The Effects of University Teaching Competency, Professor-Student Relationship, Professor-Colleague Relationship, and Self-Disclosure on Professors' Job Stress

Nam Joo Je[1], Meera Park[1] & Jiwon Yoon[2,*]

[1]Department of nursing, Changshin University, Gyeongsangnam-do, Korea

[2]CHARIS College of Liberal Arts, Changshin University, Gyeongsangnam-do, Korea

*Correspondence: Changshin University, 262, Paryong-ro, MasanHoiwon-gu, Changwon-si, Gyeongsangnam-do, Korea. Tel: 82-55-250-1279

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Abstract

The purpose of this study was to investigate the effects of university teaching competency, professor-student relationship, professor-colleague relationship, and self-disclosure on professors' job stress, as well as check the relationship between these variables and use it as basic data for preparing measures to reduce university professors' job stress. This study was conducted on university professors working at universities across the country who could understand and judge the contents of the survey and agreed to participate in this study. Data collection was from July 1 to July 31, 2021, after IRB approval, and a total of 129 data were used for the final analysis. The factors affecting the stress of teaching jobs are the director and dean (β=.259, *p*= .001), age (β=.258, *p*= .001), Professor-Co-Professor Relationship (β=.256, *p*=.001), self-opening (β= .178, *p*=.016), Faculty Competency Execution (β=.170, *p*=.It appeared in the order of 024), and among them, it was confirmed that the position (chief and dean) was the biggest influencing factor on the stress of the professors' job. The explanatory power was 36.3%. Support for reducing job stress for university professors should be prepared, and more systematic and empirical discussions on the entire university professors need to be conducted.

Keywords: colleague, competency, professor, relationship, self- disclosure, Stress

1. Introduction

The basic competency of universities is evaluated in terms of development plans and achievements, educational conditions and soundness of university management, operation of classes and curriculum, student support, and educational performance. Among them, the competency of instructors is the core of the competency of the entire university institution because it has a great influence on the formation and promotion of students' competency (Lee, Choi, & Kim, 2022). University professors serve as mentors and role models for their students, and they are in charge of actively guiding students with knowledge of the subject matter. Therefore, it is no exaggeration to say that problems related to the quality of university education are affected by the competency of professors. Recently, many universities are making great efforts to improve the quality of education in order to secure the quality competitiveness of university education. In particular, various reform measures have been sought from various angles to strengthen the teaching capacity of university professors, which is a key factor in improving the quality of teaching and learning processes (Yang & Chung, 2010). If the teaching competency of university instructors is diagnosed and an appropriate feedback method is sought based on the results, the instructor's competency can be improved more effectively.

The current curriculum only functions as a transmitter of educational materials in the capacity of the instructor, emphasizing the need for effective content delivery (Yi & Park, 2022). The quality of educational activities is proportional to the quality of human relationships that teachers form with students and fellow teachers (Hong, 2001). College students acquire major knowledge through formal and informal exchanges with professors, receive intellectual stimulation, and develop cognitive abilities. In addition, professors with rich knowledge and experience as experts in each field change the values and attitudes of students and, as role models, influence the career planning of college

students (Choi & Shin, 2010). A positive human relationship between teachers based on cooperation and communication is highly likely to affect not only teachers' personal job satisfaction but also students' education and relationships (Woo, 2016). In particular, interactions between professors and students in university lectures dynamically change according to the contents of education, characteristics of academic fields, professors' expertise, and student responses, and can appear in various types. Therefore, it is necessary to systematically measure, evaluate, and understand teacher-student interactions (Lee, 2019).

Self-disclosure is a key factor in the formation of intimacy and trusts that composes relationships, and affects the feeling of favor when forming interpersonal relationships. Studies related to teachers' self-disclosure (Kam, 2019; Cayanus & Martin, 2008; Liu & Zhu, 2021; Myers & Brann, 2009). among various teaching behaviors, 'teach her self-disclosure', which is identified as a factor influencing psychological distance from the teacher perceived by the learner in the learning situation, trust in the teacher, and clarification of learning contents, is specifically taught. Assumed to be a behavioral variable (Kam, 2019), it has been claimed that it can also affect the improvement of trust in teachers in terms of cognition and emotion through clarifying learning contents in general learning situations and reducing the psychological distance between teachers and students (Cayanus & Martin, 2008; Liu & Zhu, 2021; Myers & Brann, 2009). In other words, teacher self-disclosure is a factor that has a significant impact on communication and interpersonal relationship development, and it provides instructors with an opportunity to positively create relationships with students, parents, and colleagues. Moreover, it can be seen how that might be a sign of a mature relationship.

