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# Job-Seeking Stress, Mental Health Problems, and the Role of Perceived Social Support in University Graduates in Korea

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## ABSTRACT

**Background:** Increases in unemployment and suicide in the young Korean population have recently become major social concerns in the country. The purpose of this study was to examine mental health status in young job seekers and identify sociodemographic factors related to job-seeking stress, depression, and suicidal ideation. We also explored the mediating effect of depression on the relationship between job-seeking stress and suicidal ideation and examined whether social support moderated this effect.

**Methods:** In total, 124 university graduates completed the Job-Seeking Stress Scale, Beck Depression Inventory-II, Beck Scale for Suicide Ideation, and Multidimensional Scale of Perceived Social Support. Descriptive statistics were calculated for participants' general characteristics, and t-tests or analyses of variance, correlation analysis, simple mediation analysis, and mediated moderation analysis were performed.

**Results:** Of the 124 participants, 39.5% and 15.3% exhibited clinical levels of depression and suicidal ideation, respectively. Sociodemographic factors (i.e., sex, academic major, educational expenses loan, and willingness to accept irregular employment) were associated with job-seeking stress, depression, and suicidal ideation. Women and graduates who were willing to accept irregular employment exhibited high levels of job-seeking stress, depression, and suicidal ideation. Job-seeking stress affected suicidal ideation via depression, and perceived social support moderated the effect of job-seeking stress on depression and the effect of depression on suicidal ideation.

**Conclusion:** The results suggest that depression management and interventions are urgently required for young job seekers, and social support should be provided to assist them both emotionally and economically.

**Keywords:** Job-seeking Stress; Depression; Suicidal Ideation; Social Support

**Disclosure**

The authors have no potential conflicts of interest to disclose.

**Author Contributions**

Conceptualization: Jung HY, Lim AY. Data curation: Lee SH. Formal analysis: Lim AY, Jeon YJ, Yoo RK. Funding acquisition: Jung HY. Supervision: Jung HY. Writing - original draft: Lim AY, Jeon YJ, Yoo RK. Writing - review & editing: Lim AY, Lee SH, Jung HY.

**INTRODUCTION**

Sigmund Freud posited that work and love were the most important factors affecting humanness. With respect to work, unemployment in young people has become a global threat, and those who fail to achieve economic and psychological independence through stable employment tend to be reluctant to engage with others. In addition, young people deprived of work and love find it difficult to maintain their hopes for the future. According to the National Statistical Office of Korea, the 2016 overall average unemployment rate in Korea was between 4% and 5%, while that recorded for young people was between 9% and 10%.<sup>1</sup> However, this did not reflect the reality of the situation accurately, as it targeted individuals aged 15–29 years. According to 2015 statistics, 45% of the Korean population had completed higher education.<sup>2</sup> Moreover, young people enter the employment market later because of an increase in the duration of their education and the continued economic downturn. Therefore, unemployed young people often refers to those who have been unable to secure employment after graduating from college, and the Korea Labor Institute reported that the unemployment rate for university graduates was 38.3% in 2011.<sup>3</sup> This percentage is about four times that reported by the National Statistical Office.

Numerous studies have demonstrated that unemployment exerted a negative impact on mental health. For example, unemployment in young people has been reported to cause depression, alcohol abuse, and drug use<sup>4,5</sup> and associated with lower self-esteem and levels of satisfaction with life.<sup>6,7</sup> Furthermore, it has been linked to the high suicide mortality rate in Korea, which is 25.6 per 100,000 population and the highest of those reported for the 34 organization for economic cooperation and development countries.<sup>8</sup> Moreover, according to the National Statistical Office of Korea, suicide is the leading cause of death for Korean people in their 20s and 30s.<sup>9</sup> In addition, in a previous study, economic difficulties and work-related problems (e.g., unemployment) were identified as the main factors affecting suicidal impulses in people in their 20s.<sup>10</sup> As suicide has become a serious social problem, research has been conducted to identify the correlates of suicide and develop prevention strategies. Depression is generally considered the strongest risk factor for suicide.<sup>11-14</sup> In addition, in previous research involving young job seekers, it was reported to mediate the relationship between job stress and suicide.<sup>15</sup> In contrast, social support has been identified as a protective factor against suicide<sup>16,17</sup> and is known to regulate the effects of stress on depression.<sup>18</sup> Moreover, it is particularly important to study the role of social support for mental health problems in young job seekers, because they stand at the crossroads of independence and are vulnerable to deviance and loneliness. Furthermore, unemployed people's social connections are likely to deteriorate because of their lower self-esteem and the time required to prepare for job interviews.

Although young job seekers are exposed to considerable stress and vulnerable to mental disorders and suicide, few studies have been conducted to examine their mental health. As unemployment is considered a direct cause of stress, unemployed people tend to believe that all their mental health problems will be alleviated if they secure employment. However, employment involves both personal and social factors. Moreover, indifference and lack of social support could leave young job seekers in a state of crisis. In addition, stress, depression, and suicidal ideation are likely to create a vicious cycle by increasing the difficulty experienced in securing employment. Therefore, the aims of the study were to; 1) examine mental health conditions, such as job-seeking stress, depression, and suicidal ideation, in young job seekers who had graduated from university, 2) identify sociodemographic factors affecting job-seeking

stress, depression, and suicidal ideation, and 3) determine whether job-seeking stress affected suicidal ideation via depression and whether social support moderated this effect.

