

RESEARCH

Open Access



Job search anxiety and flourishing among university students: the serial mediating effects of social support and strengths use

Yeunhee Kwak¹ , Yoonjung Kim¹ and Heemin Chae^{2*}

Abstract

Background Job search anxiety among university students has intensified due to increased uncertainty in youth employment within global labor markets. This study aimed to examine the serial mediating roles of social support and strengths use in the relationship between job search anxiety and flourishing.

Methods This study was conducted online during the pandemic and included 228 Korean university students aged 21–29 years. Data were analyzed using independent t-tests, ANOVA (analysis of variance), Welch's ANOVA, Pearson's correlation, and serial multiple mediation analyses with the bootstrapping method.

Results After controlling for covariates, job search anxiety was directly related to flourishing ($B = -0.477$, 95% confidence interval (CI) $[-0.649, -0.304]$). Furthermore, the indirect effects of job search anxiety on flourishing via social support and strengths use were statistically significant ($B_{\text{Social support}} = -0.192$, 95% CI $[-0.316, -0.083]$; $B_{\text{Strengths use}} = -0.134$, 95% CI $[-0.234, -0.055]$). Additionally, a serial mediation effect of social support and strengths use on the path from job search anxiety to flourishing was statistically significant ($B = -0.046$, 95% CI $[-0.084, -0.018]$). This result indicated that the serial mediation by first social support and then strengths use demonstrated a stronger effect than mediation by either variable alone.

Conclusions This study provides novel insights for mental health professionals, policymakers, and educators concerning the serial mediating mechanism linking job search anxiety and flourishing. These findings underscore the importance of assessing job search anxiety among university students and providing psychological interventions that promote flourishing, particularly through enhancing social support and encouraging strengths use.

Keywords Job search anxiety, University students, Flourishing, Serial mediating, Social support, Strengths use

Background

The global labor market is presently volatile, driven in part by exacerbated economic conditions resulting from the prolonged coronavirus disease 2019 (COVID-19)

pandemic. This volatility has led to a detrimental cycle involving economic crises, job losses, and constrained opportunities for new employment [1]. A global estimate from 2022 indicated that approximately 73 million youths remain unemployed, exceeding the pre-pandemic figures observed in 2019 (6 million) [1]. Moreover, recovery in youth employment following COVID-19 has been slow. The global proportion of youths classified as not in employment, education or training (NEET) reached 23.3% in 2020, a level not previously observed within at least 15 years [2]. In South Korea, the prevalence of NEET among youths has markedly increased since the

*Correspondence:

Heemin Chae
gmals101@naver.com

¹ Red Cross College of Nursing, Chung-Ang University, 84 Heukseok-Ro, Dongjak-Gu, Seoul 06974, Republic of Korea

² Department of Nursing, The Graduate School, Chung-Ang University, 84 Heukseok-Ro, Dongjak-Gu, Seoul 06974, Republic of Korea



© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

pandemic onset in 2020, with the NEET proportion among individuals aged 20–24 years ranking third among 14 OECD (Organisation for Economic Co-operation and Development) countries [3]. Labor market instability in South Korea is particularly severe among those younger than 29 years [3].

Likewise, Korea's NEET rate is higher than that of Western countries such as the United States, United Kingdom, and Canada [3]. Employment rates worldwide are recovering following COVID-19, but while the average employment rate among OECD countries is 70.1%, Korea's rate is slightly lower at 69.2%. Specifically, the employment rate among Koreans in their 20s is 61.0%, the lowest compared to other age groups ranging from their 30s to 60s [4]. The phenomenon of "COVID-19 blues" continues to disproportionately affect vulnerable groups, especially those in their 20s, leading to significant instability and employment stagnation in Korea's youth labor market [3]. Due to COVID-19, remote work and telecommuting have expanded, corporate hiring has decreased, and preferences for career positions have increased. Together, these factors have reduced youth employment while intensifying job competition [5]. Consequently, Korean undergraduate students in their junior and senior years approaching graduation are experiencing job search insecurity, thereby threatening their flourishing [6–8].

Job search anxiety and flourishing

Flourishing refers to an optimal and elevated level of well-being from hedonic and eudemonic perspectives, corresponding respectively to "feeling good" and "functioning well" [9]. Additionally, flourishing represents a key concept that provides insight into an individual's mental health [9]. Among the most widely recognized flourishing models is the Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment (PERMA) model [10]. Each pillar contributes independently yet interactively to overall well-being and can be pursued for its own sake. By enhancing these five PERMA pillars, the flourishing of individuals and communities—incorporating optimal feeling and functioning—can be fostered [10]. Moreover, Seligman's well-being theory underscores improving quality of life by harnessing strengths and positive resources [10]. Health emergencies such as the COVID-19 pandemic have posed unprecedented challenges to individuals' PERMA [11]. Among university students, tension, uncertainty, and anxiety about the future have been found to correlate negatively with optimism, which in turn negatively affects flourishing as defined within the PERMA model [11].

Job search anxiety refers to psychological distress experienced during preparations for employment [12]. It involves psychological instability (e.g., feeling anxious and worried) alongside diminished concentration and confidence stemming from employment concerns; notably, it is more severe than the typical job search stress experienced by most university students [12]. Furthermore, if untreated, job search anxiety may negatively influence overall physical and mental health, potentially leading to illness [12, 13]. Research has indicated that perceived employability positively influences students' flourishing [7, 8]. Conversely, heightened job search anxiety negatively impacts university students' flourishing. Indeed, studies indicate that flourishing among college students in the United States, Italy, Germany, and Spain declined in 2020 compared to the pre-pandemic period [8, 14]. Such declines may be attributed to reduced employment opportunities or increased anxiety related to job searches following the pandemic. Accordingly, further investigation is needed to clarify how job search anxiety is associated with flourishing. In countries experiencing youth unemployment as a major societal issue, timely and decisive discussions are essential [1]. Thus, research that focuses specifically on Korean university students is particularly relevant given the contraction of the labor market amid the current global economic recession.