The responsibility of the professorship is teaching and research. Teaching students well is one of the important responsibilities, but to teach well, you need to know a lot, and having to know a lot is a source of stress for professors (Lee, 1989). In addition, current professors are experiencing growing anxiety related to the existence of universities, such as competition to attract new students and increasing employment rates, and along with changes in universities, there are also changes in the employment structure of university professors, which intensifies job stress (Son, & Oh, 2006). The changed employment structure is gradually recruiting on a contractual basis from a structure in which retirement age is guaranteed, and professors who are appointed are not only re-appointed, but also undergo an annual performance evaluation system, adding to the stress (Lim & Kim, 2012). Recently, as the educational environment changed from the non-face-to-face environment caused by COVID-19 is stressful for instructors, it was revealed that professors' daily stress is a factor that weakens their teaching efficacy (Lee et al., 2021). There are not many studies on instructors, which are as important variables as learners in educational performance, compared to learner-related studies, and there are few studies that directly analyzed the job stress of teaching subjects (Lee, 1989; Yun, 1992; Haneef, 2019). In this regard, this study investigated and identified the effects of teaching competency, professor-student relationship, professor-colleague relationship, and self-disclosure on teaching job stress for professors working at domestic universities, and after confirming the relationship between these variables, it is intended to be used as basic data for preparing measures to reduce job stress for university professors in the future.

The purpose of this study is to investigate and identify the effects of university professors' teaching competency, professor-student relationship, professor-colleague relationship, and self-disclosure on professor job stress, and confirm the relationship between these variables to reduce job stress of university professors in the future. It is to be used as basic data for preparing measures to reduce it, and the specific purpose is as follows.

1) Identify the general characteristics of the subject.

2) Investigate the subject's teaching competency, professor-student relationship, professor-colleague relationship, self-disclosure, and professors' job stress.

3) Confirm the difference in teaching competency, professor-student relationship, professor-colleague relationship, self-disclosure, and professors' job stress according to the general characteristics of the subjects.

4) Identify the correlation between each variable.

5) Identify the factors that affect the subject's job stress.

2. Method

2.1 Research Design

This study is cross-sectional descriptive research conducted to confirm the effects of teaching competency, professor-student relationship, professor-colleague relationship, and self-disclosure on professors' job stress.

2.2 Subject of Research

Convenience sampling was conducted for this study among university professors working at universities across the country who were able to understand and judge the contents of the questionnaire and agreed to participate in this study. Part-time lecturers and foreign professors were excluded from the research subjects. In order to select the appropriate number of samples for regression analysis, G*power 3.1 program was calculated by setting a significance level of .05, power of .80, effect size of .15, and 12 independent variables. As a result, 127 people were judged to be appropriate, and 140 people were recruited considering the dropout rate of 10%. However, a total of 129 people's data were used for the final analysis, excluding 11 people who gave insincere responses.

2.3 Research Tools

This study used a structured Google online questionnaire, which consists of a total of 105 questions measuring general characteristics, teaching competency, professor-student relationship, professor-colleague relationship, self-disclosure, and professors' job stress.

2.3.1 General Characteristics of Study Subjects

The general characteristics of the research subjects were measured with a total of eight questions, including gender, age, years of service, current position, department, position, final degree's country of origin, and first position after degree acquisition, with reference to previous studies (Park, 1996).

