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Integrating Well-Being and Career Development: Sleep and Self-Leadership Effects

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Abstract

Purpose: The purpose of this study is to test a well-being–career integration model that examines how self-leadership dimensions and sleep quality relate to career preparation behavior through self-efficacy and career decidedness among Korean university students in career transition. **Research Method:** A cross-sectional survey was conducted with 213 university students (74 males, 139 females; $M = 23.5$, $SD = 2.8$) recruited from multiple four-year universities in South Korea. All measures underwent psychometric validation through sequential exploratory factor analysis, confirmatory factor analysis, and measurement invariance testing. Data were analyzed using partial least squares structural equation modeling with 10,000 bootstrap replications. **Results:** Twelve of fifteen direct-path hypotheses were supported, and all eight mediation hypotheses were confirmed. Self-leadership dimensions demonstrated medium-to-large associations with self-efficacy ($\beta = 0.287-0.401$, $p < .001$), whereas sleep quality exhibited significant negative associations with all career variables ($\beta = -0.243$ for self-efficacy, $p = .002$). The model explained substantial variance in career preparation behavior ($R^2 = 0.684$). Findings suggest that sleep quality represents a previously overlooked correlate of career development and that self-leadership influences career preparation primarily through cognitive mediation pathways. **Conclusion:** Results indicate potential benefits of integrating sleep health interventions into campus career counseling services. Longitudinal research is needed to establish causal mechanisms, and the findings highlight the importance of considering both self-leadership and sleep quality in supporting students' career development during transitional periods

Keywords : sleep quality; self-leadership; career preparation behavior; self-efficacy; university students

JEL Classification Code : I12, I23, J24, M12, D91

1. Introduction¹

1.1. University Student Health and Career Development Challenges

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Contemporary university students confront significant health challenges while navigating increasingly complex career landscapes. The post-pandemic university environment, characterized by ongoing adjustments in social connection patterns and a heightened awareness of health vulnerabilities, has intensified the imperative to integrate well-being considerations into career development support services.

Empirical evidence indicates that sleep problems are highly prevalent in this population. In a cross-sectional study of 304 health science students at a Hungarian university, approximately half reported at least mild insomnia, accompanied by a moderate positive correlation between sleep quality and perceived stress ($r = 0.548, p = .001$; Sajtos et al., 2024). Sleep quality deteriorates markedly during examination periods; a web-based survey of 940 students across 20 Greek tertiary institutions found that poor sleep prevalence increased from 59% to 98% during exam periods, with the Pittsburgh Sleep Quality Index score rising from 6.1 to 8.9 ($p < .001$; Bouloukaki et al., 2023).

These challenges are particularly pronounced for career-transitioning university students in collectivistic cultures such as Korea, where individual career aspirations must be negotiated within the context of familial expectations and social pressures, creating what Mau (2004) described as "cultural decisional conflict." Korean students face unique challenges as they navigate between personal preferences and collective family expectations, given that career decisions are often viewed as family decisions rather than individual choices (Kim et al., 2016). This cultural context significantly influences the applicability of Western-derived career development theories to Korean university students.

1.2. Sleep Quality as a Health Determinant in Academic Settings

Empirical evidence supports sleep quality as a fundamental factor affecting the cognitive and emotional resources available for career-related activities. Van Dongen et al. (2003) demonstrated that moderate chronic sleep restriction results in cumulative, dose-dependent deterioration of neurobehavioral performance equivalent to the effects of total sleep deprivation.

A systematic review and meta-analysis of 35 studies involving 16,275 university students across 11 African countries found that the overall prevalence of poor sleep quality was 63.31% (95% CI: 56.91–65.71; Nakie et al., 2024). In a laboratory paradigm, Mauss et al. (2013) found that poor sleep quality significantly impairs emotion-regulation ability. Such impairments are directly relevant to managing the anxiety and uncertainty that characterize career transitions.