## METHODS

### Participants and data collection

The participants were 124 university graduates aged between 22 and 38 years who were actively seeking employment. The inclusion criteria were as follows: 1) graduation from a 4-year university course, 2) voluntary postponement of graduation because of unemployment, 3) graduation within the preceding 5 years, and 4) active job-seeking at the time of the study. The exclusion criteria were as follows: 1) unwillingness to work and 2) preparation for graduate school or study abroad.

The study was conducted via research cooperation involving 7 universities in Korea. In addition, graduates from other universities were recruited by the study coordinators. The participants completed several self-report questionnaires after the study coordinator had explained the details of the study. Data were collected from May 20 to July 31, 2014. Initially, 164 participants were enrolled in the study; however, data for 14 respondents who returned incomplete questionnaires and 26 respondents who were unwilling to work were excluded from the analysis. Therefore, the analysis ultimately included data for 124 participants.

### Assessment by job-seeking stress scale

The Job-Seeking Stress Scale, which was revised by Heo<sup>19</sup> with reference to Kang's<sup>20</sup> and Hwang's<sup>21</sup> employment stress questionnaires based on the Cornell Medical Index at Cornell university,<sup>22</sup> was used to measure job-seeking stress. The Job-Seeking Stress Scale consists of 20 items divided between the following 5 subscales: personality stress, anxious stress, family environment stress, employment market environment stress, and job ability stress. Responses are provided using a 5-point Likert scale ranging from 0 (very strongly disagree) to 4 (very strongly agree). Cronbach's  $\alpha$ s were 0.94 for the original scale and 0.89 in the current study.

The personality stress subscale includes 6 items pertaining to personality changes related to unemployment (e.g., "I am nervous because of employment problems these days, and I get angry at even the slightest thing"). The anxious stress subscale includes 3 items pertaining to substance dependence (e.g., alcohol, tobacco, and drugs) and appetite changes triggered by anxiety (e.g., "I have lost my appetite through worrying about employment"). The family environment stress subscale measures the extent of subjective stress experienced in the family environment (e.g., "My parents have economic problems, and I have to work to solve them" and "My family does not give me advice when I worry about my employment problems"). The employment market environment stress subscale measures levels of dissatisfaction and stress related to the employment market environment (e.g., "There is a mismatch between the employment conditions I desire and actual job offers"). The job ability stress subscale consists of 4 items pertaining to self-confidence and efficacy in relation to employment (e.g., "I do not think I will be employed, because I do not have enough skills").

### Assessment by Korean Beck Depression Inventory-II

The Korean Beck Depression Inventory-II, which is a 21-item self-report measure of the severity of current depressive symptoms, was used to measure depression. The Beck Depression Inventory-II was originally developed by Beck et al.<sup>23</sup> and translated into Korean and

standardized by Kim et al.<sup>24</sup> The items consist of groups of specific statements used to assess symptom severity. Items receive scores ranging from 0 to 3, which are summed to obtain a total scale score ranging from 0 to 63. For example, response options for the “worthlessness” item are as follows: 0 (I do not feel like I am worthless), 1 (I don't consider myself as worthwhile and useful as I used to be), 2 (I feel worthless compared to other people), and 3 (I feel utterly worthless). The authors provided guidelines for clinical cutoff scores, as follows: normal: 0–13, mild: 14–19, moderate: 20–28, and severe: 29–63. Cronbach's  $\alpha$  was 0.91 in the current study.

### Assessment by Beck Scale for Suicide Ideation

The Beck Scale for Suicide Ideation, which is a 19-item scale developed by Beck et al.<sup>11</sup> to assess the severity of suicidal ideation and intention, was used to measure suicidal ideation. Shin et al.<sup>25</sup> translated the scale into Korean and modified it for use as a self-report questionnaire. Responses are provided using a 3-point scale, and item scores are summed to obtain a total scale score ranging from 0 to 38. Higher scores indicate higher levels of suicidal ideation. For example, response options for the “How often do you think that you want to commit suicide?” item are as follows: 0 (hardly ever), 1 (sometimes), and 2 (always). The clinical cutoff scores are as follows: normal: 0–8, mild: 9–11, moderate: 12–14, and severe: 15–38. Cronbach's  $\alpha$  were 0.81 for the original scale and 0.86 in the current study.

### Assessment by Multidimensional Scale of Perceived Social Support

The Multidimensional Scale of Perceived Social Support, which is a 12-item self-report scale that assesses perceived social support from three sources, namely, family, friends, and significant others, was used to measure perceived social support. The scale was developed by Zimet et al.<sup>26</sup> and translated by Shin et al.<sup>27</sup> Each source is assessed using 4 specific questions, with responses provided using a 7-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). Item scores are summed to obtain a total score ranging from 12 to 84, and higher scores indicate higher levels of satisfaction with perceived support. The scale demonstrated internal consistency 0.91 in a previous study,<sup>26</sup> and Cronbach's  $\alpha$  for the overall scale was 0.95 in the current study.

### Statistical analysis

The data were analyzed using IBM Statistical Package for the Social Sciences version 23 (IBM Corp., Armonk, NY, USA). Descriptive statistics were calculated for participants' general characteristics, and t-tests or analyses of variance were performed to examine differences in job-seeking stress, depression, suicidal ideation, and social support according to sociodemographic factors. In addition, correlation analysis was performed to examine relationships between the main variables.