2.3.2 Teaching Competency

Teaching competency in this study was measured using the teaching competency diagnosis tool developed by Lee et al (2022). The diagnostic tool consists of a total of 32 questions, which are largely divided into the basic competency area and the lecture competency area. The basic competency area consists of 8 questions to diagnose the 3 items of professionalism and belief as a professor, efforts to improve lectures, and formation of relationships with students. The lecture competency area consists of 24 items to diagnose 5 items: teaching-learning design, lecture operation, interaction, motivation, lecture evaluation, and reflection. Each item is measured on a 5-point Likert scale ranging from 'not at all (1 point)' to 'very much so (5 points)'. The higher the score, the higher the importance and implementation. At the time of tool development, the reliability was Cronbach's $\alpha = .95$. In this study, the reliability of teaching competency importance Cronbach's $\alpha = .98$ (basic competency .04, lecture competency .97), and the reliability of teaching competency performance Cronbach's $\alpha = .95$ (basic competency .87, lecture competency .94).

2.3.3 Professor-student Relationship, Professor-colleague Relationship

The scales of the professor-student relationship and professor-colleague relationship in this study were produced in Ha (1996)'s study and Woo (2016)'s study, based on the questionnaire created on the interpersonal relationship between teachers in Lee (1990) measured with the tool used. This tool consists of 20 questions of 10 questions in each domain, and each question is measured on a 5-point Likert scale ranging from 'not at all (1 point)' to 'very much so (5 points)'. In Woo (2016)'s study, Cronbach's $\alpha = .81$ for the reliability of the professor-student relationship, and Cronbach's $\alpha = .89$ for the reliability of the professor-colleague relationship. In this study, Cronbach's $\alpha = .78$ for professor-student relationship reliability and Cronbach's $\alpha = .90$ for professor-colleague relationship reliability.

2.3.4 Self- disclosure

The self-disclosure scale in this study was used in Park (1996)'s study, which modified and supplemented the JSDQ (Jourard Self-Disclosure Questionnaire) developed by Jourard (1961). The self-disclosure scale consists of attitude and opinion (9 items), taste and interest (10 items), and appearance and health (11 items), totaling 30 items. This tool is on a 5-point Likert scale ranging from 'doesn't say anything (1 point)' to 'says everything (5 points)', with higher scores indicating a higher degree of self-disclosure. In the study of Park (1996), the reliability of Cronbach's $\alpha = .91$. Reliability in this study was Cronbach's $\alpha = .85$.

2.3.5 Professors' Job Stress

A tool developed in the study of Yoon (1992) was used for the professors' job stress scale in this study. There are a total of 41 questions, it consists of professors' job stress (28 questions), stress view (1 question), stressful period (1 question), the importance of each question (9 questions), current stress situation (1 question), and how to relieve stress (1 question). The 28 items of professors' job stress are measured on a 5-point Likert scale ranging from 'not at all' (1 point) to 'very much so' (5 points), and the higher the score, the higher the professors' job stress. At the time of tool development, the reliability was Cronbach's $\alpha = .91$, and in this study, the reliability was Cronbach's $\alpha = .60$.

2.4 Ethical Considerations

It was approved by the C University Bioethics Review Committee (IRB No.: CSIRB-R2021013). In order to protect the autonomy and interests of the subjects, consent to participate in the research was obtained from subjects who wished to participate in the research. It was explained that the questionnaire replies were anonymous, and that participants might withdraw from the study at any moment according to their free will, with no consequences for doing so. In addition, online data were stored in a file with a password to limit access to non-researchers. Furthermore, it was stated that the files would be kept for three years after the study was completed before being erased, that the subjects' personal information and survey results would be digitized and used only for research purposes, and that confidentiality and anonymity would be guaranteed.

2.5 Data Collection Period and Method

Data collection were from July 1, 2021 to July 31, 2021 after IRB approval, and a link to the questionnaire was distributed only to those who agreed to participate in this study, and they were asked to fill out the questionnaire in a self-written form.

2.6 Data Analysis

The collected data were statistically processed using the IBM SPSS WIN 22.0 program. The general characteristics of the subjects and the degree of research variables were analyzed by descriptive statistics, and the difference test of variables according to general characteristics was analyzed using t-test and ANOVA, followed by the scheffe test. The correlation between teaching competency, professor-student relationship, professor-colleague relationship, self-disclosure, and professors' job stress was analyzed using Pearson's Correlation Coefficient, and the factors influencing professors' job stress were analyzed using stepwise regression analysis.