1.3. Self-Leadership and Health Behaviors

Self-leadership encompasses "a comprehensive set of behavioral and cognitive strategies used by individuals to influence themselves toward more effective performance and achievement of their objectives" (Manz, 1986; Neck & Houghton, 2006). A qualitative study of 112 MBA managers who completed a 12-week health-promoting self-leadership program demonstrated improvements in mental fitness, energy balance, self-efficacy beliefs, and performance (Bjerke & Nordbø, 2024). Additionally, self-leadership practices among college students have been associated with reduced stress and improved coping skills (Maykrantz & Houghton, 2020).

1.4. Integration with Campus Health Services

Contemporary approaches to university student support increasingly recognize the need for comprehensive health services. Online health promotion programs have demonstrated significant reductions in depression ($p = .001$), anxiety ($p = .004$), and stress ($p < .001$) among healthcare students (Hung et al., 2024). Furthermore, student well-being has been found to exhibit direct and positive associations with academic engagement, explaining 31.4% of variance in engagement outcomes (Teca et al., 2024).

1.5. Study Objectives and Research Gap

Traditional career development research has predominantly focused on cognitive factors such as career decision self-efficacy and decision-making difficulties (Udayar et al., 2020) but has largely overlooked the fundamental role of physiological well-being in career processes. The present study addresses this gap by proposing and empirically testing a novel well-being–career integration model among Korean career-transitioning university students. Specifically, this study extends Social Cognitive Career Theory (SCCT; Lent & Brown, 2013) by systematically incorporating physiological well-being (sleep quality) and advanced self-regulatory capabilities (self-leadership) as key personal factors (Gaultney, 2010; Mao et al., 2022).

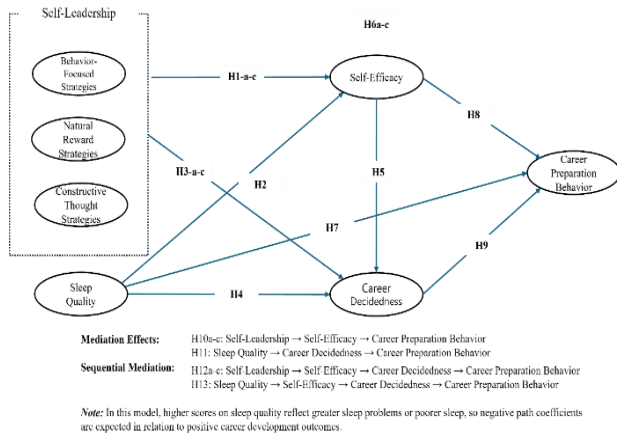


Figure 1: Well-Being–Career Integration Model for University Students

2. Literature Review

2.1. Expanding Social Cognitive Career Theory Toward a Well-Being–Career Integration Model

Social Cognitive Career Theory provides a comprehensive framework for understanding career development through the dynamic interaction of personal factors, environmental influences, and behavior (Lent & Brown, 2013). However, SCCT's conceptualization of "personal factors" has predominantly focused on cognitive and psychological variables, leaving the influence of physiological well-being largely unexamined. The present study extends SCCT by incorporating sleep quality as a physiological personal factor and self-leadership as an advanced self-regulatory capability, thereby proposing an integrative framework that bridges health science and career development perspectives.

2.2. Self-Leadership Theory and Career Development

Self-leadership encompasses three primary strategy categories: behavior-focused strategies, natural reward strategies, and constructive thought patterns (Manz, 1986; Neck & Houghton, 2006). These strategies are theorized to enhance self-efficacy by providing frameworks for creating enactive mastery experiences (Bandura, 1977). Accordingly, the following hypotheses are proposed:

- H1a:** Behavior-focused strategies are positively associated with self-efficacy.
- H1b:** Natural reward strategies are positively associated with self-efficacy.
- H1c:** Constructive thought strategies are positively

associated with self-efficacy.

Self-leadership strategies may also be associated with career decidedness by providing cognitive and behavioral tools for managing the complexity inherent in career decision-making:

H3a: Behavior-focused strategies are positively associated with career decidedness.

H3b: Natural reward strategies are positively associated with career decidedness.