The mediating role of social support in the relationship between job search anxiety and flourishing

Previous studies have demonstrated that social support is a socioenvironmental factor influencing personal flourishing [15–17]. Friends and family are the primary sources of social support for young adults aged 19–29 years [18], and students who experienced high levels of support from key social relationships tended to report higher psychological well-being [19]. Likewise, supportive social relationships substantially influenced their positive mental health [20]. According to the support deterioration model, social support is a critical antecedent of well-being, while psychological distress precedes reduced social support [21]. Exposure to severe stressors may negatively influence perceived social support [22–24]. Job search anxiety is one of the primary emotional stressors university students face due to low youth employment rates in South Korea [25]. Extant literature shows that increasing job search anxiety is significantly associated with diminished social support and life satisfaction [26–28]. Thus, this study hypothesized that job search anxiety is directly and indirectly associated with flourishing through deteriorated social support.

The mediating role of strengths use in the relationship between job search anxiety and flourishing

Notably, utilizing character strengths—i.e., applying positive personal attributes individuals possess—is distinct from merely having character strengths [29]. Some studies indicated that interventions aimed at encouraging people to utilize their strengths, thus helping them perform optimally, have beneficial effects on achieving optimal functioning [20, 30, 31]. These strengths can predict happiness, psychological well-being, satisfaction, and quality of life [29, 32, 33]. In addition, strengths use is associated not only with increased flourishing but also with reduced negative affective states such as stress, depression, and anxiety [33]. Although personal character strengths remain relatively stable over time, the degree to which these strengths are utilized can fluctuate daily and momentarily, depending on individual states and social contexts [34–36]. Based on the aforementioned studies, the present research hypothesizes that strengths use would directly and indirectly mediate the relationship between job search anxiety and flourishing, with social support positively correlating with the use of personal strengths.

The serial mediating role of social support and strengths use between job search anxiety and flourishing

The social support deterioration model posits that exposure to life stressors can erode one's social support, resulting in decreased well-being [21]. Social support plays a critical role in helping university students cope with psychological stress or anxiety by providing emotional resources and reassurance [35, 36]. Specifically, it can help students gain confidence in managing psychological and emotional anxiety and in better utilizing their personal strengths when faced with challenges and difficulties [36]. Consequently, environmental contexts may foster behaviors that highlight personal strengths, which subsequently facilitate optimal psychological functioning or flourishing across various life domains [37, 38]. A systematic literature review provides evidence that interventions based on personal strengths enhance individuals' well-being and happiness while mitigating depression and other mental health symptoms [29]. Recent bibliometric reviews have called for rigorous investigations into how social factors influence the expression of various strengths and their associated outcomes (e.g., well-being or mental health) [39]. These findings align with the thriving through relationships model, which emphasizes that perceived social support is a crucial source of enhancing strength for flourishing during adversity [40]. In

addition, previous research reported that social support enables individuals to successfully leverage their strengths, thereby enhancing flourishing in the context of unemployment crises [20, 29–34, 40]. However, the literature concerning whether social support and strengths use serve a dual mediating role between university students' job search anxiety and flourishing during this pandemic remains limited. Our study seeks to address this gap by examining the serial mediating role of these two factors.

Current study

This study's conceptual framework is based on the social support deterioration model and the thriving model [21, 40]. In summary, previous studies suggest that social support and strengths use may serve as pertinent social and personal mediators through which job search anxiety influences flourishing. However, no prior research has examined the potential mechanisms linking job search anxiety with flourishing. Based on the theoretical perspectives and existing literature discussed above, this study investigated (i) the direct effect of job search anxiety on flourishing, (ii) the indirect effect mediated by social support, (iii) the indirect effect mediated by strengths use, and (iv) the serial multiple mediation of social support and strengths use between job search anxiety and flourishing among Korean university students. Moreover, this study analyzed (v) which mediation effect (single vs. serial) was stronger. Consequently, the current study aimed to provide a novel perspective and deeper insight into promoting flourishing by emphasizing positive resources that have been less explored in previous research concerning job preparation among university students. To our knowledge, this study is the first to examine the serial mediating effects of social and personal factors in enhancing flourishing among university students preparing for employment. Identifying an effective mental health care approach for university students is critical for improving their flourishing and developing appropriate intervention strategies. We tested the following hypotheses:

1. Job search anxiety is negatively correlated with flourishing.
2. Social support mediates the relationship between job search anxiety and flourishing.
3. Strengths use mediates the relationship between job search anxiety and flourishing.
4. Social support and strengths use sequentially mediate the relationship between job search anxiety and flourishing.

Methods

Study design and participants

This cross-sectional study employed convenience sampling and followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) checklist. Junior or senior undergraduate students aged 21–29 years who attended a Korean university, were on a leave of absence, or had delayed graduation beyond their senior year were eligible. The following students were excluded: undergraduates awaiting enlistment in the army or having incomplete military service status, foreign exchange students, those preparing for further education such as graduate school or national examinations, and those who were self-employed following graduation.

The present research used G*Power 3.1.9.7 (Heinrich Heine University Düsseldorf, Düsseldorf, Germany) [41] to estimate the required sample size for serial multiple mediation analysis. A minimum of 189 participants was calculated with a two-sided significance level (α) = 0.05, statistical power ($1 - \beta$) = 0.95, and effect size = 0.15 [42]. Furthermore, the study included 13 predictor variables: sociodemographic variables, job search anxiety, social support, and strengths use. Considering a potential attrition rate of 15%, we recruited a total of 228 participants.

Data collection

Overall, 228 participants were recruited through an online survey conducted from April 18 to 21, 2022, during the COVID-19 pandemic. In Korea, the COVID-19 pandemic began on January 20, 2020, and officially ended on May 11, 2023. We used quota sampling by gender and grade (1:1 ratio) to minimize selection bias. Recruitment emails, containing a brief study description and an online link, were sent to the panels of an online survey platform. Participants who chose to voluntarily participate completed an anonymous online survey. Upon completion of the survey, all participants received compensation. In total, 228 participants were included in the final analysis.