3. Results

3.1 General Characteristics of Subjects

Table 1. General Characteristics of Subjects (N=129)

Category		n(%)	Category		n(%)
Age (yr)	≤39	27(20.9)	Field	Department of humanities and Sociology	60(46.5)
	40-49	65(50.4)		Department of science and Engineering	20(15.5)
	50-59	29(22.5)		Department of medicine and Pharmacy	33(25.6)
	≥60	8(6.2)		Department of arts and Physical education	16(12.4)
	Mean±SD	45.98±7.28	Positions	Provost/Deans	11(8.5)
Gender	Male	40(31.0)		Department Chairs /Heads	33(25.6)
	Female	89(69.0)		Ministerial directors	11(8.5)
The average length of service (yr)	1-3	39(30.2)		Center directors	13(10.1)
	4-6	43(33.3)		Research directors/Other positions	5(3.9)
	7-9	15(11.6)		No positions	56(43.4)
	10-14	11(8.5)	Final Degree's Contry of Origin	Domestic	110(85.3)
	15-19	12(9.3)		Foreign	19(14.7)
	≥20	9(7.0)	First position after degree acquisition	Part-time instructors	40(31.0)
	Mean±SD	7.44±6.26		Full-time instructors	19(14.7)
Regarding the position	Adjunct/ Visiting professor	6(4.7)		Assistant professors or Higher	70(54.3)
	Assistant professor	91(70.5)			
	Associate professor	19(14.7)			
	Professor	13(10.1)			

Table 1 shows the general characteristics of the subjects. The average age was 45.98 years old, with 27 patients (20.9%) of '39 years old', 65 '40-49 years of age' (50.4%), 29 '50-59 years of age' (22.5%), and '60 years of age or older'. 8 (6.2%). By gender, 40 males (31.0%) and 89 females (69.0%) had a large number of female professors. The average length of service was 7.44 years, with '1-3 years' 39 persons (30.2%), '4-6 years' 43 persons (33.3%), '7-9 years' 15 persons (11.6%), '10- 14 years' 11 people (8.5%), '15-19 years' 12 people (9.3%), '20 years or more' 9 people (7.0%). Regarding the position, there were 91 'Assistant professors' (70.5%), 19 'Associate professors' (14.7%), 13 'Associate professors' (10.1%), and 6 'Adjunct/Visiting professors' (4.7%). By field, 60 people (46.5%) 'Department of Humanities and Sociology', 20 people (15.5%) 'Department of Science and Engineering', 33 people (25.6%) 'Department of Medicine and Pharmacy', and 16 people (2.4%) 'Department of Arts and Physical education'. There were many 'Department of Humanities and Sociology'. As for the positions, 11 people (8.5%) were 'Provost/Deans', 33 people (25.6%) were 'Department Chairs /Heads', 11 people (8.5%) were 'Ministerial directors', 13 people (10.1%) were 'Center directors', 5 people were (3.9%) 'Research directors/Other positions', and 56 people were (43.4%) 'No positions'. The country where the final degree was obtained 110 people (85.3%) were 'Domestic' and 19 people (14.7%) were 'Foreign'. First position after graduation was 40 people (31.0%) 'Part-time instructors', 19 people (14.7%) 'Full-time instructors', and 70 people (54.3%) 'Assistant professors or Higher'.

3.2 Descriptive Statistics of Study Variables

Table 2. Descriptive Analysis Results of Variables (N=129)

Variable	Range	Min	Max	Mean±SD
Importance of teaching competency	1-5	1.44	5.00	4.29±0.63
Importance of basic competency	1-5	1.38	5.00	4.45±0.64
Importance of lecture competency	1-5	1.46	5.00	4.23±0.65
Performance of teaching competency	1-5	1.59	5.00	3.86±0.60
Performance of basic competency	1-5	1.63	5.00	4.10±0.61
Performance of lecture competency	1-5	1.58	5.00	3.78±0.63
Professor-student relationship	1-5	3.00	5.00	4.14±0.44
Professor-colleague relationship	1-5	1.70	5.00	3.82±0.67
Self-disclosure	1-5	1.58	5.00	3.15±0.69
Professors' job stress	1-5	2.54	4.11	3.33±0.31