H3c: Constructive thought strategies are positively associated with career decidedness.

Additionally, self-leadership strategies may demonstrate direct associations with career preparation behavior:

H6a: Behavior-focused strategies are positively associated with career preparation behavior.

H6b: Natural reward strategies are positively associated with career preparation behavior.

H6c: Constructive thought strategies are positively associated with career preparation behavior.

2.3. Sleep Quality and Career Development

Sleep quality affects career development through multiple pathways. Poor sleep quality significantly impairs emotion-regulation ability (Mauss et al., 2013), and sleep quality deterioration during academically stressful periods corresponds with markedly decreased sleep quality scores (Bouloukaki et al., 2023). Accordingly, sleep quality is hypothesized to exhibit negative associations with career-related variables, given that higher scores on the sleep quality measure indicate poorer sleep:

H2: Sleep quality is negatively associated with self-efficacy.

H4: Sleep quality is negatively associated with career decidedness.

H7: Sleep quality is negatively associated with career preparation behavior.

2.4. Mediation Pathways

Self-efficacy occupies a central position in SCCT as a proximal determinant of career-related behaviors (Lent & Brown, 2013). Meta-analytic evidence consistently demonstrates strong associations between career decision self-efficacy and career-related outcomes (Stead et al., 2021):

H5: Self-efficacy is positively associated with career decidedness.

H8: Self-efficacy is positively associated with career preparation behavior.

H9: Career decidedness is positively associated with career preparation behavior.

The well-being–career integration model proposes sequential mediation involving self-efficacy and career

decidedness:

H10a–c: The associations between self-leadership dimensions and career preparation behavior are mediated by self-efficacy.

H11: The association between sleep quality and career preparation behavior is mediated by self-efficacy.

H12a–c: The associations between self-leadership dimensions and career preparation behavior are sequentially mediated by self-efficacy and career decidedness.

H13: The association between sleep quality and career preparation behavior is sequentially mediated by self-efficacy and career decidedness.

3. Methodology

3.1. Research Design and Ethical Considerations

This cross-sectional exploratory study employed a quantitative approach to test the proposed well-being–career integration model. In accordance with Korean legal standards for human subjects research, this study qualified for exemption, as it involved anonymous survey research with no identifiable personal information. All participants provided informed consent electronically.

3.2. Participants and Sampling Procedures

Career-transitioning university students were operationally defined through a multi-criteria screening process.

Participants qualified if they endorsed experiencing at least two of the following four conditions: (a) major-related uncertainty, (b) active career decision points, (c) identity exploration, or (d) transition anxiety.

Participants were recruited through convenience sampling from multiple four-year universities across South Korea between March and May 2024. Initial recruitment yielded 238 responses, of which 25 were excluded due to incomplete data (missing data exceeding 10% per scale) or failure to meet screening criteria, resulting in 213 valid responses (retention rate: 89.5%). Data completeness analysis revealed 100% response completion among retained participants. The application of the 10% missing data threshold followed established guidelines for PLS-SEM analysis (Hair et al., 2019).

The final sample comprised 74 males (34.7%) and 139 females (65.3%), with a mean age of 23.5 years ($SD = 2.8$). The gender imbalance favoring female participants is consistent with typical participation patterns observed in career counseling research.

3.3. Measures

All measures used validated Korean translations or were originally developed in Korean. Unless otherwise noted, all items were rated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). All scales underwent comprehensive psychometric validation through a sequential protocol involving exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and measurement invariance testing. Items demonstrating poor factor loadings or cross-loadings were removed during the EFA and CFA phases, yielding refined measurement models. The final item counts used in the structural model are reported in Table 3.

It should be noted that PLS-SEM estimates path coefficients using indicator-level data from the refined measurement models rather than composite sum scores. Therefore, the descriptive statistics reported in Tables 1 and 2 (based on full administered scales) characterize the sample's overall response patterns, whereas the structural model results (Tables 3–5) reflect the psychometric properties and path estimates derived from the refined indicator sets.