Measurements

Sociodemographic characteristics

The characteristics assessed included sex, age, grade level, school location, religion, enrollment status, major, satisfaction with their major, household economic status, and academic performance [17, 28, 32].

Job search anxiety

The study used the job search anxiety scale developed by Cho [12]. Its subscales include the induction of job search anxiety, causes of job search anxiety, and physical and psychological conditions resulting from job search anxiety. The scale consists of 28 items assessed on a 5-point

Likert scale ranging from 1 (*never*) to 5 (*always*), with higher scores indicating greater job search anxiety. In this study, Cronbach's α was 0.96, similar to that obtained by Cho [12]. The job search anxiety scale demonstrated robust construct validity through exploratory factor analysis [12].

Strengths use

This study used the Korean version of the strengths use scale, initially developed by Govindji and Linley [43] and translated and validated by Park and Lee [44]. Its subscales include context of strengths use and efforts to use strengths. It comprises 14 items measured on a 7-point Likert scale ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*), with higher scores indicating greater strengths use. In Park and Lee's study [44], Cronbach's α was 0.93; in the present study, Cronbach's α was 0.96. The construct validity of this scale was confirmed through exploratory and confirmatory factor analyses, and the strengths use scale demonstrated good convergent and criterion-related validity [44].

Social support

This study employed the indirectly perceived social support scale [45]. Its subscales include emotional, appraisal, informative, and instrumental support. It comprises 25 items evaluated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating a greater degree of perceived social support. In Yu and Seol's study [45], Cronbach's α was 0.94; in this study, Cronbach's α was 0.96. The indirectly perceived social support scale was established as valid for the Korean population based on confirmatory factor analysis results and the Rasch rating scale model [45].

Flourishing

The present study used the Korean version of the PERMA-Profiler, developed from Seligman's PERMA model, to measure flourishing [46, 47]. Its subscales include positive emotion, engagement, relationships, meaning, and accomplishment. The scale comprises 15 items for assessing PERMA and an additional 8 filler items; however, this study used only the 15 PERMA-based items. Responses were recorded through an 11-point Likert scale ranging from 0 (*never/terrible/not at all*) to 10 (*always/excellent/completely*), with higher scores indicating greater flourishing. The current study employed these 15 items to generate an overall flourishing score, validated by Sim and Kim [46]. Cronbach's α in this study matched the value reported by Sim and Kim [46] (α = 0.95). The PERMA-Profiler model demonstrated strong construct validity through confirmatory factor analysis [46].

Data analysis

This study used SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY, USA) for data analysis. Participants' sociodemographic characteristics were analyzed using frequency, percentage, mean, and standard deviation. Independent t-tests, ANOVA (analysis of variance) with equal variances, or Welch's ANOVA with unequal variances were used to evaluate differences in flourishing according to participants' sociodemographic characteristics. Post-hoc comparisons were conducted using Scheffé (equal variances) or Games–Howell (unequal variances) tests. Pearson's correlation analysis was used to identify associations among variables. Two-tailed statistical significance was set at 0.05.

This study conducted serial multiple mediation analyses using a bootstrapping method and the PROCESS macro 4.0 (model 6) [48]. Satisfaction with major, household economic status, and academic performance were entered as covariates, and 10,000 re-samples were analyzed using bootstrapping with a 95% confidence interval (CI). Mediation effects were considered statistically significant when their 95% CI did not contain zero.

Ethical considerations

This study received approval from the Institutional Review Board of Chung-Ang University (IRB No. 1041078–202201–HR-040). The researchers obtained informed online consent from all participants before their participation in the online survey. Furthermore, the study was conducted in accordance with the Helsinki Declaration guidelines.

Results

Sociodemographic characteristics and differences in flourishing

There were statistically significant differences in flourishing based on participants' satisfaction with their major ($F=24.420$, $p<0.001$), household economic status ($F=6.020$, $p=0.003$), and academic performance ($F=15.471$, $p=0.049$). Post-hoc analyses revealed that participants who were satisfied with their major had significantly higher flourishing than participants with moderate satisfaction, who in turn exhibited higher flourishing than their unsatisfied counterparts. Additionally, participants with high household economic status reported greater flourishing than those with lower status. Lastly, participants with high academic performance demonstrated greater flourishing than those with moderate academic performance, followed by participants with low academic performance (Table 1).

Descriptive statistics and correlations between variables

Table 2 presents descriptive statistics including mean scores for job search anxiety, strengths use, social support, and flourishing. When the Z-score standardization was performed, there was no change in the Pearson correlation coefficient despite the differing scale ranges of all variables; thus, this study suggested the mean of variables and Pearson correlation coefficient without the Z-score standardization in the Table 2. There were negative correlations between participants' strength use and job search anxiety ($r=-0.384$, $p<0.001$) and between social support and job search anxiety ($r=-0.323$, $p<0.001$). Conversely, social support was positively correlated with strengths use ($r=0.478$, $p<0.001$). Additionally, flourishing was negatively correlated with job search anxiety ($r=-0.507$, $p<0.001$), but positively correlated with strengths use ($r=0.639$, $p<0.001$) and social support ($r=0.669$, $p<0.001$).

Serial multiple mediation model

Figure 1 illustrates the results from the serial multiple mediation analysis. Satisfaction with major, household economic status, and academic performance were entered as covariates in all mediation analyses. After controlling for these sociodemographic characteristics, the total effect of job search anxiety on flourishing remained significant ($B=-0.849$, 95% CI $[-1.063, -0.634]$, adjusted $R^2=0.415$, $F=22.281$ ($p<0.001$)). Job search anxiety directly affected flourishing ($B=-0.477$, 95% CI $[-0.649, -0.304]$), accounting for 56.2% of the total effect. Furthermore, job search anxiety exerted significant indirect effects on flourishing through social support ($B=-0.192$, 95% CI $[-0.316, -0.083]$), strengths use ($B=-0.134$, 95% CI $[-0.234, -0.055]$), and social support and strengths use combined ($B=-0.046$, 95% CI $[-0.084, -0.018]$), accounting for 22.60%, 15.78%, and 5.42% of the total effect, respectively (adjusted $R^2=0.671$, $F=49.513$ ($p<0.001$)).