The mean, standard deviation, skewness, and kurtosis were calculated to determine the distribution and normality of teaching competency, professor-student relationship, professor-colleague relationship, self-disclosure, and professors' job stress scores. In teaching competency, the importance of teaching competency was 4.29 points (out of 5 points), and the importance of basic competency was 4.45 points and the importance of lecture competency was 4.23 points as sub-competency. The performance of teaching competency rate was 3.86 points (out of 5 points), the performance of the basic competency rate was 4.10 points, and the performance of lecture competency rate was 3.78 points. Professor-student relationship scored 4.14 points (out of 5 points), professor-colleague relationship 3.82 points (out of 5 points), self-disclosure 3.15 points (out of 5 points), and professors' job stress 4.11 points (out of 5 points) (Table 2).

3.3 Teaching Competency, Professor-Student Relationship, Professor-Colleague Relationship, Self-Disclosure, and Professors' Job Stress According to General Characteristics

There was no difference between groups in teaching ability according to general characteristics. In the professor -student relationship, there was a significant difference according to the department ($F=4.61$, $p=.004$), as a result of post-hoc analysis, 'Department of Science and Engineering' and 'Department of Arts and Physical education' were higher than 'Department of Medicine and Pharmacy'. In the case of the country where the final degree was obtained, 'foreign' had a higher score on the professor-student relationship than 'domestic' ($t=-3.42$, $p<.001$). There was a significant difference according to the first position after obtaining a degree ($F=4.61$, $p=.004$). As a result of the post-hoc analysis, the group with 'assistant professor or higher' was higher than 'part-time instructor'. There was a difference according to the number of years of service in the professor-colleague relationship ($F=2.39$, $p=.041$), but there was no difference between groups as a result of the post-hoc analysis. In terms of self-disclosure, 'male' was statistically significantly lower than 'female' ($F=-2.15$, $p=.033$). There was a significant difference according to the field ($F=3.69$, $p=.014$), and the 'Department of Medicine and Pharmacy' was higher than the 'Department of

Humanities and Sociology'.

Table 3. Differences in Variables According to General Characteristics of Participants (N=129)