Self-Leadership (Independent Variable). Self-leadership was measured using the Korean version of the Revised Self-Leadership Questionnaire (RSLQ) developed by Houghton and Neck (2002) and validated for Korean university students by Shin et al. (2009). The scale consists of 11 items measuring three dimensions: Behavior-Focused Strategies (4 items), Natural Reward Strategies (3 items), and Constructive Thought Strategies (4 items). All 11 items were retained following validation.

Sleep Quality (Independent Variable). Sleep quality was assessed using items from the comprehensive sleep quality scale developed by Lee (2004) for Korean adults, with higher scores indicating poorer sleep quality. The original scale consists of 16 items; following sequential EFA and CFA validation, eight items were retained for the final measurement model.

Self-Efficacy (Primary Mediator). General self-efficacy was measured using three items from the General Self-Efficacy Scale (Sherer et al., 1982; Korean translation by Park, 1998). Regarding structural validity, EFA confirmed a single-factor structure explaining 77.9% of variance, with strong loadings (0.796–0.843). CFA yielded excellent fit (CFI = 1.000, RMSEA = 0.000). Multi-group analysis confirmed configural, metric, and scalar invariance across gender groups. The three items assessed were: (a) "I have many talents," (b) "I have stronger willpower than others," and (c) "I work hard until I succeed, even if I fail initially."

Career Decidedness (Secondary Mediator). Career decidedness was measured using the Korean translation of the Career Decision Scale developed by Osipow et al. (1976) and translated by Ko (1992). The original 14-item scale was

reduced to seven items following EFA and CFA validation.

Career Preparation Behavior (Dependent Variable). Career preparation behavior was assessed using Kim's (1997) 12-item Career Preparation Behavior Scale, as refined by Lim and Lee (2003). Following EFA and CFA validation, eight items were retained.

Statistical Assumptions and Power Analysis. Prior to PLS-SEM analysis, all variables were assessed for normality using Shapiro-Wilk tests (all $ps > .05$). Multicollinearity was assessed using variance inflation factors; all VIF values ranged from 1.42 to 3.80 ($M = 2.64$), well below the threshold of 5.0 (Hair et al., 2019). Post hoc power analysis indicated adequate power (0.95) for detecting medium effect sizes ($d = 0.50$) and excellent power (0.99) for large effect sizes ($d = 0.80$). However, power for detecting small effects was limited (0.52).

3.4. Data Analysis Strategy

Data analysis was conducted using R 4.3.0 with the following analytic packages: psych (Revelle, 2023) for

descriptive statistics and reliability; lavaan (Rosseel, 2012) for CFA and measurement model validation; and semr (Ray et al., 2022) for PLS-SEM. PLS-SEM was selected over covariance-based SEM for several methodological reasons: the study represents an initial empirical test of a novel model aligning with PLS-SEM's strength for theory development (Hair et al., 2019); the research objective prioritized prediction and variance explanation; and the model examines complex sequential mediation pathways for which PLS-SEM provides computational advantages.

All PLS-SEM analyses employed 10,000 bootstrap replications for significance testing and mediation analysis. The measurement model was evaluated using internal consistency reliability (Cronbach's α , ρ_A , composite reliability), convergent validity (AVE), and discriminant validity (heterotrait-monotrait [HTMT] ratio; Henseler et al., 2015). The structural model was assessed using R^2 , effect sizes (f^2), predictive relevance (Q^2), and model fit indices (SRMR, NFI). Multi-group analysis tested measurement invariance across gender groups.