Furthermore, the study analyzed the indirect effect of job search anxiety on flourishing to identify which mediator had a stronger impact. The indirect effect through social support and strengths use combined (Path 3) was significantly stronger than the separate indirect effects through social support (Path 1) or strengths use (Path 2) alone. However, there was no significant difference between social support (Path 1) and strengths use (Path 2) as individual mediators (Table 3).

Discussion

A prolonged economic recession following the COVID-19 pandemic has affected the labor market (1–3); consequently, university graduates face difficulties

Table 1 Sociodemographic characteristics and differences in flourishing ($n = 228$)

Characteristics	Categories	Flourishing				
		<i>n</i> (%)	<i>M</i> ± <i>SD</i>	<i>t</i> or <i>F</i>	<i>p</i>	Scheffé
Sex	Male	113 (49.6)	5.67 ± 1.60	−0.397	.692	
	Female	115 (50.4)	5.75 ± 1.51			
Age (years)	21–24	175 (76.8)	5.76 ± 1.56	0.925	.356	
	25–29	53 (23.2)	5.53 ± 1.52			
Grade level	Junior	113 (49.6)	5.75 ± 1.60	0.370	.712	
	Senior	115 (50.4)	5.67 ± 1.51			
School location	Metropolitan area	116 (50.9)	5.75 ± 1.42	0.433	.665	
	Non-metropolitan area	112 (49.1)	5.66 ± 1.68			
Religion	Yes	48 (21.1)	5.56 ± 1.53	−0.720	.472	
	No	180 (78.9)	5.75 ± 1.56			
Enrollment status	Currently enrolled	181 (79.4)	5.78 ± 1.54	1.033	.358	
	On leave of absence	34 (14.9)	5.53 ± 1.35			
	Graduation delayed	13 (5.7)	5.22 ± 2.16			
Major	Education/Liberal Arts	55 (24.1)	5.81 ± 1.47	0.832	.528	
	Social Sciences, Business and Economics, and Law	59 (25.9)	5.52 ± 1.55			
	Natural Sciences	29 (12.7)	5.38 ± 1.71			
	Medicine/ Pharmacy/ Nursing	15 (6.6)	6.00 ± 1.33			
	Engineering	57 (25)	5.78 ± 1.68			
Satisfaction with major	Art/Physical Education	13 (5.7)	6.16 ± 1.15	24.420	< .001	a > b > c
	Satisfied ^a	109 (47.8)	6.35 ± 1.30			
	Moderately satisfied ^b	63 (27.6)	5.41 ± 1.54			
	Unsatisfied ^c	56 (24.6)	4.79 ± 1.47			
Household economic status	Upper ^a	47 (20.6)	6.25 ± 1.29	6.020	.003	a > c
	Middle ^b	114 (50.0)	5.75 ± 1.59			
	Lower ^c	67 (29.4)	5.26 ± 1.54			
Academic performance	High ^a	60 (26.3)	6.33 ± 1.65	15.471†	.049	a > b > c‡
	Moderate ^b	137 (60.1)	5.75 ± 1.28			
	Low ^c	31 (13.6)	4.31 ± 1.64			

SD standard deviation, a–c post-hoc analysis using a scheffe test

† Welch's ANOVA

‡ Games–Howell test

Table 2 Descriptive statistics and correlations among variables ($n = 228$)

Variable	<i>M</i> ± <i>SD</i>	1	2	3	4
1. Job search anxiety	3.23 ± 0.78	1			
2. Strengths use	4.58 ± 1.03	−0.384 ***	1		
3. Social support	92.57 ± 16.61	−0.323 ***	0.478 ***	1	
4. Flourishing	5.71 ± 1.55	−0.507 ***	0.639 ***	0.669 ***	1

M mean, *SD* standard deviation*** $p < 0.001$

searching for and securing employment. The present study examined the relationship between job search anxiety and flourishing among university students. In addition, it explored the serial multiple mediating effects of social support and strengths use.

Our results showed that greater satisfaction, better household economic status, and better academic performance were associated with greater flourishing. This finding aligns with previous research reporting that students with higher major satisfaction also experience higher subjective well-being [49]. Satisfaction with their major indicates that students experience positive emotions and can immerse themselves fully in their academic studies, thereby improving their flourishing.

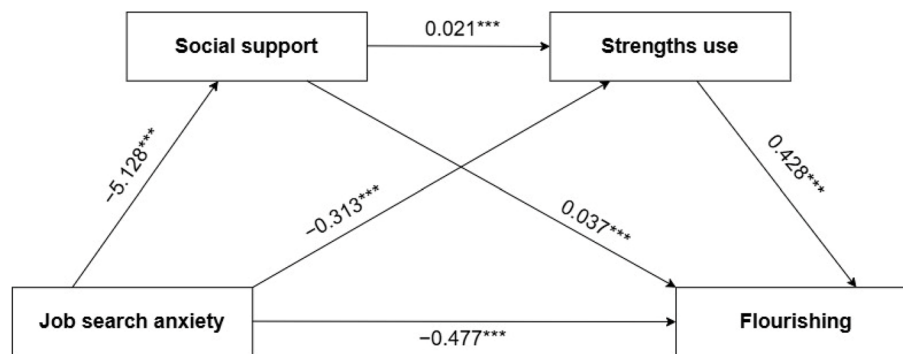


Fig. 1 Serial multiple mediation of social support and strengths in the relationship between job search anxiety and flourishing. All values represent unstandardized beta coefficients. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 Total, direct, and indirect effects of job search anxiety on flourishing and comparison of indirect effects ($n = 228$)