We performed a simple mediation analysis and a mediated moderation analysis using PROCESS MACRO version 2.16 in accordance with Hayes.<sup>28</sup> The simple mediation model (model 4) was used to test the hypothesis that depression would mediate the relationship between job-seeking stress and suicidal ideation. The moderated-mediation model (model 58) was used to test the hypothesis that perceived social support would moderate the effects of 1) job-seeking stress on depression and 2) depression on suicidal ideation. Moderated values were examined at  $\pm 1$  standard deviation from the mean. Sex was controlled for as a covariate in both models, because significant differences were observed between men and women for almost all main variables. Both models included 10,000 bootstrap samples and 95% bias-corrected confidence intervals (CIs), and results were considered significant when CIs did not include 0. Moderation was considered significant at an  $\alpha$  level of 0.05.

### Ethics statement

The present study protocol was reviewed and approved by the Institutional Review Board of Seoul Metropolitan Government-Seoul National University Boramae Medical Center (Reg. No. 26-2014-40). Informed consent was submitted by all subjects when they were enrolled.

## RESULTS

### Descriptive statistics and group differences

The participants' characteristics are shown in **Table 1**. Their ages ranged from 22 to 38 (mean = 25.87, standard deviation = 2.71) years, and 58.9% were women (n = 73).

**Table 2** includes a summary of the sociodemographic characteristics for which significant differences in job-seeking stress, depression, and suicidal ideation were observed. Women's scores for the Job-Seeking Stress Scale were significantly higher relative to those observed for men. In addition, women reported higher levels of depression and suicidal ideation relative to those reported by men. Participants with humanities or social science as an academic major showed higher scores for the Job-Seeking Stress Scale relative to those observed for participants with natural science or engineering as an academic major. Participants with student loans showed higher family environment stress and employment market environment stress relative to those observed for participants without student loans. Participants who stated that they were willing to accept a temporary position showed higher

**Table 1.** General characteristics of the study participants (n = 124)

Variables	Categories	No. (%)
Sex	Males	51 (41.1)
	Females	73 (58.9)
Age, yr	≤ 25	59 (47.6)
	26–30	60 (48.4)
	≥ 31	5 (4.0)
Major	Humanities/social science	55 (44.4)
	Natural science/engineering	32 (25.8)
	Etc.	37 (29.8)
Religion	Yes	53 (41.7)
	No	71 (57.3)
Living	Alone	28 (22.6)
	Together	95 (76.6)
	No response	1 (0.8)
Period after graduation, yr	≤ 1	61 (49.2)
	1–3	24 (19.4)
	≥ 3	38 (30.6)
	No response	1 (0.8)
Student loan	Yes	28 (22.6)
	No	95 (76.6)
	No response	1 (0.8)
Household monthly income (10,000 KRW)	≤ 200	16 (12.9)
	> 200, ≤ 400	34 (27.4)
	> 400, ≤ 700	41 (33.1)
	> 700	13 (10.5)
	Don't know	20 (16.1)
Willing to accept irregular employment	Yes	50 (40.3)
	No	73 (58.9)
	No response	1 (0.8)
Psychiatric history	None	115 (93.0)
	Presence	9 (7.0)

**Table 2.** Differences of job-seeking stress, depression, suicidal ideation and social support according to sociodemographic characteristics

Characteristics	Variables, mean (SD)								
	JSSS	Personality stress	Anxious stress	Family environment stress	Employment market environment stress	Job ability stress	BDI-II	BSS	MSPSS
<b>Sex</b>									
Males (n = 51)	48.73 (10.63)	14.95 (4.16)	5.88 (2.22)	9.27 (2.82)	8.69 (2.44)	9.94 (2.46)	9.20 (5.18)	1.82 (2.77)	48.73 (8.13)
Females (n = 73)	57.88 (11.44)	18.70 (4.70)	7.29 (2.61)	10.40 (2.86)	10.11 (2.21)	11.38 (2.95)	16.33 (9.26)	4.92 (5.52)	46.92 (9.67)
t or F	-4.510 <sup>c</sup>	-4.581 <sup>c</sup>	-3.135 <sup>b</sup>	-2.179 <sup>b</sup>	-3.384 <sup>b</sup>	-2.862 <sup>b</sup>	-5.471 <sup>c</sup>	-4.111 <sup>c</sup>	1.092
<b>Major</b>									
Humanities & social science (n = 55)	55.86 (11.38)	17.92 (4.64)	7.00 (2.63)	10.36 (2.93)	9.64 (2.27)	10.95 (2.97)	13.58 (8.73)	4.14 (5.35)	46.98 (8.97)
Natural science & engineering (n = 32)	49.09 (10.92)	15.13 (4.78)	6.09 (2.16)	9.16 (2.62)	8.78 (2.39)	9.94 (2.30)	12.22 (7.25)	2.63 (3.23)	49.56 (6.32)
Others (n = 37)	55.89 (12.96)	17.78 (4.79)	6.81 (2.69)	10.00 (2.97)	10.00 (2.55)	11.30 (2.98)	14.14 (9.47)	3.78 (5.15)	47.02 (11.05)
t or F	3.997 <sup>a</sup>	4.006 <sup>a</sup>	1.333	1.780	2.371	2.153	0.298	1.021	0.945
<b>Student loan</b>									
Yes (n = 28)	57.32 (11.36)	17.21 (4.76)	7.36 (2.90)	11.00 (3.23)	10.68 (2.21)	11.07 (2.36)	13.72 (8.47)	3.54 (4.80)	46.71 (8.30)
No (n = 95)	52.98 (11.91)	17.04 (4.80)	6.51 (2.42)	9.61 (2.72)	9.18 (2.37)	10.65 (2.94)	13.14 (8.54)	3.62 (4.84)	47.92 (9.37)
t or F	1.713	0.172	1.562	2.281 <sup>a</sup>	2.986 <sup>b</sup>	0.691	0.315	-0.069	-0.617
<b>Willing to accept irregular employment</b>									
Yes (n = 50)	57.95 (12.75)	18.22 (5.09)	7.04 (2.64)	10.59 (3.35)	10.24 (2.50)	11.86 (2.63)	16.75 (10.15)	4.84 (5.41)	46.68 (9.73)
No (n = 73)	51.65 (10.74)	16.44 (4.58)	6.49 (2.48)	9.52 (2.47)	9.07 (2.23)	10.12 (2.74)	11.11 (6.51)	2.85 (4.3)	48.26 (8.66)
t or F	2.958 <sup>b</sup>	2.018 <sup>a</sup>	1.169	2.042 <sup>a</sup>	2.729 <sup>b</sup>	3.508 <sup>b</sup>	3.471 <sup>b</sup>	2.181 <sup>a</sup>	-0.945