Characteristics	Categories	Teaching competency			Professor-student relationship			Professor-colleague relationship			Self-disclosure			Professors' job stress		
		Mean±SD	t/F	*p* (Scheffe)	Mean±SD	t/F	*p* (Scheffe)	Mean±SD	t/F	*p* (Scheffe)	Mean±SD	t/F	*p* (Scheffe)	Mean±SD	t/F	*p* (Scheffe)
Age (yr)	≤39[a]	3.95±0.50	0.94	.423	4.21±0.46	1.23	.301	3.98±0.42	4.25	.007	3.26±0.79	1.69	.172	3.22±0.27	9.72	<.001
	40-49[b]	3.79±0.59			4.10±0.43			3.62±0.69			3.03±0.67			3.25±0.27		a,b<c,d
	50-59[c]	3.97±0.58			4.11±0.42			3.99±0.75			3.34±0.64			3.51±0.32		
	≥60[d]	3.73±0.97			4.38±0.43			4.25±0.52			3.03±0.45			3.62±0.24		
Gender	Male	3.75±0.66	-1.43	.153	4.15±0.41	0.07	.940	3.93±0.59	1.27	.203	2.95±0.57	-2.15	.033	3.39±0.22	1.66	.099
	Female	3.91±0.56			4.14±0.46			3.77±0.71			3.23±0.72			3.29±0.34		
The average length of service (yr)	1-3	4.01±0.33	0.92	.465	4.21±0.39	0.81	.544	4.08±0.42	2.39	.041	3.17±0.71	0.69	.630	3.22±0.29	3.75	.003
	4-6	3.73±0.58			4.06±0.47			3.69±0.78			3.01±0.79			3.30±0.29		
	7-9	3.79±0.96			4.16±0.36			3.61±0.58			3.21±0.65			3.26±0.34		
	10-14	3.94±0.51			4.09±0.42			3.67±0.86			3.37±0.41			3.52±0.31		
	15-19	3.85±0.85			4.29±0.57			3.65±0.72			3.29±0.57			3.44±0.30		
	≥20	3.89±0.57			4.08±0.48			4.07±0.56			3.10±0.51			3.59±0.21		
Regarding the position	Adjunct/Visiting professor[a]	4.18±0.34	0.79	.501	4.15±0.20	0.50	.682	3.78±0.44	0.42	.737	3.33±0.69	1.46	.227	3.31±0.19	5.85	.001
	Assistant professor[b]	3.84±0.59			4.15±0.46			3.79±0.68			3.07±0.73			3.27±0.27		b<d
	Associate professor[c]	3.93±0.53			4.18±0.47			3.98±0.82			3.41±0.46			3.41±0.41		
	Professor[d]	3.76±0.85			4.00±0.36			3.83±0.52			3.21±0.58			3.62±0.26		
Field	Department of humanities and Sociology[a]	3.87±0.51	0.89	.447	4.13±0.41	4.61	.004 b,d>c	3.84±0.64	0.79	.499	3.02±0.67	3.69	.014 a<c	3.26±0.29	3.27	.023
	Department of science and Engineering[b]	3.74±0.78			4.34±0.35			3.99±0.68			3.07±0.76			3.44±0.30		
	Department of medicine and Pharmacy[c]	3.82±0.64			3.96±0.50			3.70±0.75			3.48±0.67			3.42±0.30		
	Department of arts and Physical education[d]	4.06±0.56			4.33±0.34			3.79±0.61			3.04±0.45			3.22±0.34		
Position	Provost/Deans[a]	3.64±0.80	1.25	.287	4.07±0.31	0.53	.750	3.97±0.65	0.62	.684	3.52±0.71	3.59	.005	3.72±0.33	4.87	<.001
	Department Chairs /Heads[b]	3.81±0.76			4.14±0.51			3.84±0.79			3.33±0.43			3.35±0.31		a>b,c,d,f
	Ministerial directors[c]	3.82±0.44			4.13±0.38			4.04±0.31			2.74±0.34			3.28±0.25		
	Center directors[d]	4.18±0.36			4.31±0.38			3.80±0.90			3.10±0.70			3.25±0.26		
	Research directors/Other positions[e]	3.64±0.83			4.26±0.46			4.00±0.69			3.80±0.52			3.32±0.33		
	No positions[f]	3.89±0.48			4.11±0.45			3.73±0.60			3.00±0.78			3.26±0.27		
First position after degree acquisition	Domestic	3.84±0.60	-1.12	.263	4.09±0.44	-3.42	<.001	3.79±0.68	-1.08	.282	3.17±0.70	0.97	.333	3.32±0.30	-0.51	.607
	Foreign	4.00±0.58			4.45±0.27			3.97±0.61			3.00±0.57			3.36±0.36		
First position after degree acquisition	Part-time instructors	3.94±0.54	0.47	.623	3.99±0.51	3.48	.034 a<c	3.78±0.57	0.12	.886	3.05±0.65	1.59	.207	3.34±0.25	1.55	.216
	Full-time instructors	3.83±0.55			4.19±0.42			3.84±0.59			3.39±0.94			3.43±0.30		
	Assistant professors or Higher	3.82±0.65			4.22±0.39			3.84±0.75			3.14±0.62			3.29±0.34		

There was a significant difference according to position (F=3.5, p=.005), but there was no difference between groups as a result of post-hoc analysis. There was a significant difference according to position (F=3.5, p=.005), but there was no difference between groups as a result of the post-hoc analysis. There was a significant difference according to age in professors' job stress (F=9.72, p<.001). '50-59 years of age' and '60 years of age or older' groups were significantly higher than '39 years of age or younger' and '40-49 years of age'. There was a significant difference according to the

number of years of service (F=3.75, p=.003), but there was no difference between groups as a result of the post-hoc analysis. There was a significant difference according to position (F=5.85, p=.001), and the stress of professors' job was higher for 'Professor' than for 'Assistant professor'. There was a significant difference according to the series (F=3.27, p=.023), but there was no difference between the groups as a result of the post-hoc analysis. There was a significant difference according to position (F=4.87, p<.001), and the positions of 'Provost/Deans' were higher than other positions (Table 3).