Effect	B	SE	LLCI	ULCI	Effect size proportion (%)
Total effect					
JSA → flourishing	−0.849	0.109	− 1.063	− 0.634	100
$R = .644$, $R^2 = .415$ $F = 22.281$ ($p < .001$)					
Direct effect					
JSA → flourishing	−0.477	0.087	− 0.649	− 0.304	56.20
Indirect effects					
1. JSA → social support → flourishing	−0.192	0.059	− 0.316	− 0.083	22.60
2. JSA → strengths use → flourishing	−0.134	0.045	− 0.234	− 0.055	15.78
3. JSA → social support → strengths use → flourishing	−0.046	0.017	− 0.084	− 0.018	5.42
$R = .819$, $R^2 = .671$ $F = 49.513$ ($p < .001$)					
Contrasts	B	SE	LLCI	ULCI	
Path 1 versus Path 2	−0.059	0.076	−0.208	0.091	
Path 1 versus Path 3	−0.146	0.053	− 0.260	− 0.053	
Path 2 versus Path 3	−0.088	0.044	− 0.183	− 0.012	

Abbreviations: JSA job search anxiety, LLCI lower level 95% confidence interval, ULCI upper level 95% confidence interval

Bold values indicate statistically significant results. The 95% confidence intervals were calculated using 10,000 bootstrap resamples. Path 1: JSA–social support–flourishing; Path 2: JSA–strengths use–flourishing; Path 3: JSA–social support–strengths use–flourishing

According to previous studies, greater financial satisfaction and academic engagement predicted higher life satisfaction, greater feelings of happiness, more positive emotions, and a stronger sense of meaning in life [15, 50]; this aligns with our findings. Conversely, one study conducted among Spanish college students found that perceived family income level did not influence flourishing [15], which contrasts with our study. This discrepancy may stem from differences in data collection timing and different geographic contexts. Our data were collected during the COVID-19 pandemic when Korea was facing an employment crisis and economic

downturn due to social distancing measures [51]. In contrast, participants in the study by de la Fuente et al. [15] were not limited by academic year, and data collection occurred prior to COVID-19. The relationship between household economic status and flourishing warrants further research.

This study investigated the direct effect of job search anxiety on flourishing after controlling for general characteristics and found statistically significant differences in levels of flourishing. Furthermore, we identified a significant association between job search anxiety and flourishing among university students. These results align

closely with other studies that have reported job search anxiety or stress negatively influencing psychological well-being, happiness, and life satisfaction [8, 13, 27, 28]. Analysis of the separate indirect effects through social support and strengths use indicated that students experiencing elevated job search anxiety were likelier to report lower perceived social support or decreased strengths use, resulting in diminished flourishing. Previous studies also found perceptions of social support mediated associations between psychological distress (i.e., anxiety and stress) and life satisfaction, consistent with our findings [26, 52]. Additionally, greater availability and use of social support reduced negative emotions and positively influenced flourishing [15–17]. Prior research further demonstrated that personal strengths help individuals manage negative emotions, such as anxiety, stress, or fear associated with adversity, enhancing positive psychological outcomes including mental health and well-being [29, 33]. Thus, support from significant others or using personal strengths may boost engagement and achievement during job search preparations, thereby enhancing flourishing.

This study examined the serial multiple mediating effects of social support and strengths use between job search anxiety and flourishing. We found a sequential association between increased job search anxiety and decreased social support, leading subsequently to a decline in strengths use, which in turn was related to reduced flourishing. The results of this study are consistent with the social support deterioration model [21] and the thriving through relationships model [40]. Job search anxiety can create a vicious cycle in which decreased social support prevents personal flourishing. This model offers an insightful framework for understanding the mechanism through which job search anxiety affects flourishing. Individuals experiencing psychological distress may have difficulty engaging in trusting relationships and experience a reduction in their social support resources and availability [23, 24]. Individuals who experience job search anxiety may feel alienated from those around them or hesitate to rely on others due to their current uncertain situation. A recent study has indicated that stress perceived by university students indirectly influences flourishing through social support, which aligns with the present findings indicating that job search anxiety is indirectly related to flourishing through social support [53]. In addition, our findings accord with a study by Lavy et al. [34], which showed that greater social support from supervisors at work increased strengths use the following day. Conversely, low social support from professors and advisors hindered students' use of their strengths; thus, social support serves as a positive resource, promoting the utilization of strengths [34].

Overall, when students face employment-related situations and experience anxiety concerning employment, receiving support from significant others is important, as it can enhance strengths use and thereby improve flourishing. This support may be emotional (e.g., empathy, consolation, encouragement), appraisal-related (e.g., compliments, acknowledgment), or informational (e.g., advice, job-search information), with increased support enabling students to leverage their strengths beyond their initial perception. Furthermore, previous studies have shown that college students who effectively use their strengths tend to express themselves better, function optimally, and experience greater happiness, supporting this finding [29]. Therefore, our results highlight the need for a program that provides social support to enhance strengths use among college students experiencing anxiety while preparing for employment. Thus, screening for anxiety and providing suitable interventions for students at high risk of job search anxiety is essential.

Moreover, this study investigated which mediating effects were stronger by comparing pairs among indirect effects. The dual mediating effects via social support and strengths use were significantly stronger than any single indirect effects. Our findings therefore showed that strengths use facilitated by social support plays a critical role in explaining the association between job search anxiety and flourishing. Asian countries such as Korea traditionally have a strong collectivist culture emphasizing unity and harmony [53]. Because social interactions have been limited due to the COVID-19 pandemic [51], social support appears to have played an even more vital role in psychological outcomes, reflecting Korea's socio-cultural characteristics. The pronounced effect of dual mediation indicates that multiple resources are necessary rather than reliance on a single source to promote college students' flourishing, especially when facing social constraints; thus, this consideration is important for mediation processes.