JSSS = Job-Seeking Stress Scale (total score), BDI-II = Beck Depression Inventory-II, BSS = Beck Scale for Suicide Ideation, MSPSS = Multidimensional Scale of Perceived Social Support, SD = standard deviation.

<sup>a</sup>*P* < 0.05; <sup>b</sup>*P* < 0.01; <sup>c</sup>*P* < 0.001.

scores for the Job-Seeking Stress Scale, depression, and suicidal ideation relative to those observed for participants who were not willing to accept a temporary position.

There were no significant differences in job-seeking stress, depression, or suicidal ideation according to age, residence type, time since graduation, monthly household income, or psychiatric history. Participants with a history of treatment or hospitalization (n = 9) for psychiatric problems showed slightly higher scores relative to those observed in participants with no history of psychiatric treatment; however, this difference was insignificant.

**Table 3** shows the proportions of participants who exhibited clinically significant levels of depression and suicidal ideation. In total, 39.5% (n = 49) of participants showed clinically significant levels of depression, classified as mild (n = 23), moderate (n = 18), or severe (n = 8). In addition, 15.3% (n = 19) showed clinically significant levels of suicidal ideation, classified as mild (n = 5), moderate (n = 10), or severe (n = 4).

### Correlations

**Table 4** shows the positive correlations between job-seeking stress scores, including those for all job-seeking stress subscales; depression; and suicidal ideation (*r* = 0.318–0.872; *P* < 0.001). Of the Job-Seeking Stress Scale subscales, internal factors such as personality stress and ability stress were more strongly correlated with depression and suicidal ideation (*r* = 0.557–0.610; *P* < 0.001) than external factors such as family environment stress and employment market environment stress were (*r* = 0.365–0.393; *P* < 0.001). Social support was negatively correlated with job-seeking stress, depression, and suicidal ideation (*r* = -0.412, -0.275; *P* < 0.001, *P* = 0.002)

**Table 3.** Descriptive statistics and number of participants in the clinical range for depression and suicidal ideation (n = 124)

Variables	Mean (SD)	Min-max	Clinical range, No. (%)
Job-seeking stress (JSSS)	54.12 (11.96)	22-86	
Personality stress	17.16 (4.83)	6-27	
Anxious stress	6.71 (2.54)	3-12	
Family environment stress	9.94 (2.89)	4-17	
Employment market environment stress	9.52 (2.40)	3-15	
Job ability stress	10.79 (2.84)	4-18	
Depression (BDI-II)	13.40 (8.58)	0-44	
No (0-13)			74 (59.7)
Mild (14-19)			23 (18.5)
Moderate (20-28)			18 (14.5)
Severe (29-63)			8 (6.5)
No response			1 (0.8)
Suicidal ideation (BSS)	3.64 (4.83)	0-23	
No (0-8)			105 (84.7)
Mild (9-11)			5 (4.0)
Moderate (12-14)			10 (8.1)
Severe (15-38)			4 (3.2)
4 social support (MSPSS)	47.66 (9.07)	14-60	

JSSS = Job-Seeking Stress Scale (total score), BDI-II = Beck Depression Inventory-II, BSS = Beck Scale for Suicide Ideation, MSPSS = Multidimensional Scale of Perceived Social Support, SD = standard deviation.