3.4 Correlation between Teaching Competency, Professor-student Relationship, Professor-colleague Relationship, Self-disclosure, and Professor Job Stress

The performance of teaching competency was positively correlated with the importance of teaching competency (r=.798, p<.001), professor-student relationship (r=.391, p<.001), professor-colleague relationship (r=.268, p=. 002), and professors' job stress (r=.226, p=.010). The importance of teaching competency was positively correlated with the professor-student relationship (r=.209, p=.018) and the professor-colleague relationship (r=.196, p=.026). The professor-student relationship was positively correlated with the professor-colleague relationship (r=.440, p<.001). The professor-colleague relationship had a positive correlation with professors' job stress (r=.379, p<.001). Self-disclosure was positively correlated with professors' job stress (r=.284, p=.001) (Table 4).

Table 4. Correlations between Variables (N=129)

Variables	Performance of teaching competency	Importance of teaching competency	Professor -student relationship	Professor -colleague relationship	Self -disclosure	Professors' job stress
Performance of teaching competency	1					
Importance of teaching competency	.798***(<.001)	1				
Professor -student relationship	.391***(<.001)	.209*(.018)	1			
Professor -colleague relationship	.268**(.002)	.196*(.026)	.440***(<.001)	1		
Self-disclosure	.110(.217)	-.153(.082)	.115(.196)	.138(.120)	1	
Professors' job stress	.226**(.010)	-.005(.956)	.125(.158)	.379***(<.001)	.284***(.001)	1

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

3.5 Factors Affecting Professors' Job Stress

In order to identify the factors that affect professors' job stress, the factors related to professors' job stress, such as teaching competency (performance of teaching competency level), professor-colleague relationship, and self-disclosure, among the general characteristics of the subjects, age, position, regarding the position, etc. was dummy-treated as an independent variable, and stepwise multiple regression analysis was performed. The results are shown in Table 5.

As a result of the analysis, the regression model for professors' job stress was found to be significant (F=15.60, p<.001), and the adjusted coefficient of determination (Adjusted R^2) representing the explanatory power of the model were .363, with the explanatory power of 36.3%. Factors influencing professors' job stress are 'Provost/Deans' (β=.259, p=.001), age (β=.258, p=.001), and professor-colleague relationship (β=.256, p=.001), self-disclosure (β=.178, p=.016), and performance of teaching competency (β=.170, p=.024). Among them, it was confirmed that the position (Provost/Deans) was the most influential factor in professors' job stress.

As a result of diagnosing multicollinearity, residuals, and singular values in the regression model diagnosis, the

correlation coefficient between the performance of teaching competency, professor-colleague professor relationship, and self-disclosure that affects the professors' job satisfaction was 0.226-0.379, and there were no variables higher than .80. This confirmed that the variables were independent. In addition, as a result of verifying the basic assumption for the error term, the Durbin-Watson statistic was 2.263, which showed no autocorrelation and as for the problem of multicollinearity, the tolerance limit was 0.814-0.945, which was more than 0.1, and the variance expansion factor (VIF) was 1.058-1.229, so there was no problem. In particular, the assumptions of linearity, normality of the error term, and homoscedasticity to satisfy the assumption of residuals were also satisfied. It was confirmed that there was no value exceeding 1.0 in Cook's distance value for examining outliers, so the results of the regression analysis were judged to be reliable (Table 5).

Table 5. Factors Affecting Professors Job Stress (N=129)

Variables	B	S.E	β	t	p	Adjusted R^2	F	p
(Constant)	1.746	0.231		7.563	<.001	.363	15.6	<.001
Age	0.011	0.003	.258	3.350	.001		0	
Provost/Deans (dummy)	0.289	0.087	.259	3.309	.001			
performance of Teaching competency	0.088	0.039	.170	2.288	.024			
Professor-colleague relationship	0.119	0.034	.256	3.445	.001			
Self-disclosure	0.081	0.033	.178	2.454	.016			

4. Discussion

This study was conducted to identify the effects of teaching competency, professor-student relationship, professor-colleague relationship, and self-disclosure on professors' job stress.