A systematic review reported strong evidence for the effect of psychological interventions, such as individual or group counseling, mindfulness-based programs, and cognitive behavioral therapy, on anxiety and stress [54]. In addition, communities need to screen university students for flourishing and provide free psychological counseling—including hotline services delivered either by counselors or chatbots—for those experiencing marked anxiety and low flourishing [54, 55]. In particular, the findings of this study expand on previous research and emphasize the need for programs providing social support to college students who feel anxious while preparing for employment, aiming to enhance their strengths. Educational institutions should consider providing interventions through joint sessions focused on

strengths-based, peer-led student counseling services [31]. Therefore, it is meaningful to screen high-risk students experiencing job search anxiety so they may receive appropriate interventions. Specifically, the findings of this study expand previous research and underscore that focusing on alleviating job search anxiety and employing personal strengths through social support may improve flourishing, contributing to optimal positive feelings and healthy functioning.

This serial mediation study offers theoretical and practical insights into how social support and strengths use foster flourishing among Korean college students during COVID-19. The social support deterioration model and thriving model provide valuable conceptual frameworks for this study [21, 40]. By integrating these two theoretical perspectives, this study proposes a predictive model of flourishing incorporating adversity, social support, and personal strengths—advancing previous research, which often focused on isolated variables individually [12, 13, 15–17, 30–32]. Thus, this serial mediation approach provides deeper theoretical and practical insights into how social support and strengths use contribute to flourishing among Korean college students during COVID-19. The findings highlight practical strategies to strengthen social support and encourage strengths use to effectively manage the relationship between job search anxiety and flourishing within this population.

Limitations

The present study involves the following limitations. First, this cross-sectional design cannot confirm causal relationship directions; consequently, longitudinal studies are warranted. Second, the participants were convenience sample including junior and senior university students. Moreover, the researchers collected data in Korea, where the COVID-19 pandemic resulted in a low employment rate. Thus, generalizing findings about full spectrum of university students and employment instability to contexts with different employment rates or regions remains challenging. Investigating differences between freshman and senior university students, using surveys conducted in areas with varying employment rates and regions, would yield additional insights. Cross-cultural studies involving diverse countries would also allow comparisons across cultures and enhance external validity. Third, the current study assessed the perception of social support from significant others in general, rather than from specific individuals (i.e., family members, friends, or teachers). Therefore, this approach failed to yield detailed information regarding distinct social support sources. Consequently, categorizing sources of social support, such as family, friends, and teachers, and examining their respective influences

on personal strengths would be beneficial. Lastly, future studies should explore moderation models of flourishing by incorporating additional individual-level psychological factors such as self-efficacy and resilience.

Conclusion

In this study, there was a sequential mediating effect of social support and personal strengths use in the relationship between job search anxiety and flourishing among university students. The impact of serial mediation was stronger than the mediating effects of social support or strengths use alone. These findings suggest the necessity of mental health education, counseling, and interventions involving both social support and strengths use to improve university students' flourishing. For example, policymakers should routinely screen university students' flourishing and continuously evaluate strategies aimed at mental health promotion. Educators likewise need to consider enhancing students' flourishing as a core mental health objective. They can develop interventions led by trained mental health professionals, supporting students in realizing their optimal potential by integrating psychological, social, and emotional functions. Specifically, interventions jointly incorporating social support and strengths-based sessions should be implemented for students experiencing high job search anxiety and low flourishing. This approach will enable universities and mental healthcare professionals to better support students by alleviating anxiety related to job searching and encouraging reliance on close social relationships and personal strengths. Overall, this study highlights social and individual resources as key components of positive mental health planning in schools and communities aimed at enhancing flourishing among university students preparing for employment. Our findings indicate critical implications for prioritizing social support and subsequently using personal strengths as an effective sequential intervention strategy for promoting flourishing.

Abbreviations

COVID-19	Coronavirus Disease 2019
JSA	Job Search Anxiety
NEET	Not in Employment, Education or Training
OECD	Organisation for Economic Co-operation and Development
PERMA model	Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment model
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology

Authors' contributions

Conceptualization: Kwak, Kim, and Chae. Methodology: Kim, and Chae. Formal analysis and investigation: Chae. Writing—original draft preparation: Kwak, Kim, and Chae. Writing—review and editing: Kwak, and Chae. Supervision: Kwak, and Kim.

Clinical trial number

Not applicable.

Funding

No external funding.

Data availability

Data supporting this study's findings are available upon request from the corresponding author. However, these data are not publicly available due to privacy or ethical restrictions.

Declarations**Ethics approval and consent to participate**

The researchers obtained informed online consent from all participants before their participation in the online survey. This study adhered to the guidelines of the Helsinki Declaration and received approval from the Institutional Review Board of Chung-Ang University.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Received: 24 October 2024 Accepted: 5 June 2025