**Table 4.** Correlations of job-seeking stress, depression, suicidal ideation, and social support

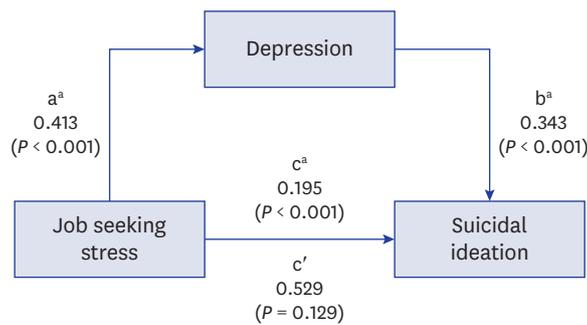
Variables	JSSS	Personality stress	Anxious stress	Family environment stress	Employment market environment stress	Job ability stress	BDI-II	BSS	MSPSS
JSSS									
Personality stress	0.872 <sup>b</sup> (0.000)								
Anxious stress	0.795 <sup>b</sup> (0.000)	0.693 <sup>b</sup> (0.000)							
Family environment stress	0.672 <sup>b</sup> (0.000)	0.445 <sup>b</sup> (0.000)	0.387 <sup>b</sup> (0.000)						
Employment market environment stress	0.729 <sup>b</sup> (0.000)	0.517 <sup>b</sup> (0.000)	0.548 <sup>b</sup> (0.000)	0.337 <sup>b</sup> (0.000)					
Job ability stress	0.716 <sup>b</sup> (0.000)	0.459 <sup>b</sup> (0.000)	0.414 <sup>b</sup> (0.000)	0.425 <sup>b</sup> (0.000)	0.510 <sup>b</sup> (0.000)				
BDI-II	0.649 <sup>b</sup> (0.000)	0.610 <sup>b</sup> (0.000)	0.510 <sup>b</sup> (0.000)	0.318 <sup>b</sup> (0.000)	0.425 <sup>b</sup> (0.000)	0.557 <sup>b</sup> (0.000)			
BSS	0.533 <sup>b</sup> (0.000)	0.443 <sup>b</sup> (0.000)	0.379 <sup>b</sup> (0.000)	0.365 <sup>b</sup> (0.000)	0.393 <sup>b</sup> (0.000)	0.450 <sup>b</sup> (0.000)	0.702 <sup>b</sup> (0.000)		
MSPSS	-0.412 <sup>b</sup> (0.000)	-0.288 <sup>a</sup> (0.001)	-0.358 <sup>b</sup> (0.000)	-0.355 <sup>b</sup> (0.000)	-0.275 <sup>a</sup> (0.002)	-0.331 <sup>b</sup> (0.000)	-0.335 <sup>b</sup> (0.000)	-0.356 <sup>b</sup> (0.000)	

JSSS = Job-Seeking Stress Scale (total score), BDI-II = Beck Depression Inventory-II, BSS = Beck Scale for Suicide Ideation, MSPSS = Multidimensional Scale of Perceived Social Support.

<sup>a</sup>P < 0.01; <sup>b</sup>P < 0.001, Bonferroni adjusted  $\alpha$  level = 0.005.

### Simple mediation analysis

**Fig. 1** depicts the simple mediation model showing the effect of job-seeking stress on suicidal ideation via depression. The overall Job-Seeking Stress Scale score was included in the model, and sex was controlled for the analysis. The simple mediation analysis showed a significant positive indirect effect of depression (b = 0.142; standard error [SE] = 0.029; 95% CI, 0.0920–0.2107). Both paths in the model were significant, including those from job-seeking stress to depression (a path) (b = 0.413; SE = 0.052; 95% CI, 0.3103–0.5164), and from depression to suicidal ideation (b path) (b = 0.343; SE = 0.049; 95% CI, 0.2461–0.4404). However, the direct effect of job-seeking stress on suicidal ideation was nonsignificant (b = 0.529; SE = 0.346; 95% CI, -0.0157–0.1215).

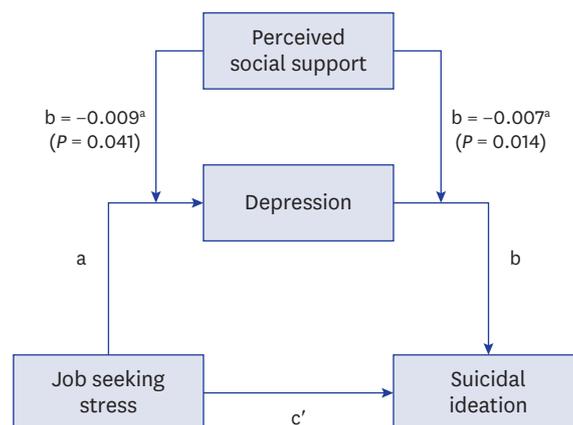


**Fig. 1.** Simple mediation model. The paths a, b, c, and c' are presented unstandardized regression coefficients (path a, association between job-seeking stress and depression; path b, association between depression and suicide ideation; path c, total effect between job-seeking stress and suicidal ideation; and path c', direct effect between job-seeking stress and suicidal ideation).  
<sup>a</sup>P < 0.001.

**Moderated mediation analysis**

The results of the moderated mediation analysis are shown in **Fig. 2**. The overall score for job-seeking stress was included in the model, and sex was controlled for the analysis. Examination of the path from job-seeking stress to depression (a path) showed a significant effect of job-seeking stress, in that depression levels increased as job-seeking stress increased (b = 0.829; SE = 0.222; 95% CI, 0.3884–1.2689). In addition, social support was a significant moderator of the path from job-seeking stress to depression (a path) (b = -0.009; SE = 0.004; 95% CI, -0.0178, -0.0004), in that the effect of job-seeking stress on depression decreased as levels of perceived social support increased.

Examination of the path from depression to suicidal ideation (b path) showed that depression predicted suicidal ideation (b = 0.625; SE = 0.127; 95% CI, 0.3742–0.8763). In addition, social support was a significant moderator of the path from depression to suicidal ideation (b path) (b = -0.0007; SE = 0.003; 95% CI, -0.0119, -0.0013). The strength of the association between depression and suicidal ideation decreased as levels of social support increased. In addition, examination of moderation levels indicated that the indirect association between job-seeking stress and suicidal ideation via depression was significant for all levels (i.e., mean ± 1 standard deviation) of social support.