As a result of the study, the average age of the respondent was 45.98 years old, with 27 people (20.9%) 'under 39 years old', 65 people (50.4%) '40-49 years old', 29 people (22.5%) '50-59 years old', 8 people (6.2%) were 'over 60 years of age'. By gender, 40 males (31.0%) and 89 females (69.0%) had a large number of female professors. Teaching competency showed a low level of performance compared to its importance. The importance of teaching competency was 4.29 points (out of 5 points), the importance of basic competency, which is a sub-competency, was 4.45 points, and the importance of lecture competency was 4.23 points. The performance of teaching competency was 3.86 points (out of 5 points), the performance of basic competency, which is a sub-competency, was 4.10 points, and the performance of lecture competency was 3.78 points. In particular, the difference (0.45 points) between the importance of lecture competency and performance was the highest, indicating the need for a plan to increase the level of instructors' lecture competency. In addition, professors had a better professor-student relationships (4.14 points) than professor-colleague relationships (3.82 points). This means that interaction between professors and students is better than interaction with fellow professors. Due to the importance of student counseling in universities these days, more and more universities are making counseling compulsory, and it can be assumed that the relationship between professors and students has improved through such counseling. There was no difference between groups in teaching ability according to general characteristics.

In the professor-student relationship, 'foreign' was higher than 'domestic' in the country where the final degree was obtained (t=-3.42, p<.001). There was a difference according to the number of years of service in the professor -colleague relationship (F=2.39, p=.041), but there was no difference between groups as a result of the post-hoc analysis. In terms of self-disclosure, 'male' was statistically significantly lower than 'female' (F=-2.15, p=.033). There was a significant difference according to the field (F=3.69, p=.014), and the 'Department of Medicine and Pharmacy' was higher than the 'Department of Humanities and Sociology'.

Professors' job stress was found to be high at 4.11 points (out of 5 points). In a previous study (Son & Oh, 2006), professors were generally anxious about the future of universities and university professors, and their satisfaction was generally low. The professors' job stress in this study was related to teaching competency (performance of teaching competency), professor-colleague relationship, and self-disclosure. The factors influencing professors' job stress were position (Provost/Deans), professor-colleague relationship, teaching competency performance, self-disclosure, and age in order. The explanatory power was 36.3%. In the preceding study (Son & Oh, 2006), overall, student-related stress (recruitment of students, employment, education, etc.) was the most stressed. On the other hand, the level of

stress related to school management was the lowest. In this study, it was found that the factor that had the greatest influence on professors' job stress was the position (Provost/Deans). Through this, it can be confirmed that the responsibility of professors is increasing from teaching and research to administration. In particular, it can be seen that the sense of responsibility associated with high positions such as manager or dean acted as a stress factor. In the case of the next influential age, it can be seen that the higher the age of the instructor, the more stressed it is, as the university environment that requires changes to the instructor is created according to the change in social demand. In particular, as the demand for remote classes has increased due to the recent COVID-19 incident, difficulties with this are likely to have been linked to instructors' stress. In a preceding study (Son & Oh, 2006), more than half of all respondents were critical of the future of universities and university professors, and as about 40% of all professors revealed that they experienced status instability, it can be seen that difficulties in university society lead to greater stress for older professors. Changes in the era of the 4th Industrial Revolution and a decrease in the school-aged population have brought a crisis to universities. University evaluations are adding to the role of university professors. Professors can no longer exist as people who teach and conduct research. In the current era called the university crisis, university professors are constantly required to fulfill various responsibilities, such as attracting students, employing students, and administering universities, in addition to education and research. This is expected to continue in the future. Individual efforts and university support are needed to properly respond to these changes. In particular, support for reducing the job stress of university professors needs to be provided, and more systematic and empirical discussions on university professors as a whole need to be conducted. In addition, it is proposed to develop a job stress tool for university professors.

However, this study has limitations in that the number of subjects was small and various variables related to the job stress of university professors was not sufficiently utilized. Nevertheless, considering the lack of research related to university professors, the significance of this study can be found in that a study was conducted on professors' job stress.

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