Published online: 01 July 2025

References

- International Labour Organization. World employment and social outlook: Trends 2023. United Nations. 2023. <https://www.ilo.org/publications/flagship-reports/world-employment-and-social-outlook-trends-2023>. Accessed 5 Jan 2024.
- International Labour Organization. Recovery in youth employment is still lagging, says ILO. United Nations. 2022. https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_853078/langen/index.htm. Accessed 5 Jan 2024.
- Jung J. Characteristics and typology analysis of youth NEETs. 2022. <https://keis.or.kr/user/extra/main/3878/publication/reportList/jsp/LayOutPage.do?categoryIdx=130&pubIdx=8872&reportIdx=5855>. Accessed 6 Jan 2024.
- Statistics Korea. Employment rate. Daejeon: Statistics Korea; 2025. Available from: <https://www.index.go.kr/unify/idx-info.do?idxCd=4212>. Cited 2025 Apr 6.
- Ham S. Covid19 pandemic and the divided youth labor market in Korea. *Korean J Labor Stud*. 2022;28(1):69–101.
- Lee C, Kim M. The mediating effect of job-seeking stress on the relationship between self-efficacy and career preparation behavior in senior undergraduates. *J Korean Assn Learn Cent Curric Instr*. 2023;23(11):89–100. <https://doi.org/10.22251/jlcci.2023.23.11.89>.
- Mahmud MS, Talukder MU, Rahman SM. Does 'Fear of COVID-19' trigger future career anxiety? An empirical investigation considering depression from COVID-19 as a mediator. *Int J Soc Psychiatry*. 2021;67(1):35–45. <https://doi.org/10.1177/0020764020935488>.
- Petruzzello G, Chiesa R, Mariani MG. The storm doesn't touch me!—The role of perceived employability of students and graduates in the pandemic era. *Sustainability*. 2022;14(7):4303. <https://doi.org/10.3390/su14074303>.
- Hone LC, Jarden A, Schofield GM, Duncan S. Measuring flourishing: The impact of operational definitions on the prevalence of high levels of wellbeing. *Int J Wellbeing*. 2014;4(1):62–90. <https://doi.org/10.5502/ijw.v4i1.4>.
- Seligman MEP. *Flourish: A visionary new understanding of happiness and well-being*. New York: Simon and Schuster; 2011.
- Öztekin GG. The relationship of future anxiety with a multidimensional framework of well-being among undergraduate students: optimism and pessimism as mediators. *BMC Psychol*. 2025;13:40. <https://doi.org/10.1186/s40359-025-02387-8>.
- Cho GP. A study of development and validation of the job-seeking anxiety test for university students. *Korean J Educ Res*. 2008;46(2):53–75. <http://uci.or.kr/G704-000614.2008.46.2.008>.
- Sheng Z, Griffin MA. Job insecurity, employability, and mental health in the new era: A test of plausible influence mechanisms and temporal effects. *Stress Health*. 2023;39(2):384–403. <https://doi.org/10.1002/smi.3190>.
- Allen R, Kannangara C, Vyas M, Carson J. European university students' mental health during COVID-19: Exploring attitudes towards COVID-19 and governmental response. *Curr Psychol*. 2022;1–14. <https://doi.org/10.1007/s12144-022-02854-0>.
- de la Fuente R, Parra Á, Sánchez-Queija I, Lizaso I. Flourishing during emerging adulthood from a gender perspective. *J Happiness Stud*. 2020;21(8):2889–908. <https://doi.org/10.1007/s10902-019-00204-9>.
- Li B, Pan Y, Liu G, Chen W, Lu J, Li X. Perceived social support and self-esteem mediate the relationship between childhood maltreatment and psychosocial flourishing in Chinese undergraduate students. *Child Youth Serv Rev*. 2020;117: 105303. <https://doi.org/10.1016/j.childyouth.2020.105303>.
- Schotanus-Dijkstra M, Pieterse ME, Drossaert CH, et al. What factors are associated with flourishing? Results from a large representative national sample. *J Happiness Stud*. 2016;17(4):1351–70. <https://doi.org/10.1007/s10902-015-9647-3>.
- Korea Institute for Health and Social Affairs. A survey on the living conditions and welfare needs of youths. 2020. <http://repository.kihasa.re.kr/handle/201002/36061>. Accessed 8 July 2022.
- Newhart S. Social predictors of psychological well-being and symptoms of college students. *J Am Coll Health*. 2023;73(1):267–80. <https://doi.org/10.1080/07448481.2023.2217717>.
- Schutte NS, Malouff JM. The impact of signature character strengths interventions: A meta-analysis. *J Happiness Stud*. 2019;20:1179–96. <https://doi.org/10.1007/s10902-018-9990-2>.
- Kaniasty K, Norris FH. A test of the social support deterioration model in the context of natural disaster. *J Pers Soc Psychol*. 1993;64(3):395–408. <https://doi.org/10.1037/0022-3514.64.3.395>. PMID: 8468668.
- Adler AB, Castro CA. An occupational mental health model for the military. *Mil Behav Health*. 2013;1(1):41–5. <https://doi.org/10.1080/21635781.2012.721063>.
- Kaniasty K, Norris FH. Longitudinal linkages between perceived social support and posttraumatic stress symptoms: sequential roles of social causation and social selection. *J Trauma Stress*. 2008;21(3):274–81. <https://doi.org/10.1002/jts.20334>.
- Thoresen S, Birkeland MS, Arnberg FK, Wentzel-Larsen T, Blix I. Long-term mental health and social support in victims of disaster: comparison with a general population sample. *BJPsych Open*. 2019;5(1): e2. <https://doi.org/10.1192/bjo.2018.74>.
- Randall S. Low youth employment in Korea part 1: The "Golden Ticket Syndrome". 2023 <https://keia.org/the-peninsula/low-youth-employment-in-korea-part-1-the-golden-ticket-syndrome>. Accessed 2 May 2024.
- Park SH, Min HD, Go H. On the mediation effects of resilience and social support on the relationship between study and job-seeking stress and adaptation to college among university students. *J Learn Cent Curric Instr*. 2020;20(8):719–44. <https://doi.org/10.22251/jlcci.2020.20.8.719>.
- Shin JY. "Will I find a job when I graduate?": Employment anxiety, self-compassion, and life satisfaction among South Korean college students. *Int J Educ Vocat Guidance*. 2019;19:239–56. <https://doi.org/10.1007/s10775-018-9378-1>.
- Kim D, Ahn D. The structural relationships between upward counterfactual thinking in academic majors, academic major satisfaction, and job-seeking anxiety and university students' happiness: Differences between grade levels. *Korean J Educ Psychol*. 2018;32(3):355–77. <https://doi.org/10.17286/KJEP.2018.32.3.02>.
- Zhang Y, Chen M. Character strengths, strengths use, future self-continuity and subjective well-being among Chinese university students. *Front Psychol*. 2018;9:1040. <https://doi.org/10.3389/fpsyg.2018.01040>.
- Yan T, Chan CWH, Chow KM, Zheng W, Sun M. A systematic review of the effects of character strengths-based intervention on the psychological well-being of patients suffering from chronic illnesses. *J Adv Nurs*. 2020;76(7):1567–80. <https://doi.org/10.1111/jan.14356>.
- Hobbs C, Armitage J, Hood B, Jelbert S. A systematic review of the effect of university positive psychology courses on student psychological