**Fig. 2.** Moderated mediation model. Coefficients path b of the moderator for paths a and b (path a, association between job-seeking stress and depression; path b, association between depression and suicide ideation; and path c', direct effect between job-seeking stress and suicidal ideation).  
<sup>a</sup>P < 0.05.

As in the simple mediation model, the direct effect of job-seeking stress on suicidal ideation ( $c'$  path) was nonsignificant ( $b = 0.040$ ;  $SE = 0.683$ ; 95% CI,  $-0.0119, -0.0013$ ).

In further analysis, gender differences in the relationships between job-seeking stress, depression, and suicidal ideation were also explored. To investigate the moderating effects of gender, the moderated mediation analysis using model 59 was conducted. As a result, gender was identified as a significant moderator of the path from job-seeking stress to depression (a path) ( $b = 0.297$ ;  $SE = 0.105$ ; 95% CI,  $-0.0906, -0.5043$ ), in that the effect of job-seeking stress on depression was greater for women than for men. However, the moderating effects of gender on the b path ( $b = 0.671$ ;  $SE = 0.1206$ ; 95% CI,  $-0.1717, 0.3059$ ) and  $c'$  path ( $b = 0.0784$ ;  $SE = 0.0695$ ; 95% CI,  $-0.0592-0.2160$ ) were not significant.

## DISCUSSION

This study aimed to explore mental health status in young job seekers and identify sociodemographic factors related to job-seeking stress, depression, and suicidal ideation. We also sought to determine whether job-seeking stress exerted an effect on suicidal ideation via depression and social support moderated this effect.

In total, 124 university graduates who were actively seeking employment participated in the study. Overall, 39.5% ( $n = 49$ ) of participants showed clinically significant levels of depression, classified as mild ( $n = 23$ ), moderate ( $n = 18$ ), or severe ( $n = 8$ ). In addition, 15.3% ( $n = 19$ ) of participants reported suicidal ideation at a clinical level, classified as mild ( $n = 5$ ), moderate ( $n = 10$ ), or severe ( $n = 4$ ). Exploration of sociodemographic factors associated with job-seeking stress, depression, and suicidal ideation in young job seekers produced the following findings. Sex was identified as a significant variable, as women were more likely to experience job-seeking stress, depression, and suicidal ideation relative to men. These findings are consistent with those of previous studies in which women exhibited higher rates of depression,<sup>29</sup> suicidal ideation,<sup>30</sup> and job-seeking stress relative to those observed in men.<sup>31</sup> This could reflect women's sense of crisis and difficulty resulting from sex differences in the employment market. According to the National Statistical Office of Korea, the economic participation rate and average salary for female college graduates in their late 20s and early 30s were lower relative to those observed for men.<sup>32,33</sup>

Levels of job-seeking stress differed according to academic major, and participants with humanities or social science as an academic major exhibited higher levels of job-seeking stress relative to those observed in participants with natural science or engineering as an academic major. In contrast, depression and suicidal ideation did not differ significantly according to academic major.

Further, participants with student loans experienced greater job-seeking stress, including family environment stress and employment market environment stress, relative to that observed in participants who did not have student loans. It is unlikely that participants who had student loans received economic support from their families.<sup>34</sup> In addition, when graduates are pressurized to repay the loans, their desire for stable, high-income employment is likely to be strong; however, they tend to lower their expectations in order to secure employment rapidly. Therefore, it is highly likely that they experience stress because of inconsistency between actual employment conditions and their preferences.

In addition, young job seekers who were willing to accept irregular employment experienced greater job-seeking stress, depression, and suicidal ideation relative to those who were unwilling to accept irregular employment. The reason for this finding was unclear; however, job seekers who were willing to accept irregular employment could have been more desperate to find work, relative to those who were unwilling to accept irregular employment, and experienced low self-esteem, low self-efficacy, and a strong sense of hopelessness. Consequently, they could have felt that they were forced to accept irregular employment. These findings have significant social implications. In the current labor market, companies tend to employ nonregular workers as part of measures taken to increase market flexibility and solve unemployment problems. Indeed, the full-time employment rate for graduates of 4-year college courses decreased by 10.6% between 2006 (63.1%) and 2015 (52.5%).<sup>35</sup> With respect to mental health, there is a risk that this phenomenon could lead to psychological instability in young job seekers, and their vulnerability could serve as a factor in their acceptance of unreasonable employment conditions.

The results of the correlation analysis showed positive correlations between job-seeking stress, depression, and suicidal ideation. In contrast, perceived social support was negatively correlated with job-seeking stress, depression, and suicidal ideation. Of the Job-Seeking Stress Scale subscales, the personality stress and job ability stress subscales were more strongly correlated with depression and suicidal ideation than the family environment stress and employment market environment stress subscales were. This finding could be considered in the context of attribution styles in depression. A considerable body of previous research has shown that individuals who attributed failure to internal factors were more vulnerable to depression relative to those who attributed failure to external factors.<sup>36,37</sup> In this context, stress involving internal factors, such as personality problems or the inability to work, rather than external or environmental factors, has the potential to exacerbate depression and suicidal ideation.

