones. Since three-year colleges have shorter enrollment periods than four-year ones, the period of preparatory for the national exam has also decreased, indicating that the stress caused by a lack of preparatory time for the exam has been higher in three-year colleges. For the location of the colleges, Jeolla Province had the highest stress of the national exam, and Jeolla Province differed from Seoul, Gyeonggi Province, Gangwon Province, Chungcheong Province, and Gyeongsang Province. For the satisfaction with the major, the "average" group showed the highest stress level, and they were different from the "satisfied" group. For academic performance, the "poor" group showed the highest stress, and they were different from the "average" and "good" groups. Since there are many similarities between the subjects learned during the school

year and the national exam, the students who had low academic performance thought they were not well prepared for the national exam, so the stress of the students with low academic performance appeared to be high.

As a result of examining the self-efficacy by general characteristics, it is believed that the self-efficacy was higher with those aged 22 or older than those aged 20 to 21. The older the person, the more opportunities for self-examination and the more opportunities to enhance self-efficacy in the department through clinical practice. For the motive for choosing the dental hygiene department, self-efficacy was the highest in the case of choosing the dental hygiene major for one's "aptitude and liking." "Aptitude and liking" showed a difference from "higher chance to get a job after graduation," "recommended by parents or teachers," and "grades in high school and other." Students who applied for the dental hygiene program because of their aptitude and liking are believed to have higher self-efficacy than other students because they have confidence in their abilities. For satisfaction with the major, the "satisfied" group had the highest self-efficacy, and they differed from the "average" and "not satisfied" group. For academic performance, the "good" group had the highest self-efficacy, which differed from the "average" and "poor" groups. It is believed that their self-efficacy was high because of the high understanding of one's strengths and weaknesses and the ability to solve problems.

Looking at career preparatory behavior by general characteristics, the age of 22 or older showed a higher degree of career preparatory behavior than that of 20 to 21. It is thought that the older one is, the more realistic one becomes about one's career, so there will be a higher degree of career preparatory behavior to get a job (Kim, 2015). For satisfaction with the major, the "satisfied" group showed the highest degree of career preparatory behavior, and they were different from the "average" group. It is thought that students with a high level of satisfaction with their major had the highest degree of career preparatory behavior because of their clear career decision direction. For academic performance, the "good" group showed the highest degree of career preparatory behavior, and they were different from the "average" and "poor" groups. It is thought that students with high academic performance are also interested in self-improvement, so there will be more career preparatory behavior than students who are not.

In the case of the correlation among stress of the national exam, self-efficacy, and career preparatory behavior, there was a weak negative correlation between stress and self-efficacy. This means that the higher the stress level of the national exam, the lower the self-efficacy, and the person with a high level of stress tends to have a low level of self-efficacy. There is a very strong positive correlation between efficacy and career preparatory behavior. This means that the higher the degree of career preparatory behavior, the higher the self-efficacy, and it confirmed that self-efficacy had an important effect on the career preparatory behavior of dental hygiene majors (Lee, 2006).

The higher the satisfaction level with the major, the lower the degree of career preparatory behavior. The department of dental hygiene has a relatively higher employment rate than other departments. Therefore, it is thought that students with high satisfaction with their major tend to be satisfied with the current condition and do not intensify their career preparatory behavior. The higher the self-efficacy, the higher the degree of career preparatory behavior, and it is consistent with the results of the prior study by Goh and Shim (2014) where the higher the self-efficacy, the higher

the degree of career preparatory behavior.

Factors affecting career preparatory behavior were satisfaction with the major, academic performance, stress of the national exam, and self-efficacy. Namely, the higher the satisfaction level with the major, the lower the degree of career preparatory behavior, and the better the academic performance and the higher the self-efficacy, the more positive effect on career preparatory behavior.

However, this study has limitations that only self-efficacy and stress of the national exam have been set as variables, even though various variables that affect career preparatory behavior could be considered. Subsequent research will help explore career preparatory behavior in more detail if the possibility of other variables between individuals and their involvement in career decisions and career preparatory behavior is considered.

5. Conclusion

In order to find out how the stress of the national exam, self-efficacy of dental hygiene majors affect their career preparatory behavior, the study conducted a self-administered survey on dental hygiene majors nationwide and analyzed the final 323 questionnaires. The conclusions are as follows:

1. For the stress of the national exam by general characteristics, the group of three-year college, Jeolla Province, "average" satisfaction level with the major, and "poor" academic performance showed higher stress than other groups.

2. For self-efficacy by general characteristics, the group of 22 or older, choosing the major based on their aptitude and liking, "satisfied" with the major, and "good" academic performance showed higher self-efficacy than other groups.

3. For career preparatory behavior by general characteristics, the group of 22 or older, "satisfied" with the major, and "good" academic performance showed a higher degree of career preparatory behavior than other groups.

4. There is a weak negative correlation between the stress of the national exam and self-efficacy, and the higher the stress, the lower the self-efficacy. There was a very strong positive correlation between self-efficacy and career preparatory behavior, and the higher the degree of career preparatory behavior, the higher the self-efficacy.

5. Satisfaction with the major, academic performance, the stress of the national exam, and self-efficacy were the factors affecting career preparatory behavior.

Analysis of the above results showed that the higher the stress of the national exam, the lower the self-efficacy, and the higher the degree of career preparatory behavior, the higher the self-efficacy. Therefore, it is thought that there is a need for education to reduce stress and increase the degree of career preparatory behavior while preparing for the national exam for dental hygienists.

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