- wellbeing. *Front Psychol.* 2022;13:1023140. <https://doi.org/10.3389/fpsyg.2022.1023140>.
32. Taylor EC, Livingston LA, Clutterbuck RA, Callan MJ, Shah P. Psychological strengths and well-being: Strengths use predicts quality of life, well-being and mental health in autism. *Autism.* 2023;27(6):1826–39. <https://doi.org/10.1177/13623613221146440>.
 33. Waters L, Algoe SB, Dutton J, et al. Positive psychology in a pandemic: Buffering, bolstering, and building mental health. *J Posit Psychol.* 2021;1–21. <https://doi.org/10.1080/17439760.2021.1871945>.
 34. Lavy S, Littman-Ovadia H, Boiman-Meshita M. The wind beneath my wings: Effects of social support on daily use of character strengths at work. *J Career Assess.* 2017;25(4):703–14. <https://doi.org/10.1177/1069072716665861>.
 35. Owens RL, Allan BA, Maslowski AK, Murphy PK. Strengths use, environmental factors, and academic outcomes in newly matriculated college students. *Int J Appl Posit Psychol.* 2021;6(3):277–99. <https://doi.org/10.1007/s41042-020-00049-1>.
 36. Tang Y, He W. Relationship between emotional intelligence and learning motivation among college students during the COVID-19 pandemic: a serial mediation model. *Front Psychol.* 2023;14:1109569. <https://doi.org/10.3389/fpsyg.2023.1109569>.
 37. Wagner L, Pindeus L, Ruch W. Character strengths in the life domains of work, education, leisure, and relationships and their associations with flourishing. *Front Psychol.* 2021;12: 597534. <https://doi.org/10.3389/fpsyg.2021.597534>.
 38. Wagner L, Gander F. Character strength traits, states, and emotional well-being: A daily diary study. *J Pers.* 2025;93(2):341–60. <https://doi.org/10.1111/jopy.12933>.
 39. Feraco T, Casali N. 20 years of character strengths: a bibliometric review. *J Happiness Stud.* 2025;26:34. <https://doi.org/10.1007/s10902-025-00869-5>.
 40. Feeney BC, Collins NL. A new look at social support: a theoretical perspective on thriving through relationships. *Pers Soc Psychol Rev.* 2015;19(2):113–47. <https://doi.org/10.1177/1088868314544222>.
 41. Faul F, Erdfelder E, Buchner A, Lang AG. Statistical power analyses using G*Power 3.1: tests for correlation and regression analyses. *Behav Res Methods.* 2009;41(4):1149–60.
 42. Kim S, Lee S. The influence of job-seeking stress, career decision-making self-efficacy, self-esteem and academic achievement on nursing students' happiness. *Korean J Adult Nurs.* 2015;27(1):63–72. <https://doi.org/10.7475/kjan.2015.27.1.63>.
 43. Govindji R, Linley PA. Strengths use, self-concordance and well-being: Implications for strengths coaching and coaching psychologists. *Int Coach Psychol Rev.* 2007;2(2):143–53.
 44. Park BK, Lee HK. Validation of the Korean version of Strengths Use Scale (K-SUS). *Korean J Psychol.* 2012;31(3):599–616.
 45. Yu EK, Seol HS. Factorial structure of the social support scale. *Surv Res.* 2015;16(1):155–84. <http://uci.or.kr/410-ECN-0102-2015-300-002131593>.
 46. Sim KL, Kim WS. A study on validity of Korean version of PERMA Profiler (K-PERMA). *Arts Psychother.* 2019;15(4):319–40. <https://doi.org/10.32451/KJOAPS.2019.15.4.319>.
 47. Butler J, Kern ML. The PERMA-Profiler: A brief multidimensional measure of flourishing. *Int J Wellbeing.* 2016;6(3):1–48. <https://doi.org/10.5502/ijw.v6i3.526>.
 48. Hayes AF. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York: The Guilford Press; 2018.
 49. Merkle B, Messerer LAS, Dickhäuser O. Will I be happy in this major? Predicting intrinsic motivation and subjective well-being with prospective students' well-being forecast and interest-major fit forecast. *Soc Psychol Educ.* 2024;27(1):237–59. <https://doi.org/10.1007/s11218-023-09835-6>.
 50. Shdaifat E, Alshowkan A, Alqahtani F, Alebiary H, Al-Qahtani M, Alsaleh N, Kamel N. Flourishing levels among health and non-health profession students in Saudi Arabian colleges. *Front Psychiatry.* 2024;15:1469845. <https://doi.org/10.3389/fpsyg.2024.1469845>.
 51. Park S, Cho J. Young people are medically invulnerable to COVID-19 but vulnerable in the labor market: Korean evidence. *Health Econ Rev.* 2022;12:16. <https://doi.org/10.1186/s13561-022-00360-4>.
 52. Sahin S, Tuna R. The effect of anxiety on thriving levels of university students during the COVID-19 pandemic. *Collegian.* 2022;29(3):263–70. <https://doi.org/10.1016/j.colegn.2021.10.004>.
 53. Kim SS, Gil M, Kim-Godwin Y. Development and validation of the Family Relationship Assessment Scale in Korean college students' families. *Fam Process.* 2021;60(2):586–601. <https://doi.org/10.1111/famp.12559>.
 54. Worsley JD, Pennington A, Corcoran R. Supporting mental health and wellbeing of university and college students: a systematic review of review-level evidence of interventions. *PLoS ONE.* 2022;17(7): e0266725. <https://doi.org/10.1371/journal.pone.0266725>.
 55. Shan Y, Ji M, Xie W, Li R, Qian X, Zhang X, Hao T. Interventions in Chinese undergraduate students' mental health: systematic review. *Interact J Med Res.* 2022;11(1): e38249. <https://doi.org/10.2196/38249>.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.