The simple mediation model, in which job-seeking stress affected suicidal ideation via depression, indicated that the indirect effect of depression on suicidal ideation was significant. However, the direct effect of job-seeking stress on suicidal ideation was nonsignificant. This suggests that intervention in depression is essential to developing suicide prevention strategies for young job seekers. They tend to believe that their depression will be alleviated only by employment. They also tend to be reluctant to seek psychiatric treatment due to social stigma regarding mental illness. As a result, young job seekers leave depression untreated, increasing the difficulty of securing employment and the risk of suicide. Therefore, an appropriate social atmosphere and infrastructure should be established, to ensure that job seekers are able to access mental health services easily and routinely without experiencing social prejudice.

The results of the moderated mediation analysis showed that perceived social support moderated the effect of job-seeking stress on depression and the effect of depression on suicidal ideation. The effect of job-seeking stress on depression in participants who reported higher levels of perceived social support was weaker relative to that observed in those who reported lower levels of perceived social support. Perceived social support also reduced the effect of depression on suicidal ideation. These results indicate that social support could serve as a protective factor for depression and suicidal ideation in young job seekers. Young job seekers who are unemployed following graduation from college are more likely to adopt a passive attitude in social interaction. Moreover, until they achieve the goal of employment,

they could become socially isolated, which could exacerbate mental health problems. Therefore, participation in self-help groups or organizations that provide emotional support for young job seekers could be beneficial. Further, there is a need for a social system that supports activities and social gatherings, facilitates the exchange of practical information regarding employment, and provides career counseling. However, a large proportion of the welfare budget in Korea is reserved for the elderly population, and welfare benefits and institutional support for young people are insufficient.<sup>38</sup> Young college graduates are largely disregarded with respect to welfare benefits. Therefore, increased government interest and practical support are urgently required for young job seekers.

The study was subject to some limitations. For example, the sample size was small ( $n = 124$ ); therefore, the generalizability of the results was limited. In addition, the study involved a cross-sectional design; therefore, we were unable to infer causal relationships between the variables. Longitudinal studies should be conducted to clarify changes and causal relationships over time. Moreover, the limitations of the measurement tools should be considered. All variables were examined using self-report questionnaires, and the study did not include clinical interviews for depression or suicidal ideation. In addition, as the dependent variable was suicidal ideation, the prediction of attempted suicide was limited. Furthermore, Heo's study<sup>19</sup> lacked cross validation of the Job-Seeking Stress Scale; this could, at least in part, have reflected the paucity of academic research involving university graduates seeking employment. Future research should include validation studies and the development of a sophisticated stress scale in which young job seekers' characteristics are considered.

Despite these limitations, the results have the following implications. Although suicide rates in young people are high and interest in youth unemployment has increased, research examining mental health status and related factors in young job seekers is extremely rare. However, the current study elucidated the relationships between sociodemographic factors, job-seeking stress, depression, suicidal ideation, and perceived social support and identified risk and protective factors for suicidal ideation. In addition, the findings could provide a basis for therapeutic interventions and policy decisions intended to help young job seekers.

## REFERENCES

1. Rate of unemployment. [http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT\\_1DA7102&conn\\_path=I2](http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1DA7102&conn_path=I2). Accessed June 22, 2017.
2. Educational level of people. [http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx\\_cd=1530](http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1530). Accessed August 17, 2017.
3. Nam JR. What is the real unemployment rate for college graduates? *Mon Labor Rev* 2011;73:46-58.
4. Axelsson L, Ejlertsson G. Self-reported health, self-esteem and social support among young unemployed people: a population-based study. *Int J Soc Welf* 2002;11(2):111-9.  
**CROSSREF**
5. Shin HC, Chang JY, Lee J. The relationship between mental health and youth unemployment among university graduates: applied with autoregressive crosslagged model. *J Soc Issues* 2008;9(2):43-75.
6. Prause JA, Dooley D. Effect of underemployment on school-leavers' self-esteem. *J Adolesc* 1997;20(3):243-60.  
**PUBMED | CROSSREF**
7. Creed PA, Macintyre SR. The relative effects of deprivation of the latent and manifest benefits of employment on the well-being of unemployed people. *J Occup Health Psychol* 2001;6(4):324-31.  
**PUBMED | CROSSREF**
8. Suicide rate. [http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT\\_1YL21121&conn\\_path=I2](http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1YL21121&conn_path=I2). Accessed February 16, 2018.

9. Cause of death statistics. [http://kosis.kr/common/meta\\_onedepth.jsp?vwcd=MT\\_OTITLE&listid=MT\\_CTITLE\\_1](http://kosis.kr/common/meta_onedepth.jsp?vwcd=MT_OTITLE&listid=MT_CTITLE_1). Accessed June 27, 2017.
10. Impulse to commit suicide and reasons. [http://kosis.kr/statisticsList/statisticsList\\_01List.jsp?vwcd=MT\\_ZTITLE&parmTabId=M\\_01\\_01&parentId=D.1;D2.2;D21.3;D215.4;#SubCont](http://kosis.kr/statisticsList/statisticsList_01List.jsp?vwcd=MT_ZTITLE&parmTabId=M_01_01&parentId=D.1;D2.2;D21.3;D215.4;#SubCont). Accessed August 17, 2017.
11. Beck AT, Kovacs M, Weissman A. Assessment of suicidal intention: the scale for suicide ideation. *J Consult Clin Psychol* 1979;47(2):343-52.  
[PUBMED](#) | [CROSSREF](#)
12. Klerman GL. Clinical epidemiology of suicide. *J Clin Psychiatry* 1987;48 Suppl:33-8.  
[PUBMED](#)
13. Minkoff K, Bergman E, Beck AT, Beck R. Hopelessness, depression, and attempted suicide. *Am J Psychiatry* 1973;130(4):455-9.  
[PUBMED](#)
14. Petrie K, Chamberlain K. Hopelessness and social desirability as moderator variables in predicting suicidal behavior. *J Consult Clin Psychol* 1983;51(4):485-7.  
[PUBMED](#) | [CROSSREF](#)
15. Yun WS. The impact of college students' job-seeking stress on depression and suicidal ideation: based on agnew's general strain theory. *J Korean Public Police Secur Stud* 2016;13(1):95-118.  
[CROSSREF](#)
16. Kleiman EM, Riskind JH, Schaefer KE. Social support and positive events as suicide resiliency factors: examination of synergistic buffering effects. *Arch Suicide Res* 2014;18(2):144-55.  
[PUBMED](#) | [CROSSREF](#)
17. Lamis DA, Ballard ED, May AM, Dvorak RD. Depressive symptoms and suicidal ideation in college students: the mediating and moderating roles of hopelessness, alcohol problems, and social support. *J Clin Psychol* 2016;72(9):919-32.  
[PUBMED](#) | [CROSSREF](#)
18. Wang X, Cai L, Qian J, Peng J. Social support moderates stress effects on depression. *Int J Ment Health Syst* 2014;8(1):41-5.  
[PUBMED](#) | [CROSSREF](#)
19. Heo NJ. *The Effects of Career Assistance Program on Job Stress and Career Self-efficacy of Young Job Seekers*. Busan, Korea: Kyungsoong Univ.; 2011.
20. Kang YR. *The Influence of Jobs Seeking Stress on Their Career Maturity Dance Majoring Students*. Seoul, Korea: Dankook Univ.; 2006.
21. Hwang SW. *A Study on Employment Stress of University Students*. Busan, Korea: Dong-A Univ.; 1998.
22. Shepherd M, Cooper B, Brown AC, Kalton G. *Psychiatric Illness in General Practice*. London, United Kingdom: Oxford University Press; 1966.
23. Beck AT, Steer RA, Brown GK. *Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation; 1996.
24. Kim JH, Lee EH, Hwang ST, Hong SH. *Manual for Korean-Beck Depression Inventory-II*. Daegu, Korea: Korea Psychology Corporation; 2015.
25. Shin MS, Park KB, Oh KJ, Kim ZS. A study of suicidal ideation among high school students: the structural relation among depression, hopelessness, and suicidal ideation. *Korean J Clin Psychol* 1990;9(1):1-19.
26. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. *J Pers Assess* 1988;52(1):30-41. [https://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list\\_uids=2280326&dopt=Abstract](https://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2280326&dopt=Abstract)  
[PUBMED](#) | [CROSSREF](#)
27. Shin JS, Lee YB. The effects of social supports on psychosocial well-being of the unemployed. *Korean J Soc Welf* 1999;37:241-69.
28. Hayes AF. *Introduction to Mediation, Moderation, and Conditional Process Analysis: a Regression-based Approach*. New York, NY: Guilford Press; 2013.
29. The survey of mental disorders in Korea 2016. [http://seoulmentalhealth.kr/news/reporting.jsp?cmd=view&test\\_num=45](http://seoulmentalhealth.kr/news/reporting.jsp?cmd=view&test_num=45). Updated 2017. Accessed July 7, 2017.
30. Lee HJ, Kim MH. A pathmodel for self-identity and hopelessness to suicidal ideation of college students. *Korean J Youth Stud* 2007;14(3):243-64.
31. Shin HK, Chang JY. The relationship among personality characteristics, gender, job-seeking stress and mental health in college seniors. *Korean J Clin Psychol* 2003;22(3):815-27.
32. Gender difference in economic participation rate. [http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT\\_1DA7012&conn\\_path=I2](http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1DA7012&conn_path=I2). Accessed July 10, 2017.

33. Gender difference in salary. [http://kosis.kr/statHtml/statHtml.do?orgId=118&tblId=DT\\_PAY0004&conn\\_path=I2](http://kosis.kr/statHtml/statHtml.do?orgId=118&tblId=DT_PAY0004&conn_path=I2). Accessed July 10, 2017.
34. Kwak MJ, Lee HS. Financial stress of student loan among new graduates. *Financ Plan Rev* 2015;8(3):155-82.
35. Changes in the four-year college graduate labor market over the past decade. <https://www.krivet.re.kr/ku/da/kuBDCVw.jsp?pgn=1&gk=ALL&gv=&gn=G7-G720170015>. Updated 2017. Accessed July 11, 2017.
36. Schaufeli WB. Perceiving the causes of unemployment: an evaluation of the causal dimensions scale in a real-life situation. *J Pers Soc Psychol* 1988;54(2):347-56.  
**CROSSREF**
37. Furnham A. Unemployment, attribution theory, and mental health: a review of the British literature. *Int J Ment Health* 1984;13(1-2):51-67.  
**CROSSREF**
38. Kim KH. Improvement direction for policy on youth. *Health Welf Policy Forum* 2017;244:54-68.