4. Results

4.1. Preliminary Analyses

Table 1: Sample Characteristics and Descriptive Statistics

Characteristic	<i>n</i> (%) or <i>M</i> (<i>SD</i>)
Demographics	
Age (years)	23.5 (2.8)
Gender: Male	74 (34.7%)
Gender: Female	139 (65.3%)
Variable Scores	
Self-Leadership (total)	36.42 (6.28)
Behavior-Focused Strategies	13.18 (2.45)
Natural Reward Strategies	9.82 (1.92)
Constructive Thought Strategies	13.42 (2.58)
Self-Efficacy	10.15 (1.85)
Sleep Quality	42.68 (8.95)
Career Decidedness	45.23 (9.12)
Career Preparation Behavior	35.84 (7.65)

Note. Higher sleep quality scores indicate poorer sleep quality. All continuous variables met normality assumptions (Shapiro-Wilk tests, all $ps > .05$). Descriptive statistics for sleep quality, career decidedness, and career preparation behavior are based on the full administered scales (16, 14, and 12 items, respectively) prior to item refinement. The PLS-SEM structural analysis employed indicator-level data from the refined measurement models (see Table 3).

Table 2: Bivariate Correlations and Reliability Statistics

Variable	M	SD	α	1	2	3	4	5	6	7
1. Behavior-Focused	13.18	2.45	.825	—						
2. Natural Reward	9.82	1.92	.748	.68***	—					
3. Constructive Thought	13.42	2.58	.834	.55***	.38***	—				
4. Sleep Quality	42.68	8.95	.850	-.42***	-.38***	-.45***	—			
5. Self-Efficacy	10.15	1.85	.705	.55***	.52***	.61***	-.38***	—		
6. Career Decidedness	45.23	9.12	.878	.48***	.42***	.44***	-.52***	.58***	—	
7. Career Prep Behavior	35.84	7.65	.911	.45***	.39***	.52***	-.41***	.54***	.64***	—

Note. *** $p < .001$. Higher sleep quality scores indicate poorer sleep quality. Correlations for sleep quality, career decidedness, and career preparation behavior are based on full administered scales.

All self-leadership dimensions were positively and significantly associated with self-efficacy, career decidedness, and career preparation behavior (all $ps < .001$). Sleep quality was significantly and negatively correlated

with all study variables (all $ps < .001$), consistent with the scoring direction. The pattern of correlations provided preliminary support for the hypothesized relationships.

4.2. Measurement Model Assessment

Table 3: Measurement Model Quality Assessment

Scale	Items (Admin./Retained)	α	rho_A	CR	AVE	Q^2	Assessment
Self-Leadership (total)	11/11	.892	—	.915	.542	—	Fully adequate
Behavior-Focused	4/4	.825	.853	.948	.821	—	Fully adequate
Natural Reward	3/3	.748	.806	.931	.817	—	Fully adequate
Constructive Thought	4/4	.834	.910	.954	.836	—	Fully adequate
Self-Efficacy	3/3	.705	.706	.837	.630	.232	Fully adequate
Sleep Quality	16/8	.912	.924	.925	.544	—	Fully adequate
Career Decidedness	14/7	.918	.923	.933	.668	.209	Fully adequate
Career Preparation	12/8	.930	.936	.940	.611	.371	Fully adequate

Note. Admin. = administered; Retained = items retained following sequential EFA/CFA. CR = composite reliability; AVE = average variance extracted; Q^2 = Stone-Geisser's predictive relevance (endogenous constructs only). Rho_A = Dijkstra-Henseler's rho (Dijkstra & Henseler, 2015). Recommended thresholds: $\alpha \geq 0.70$, rho_A ≥ 0.70 , CR ≥ 0.70 , AVE ≥ 0.50 , $Q^2 > 0$ (Fornell & Larcker, 1981; Hair et al., 2019).

The measurement model demonstrated adequate to excellent psychometric properties. Cronbach's α values ranged from 0.705 to 0.930, all meeting the 0.70 threshold. The rho_A values ranged from 0.706 to 0.936, all exceeding 0.70 (Dijkstra & Henseler, 2015). Composite reliability values ranged from 0.837 to 0.954, and AVE values ranged from 0.544 to 0.836, all exceeding the recommended threshold of 0.50 (Fornell & Larcker, 1981). Discriminant validity was confirmed using the HTMT ratio; all values were below the conservative threshold of 0.85 (Henseler et al., 2015). All VIF values ranged from 1.42 to 3.80 ($M = 2.64$), well below 5.0, indicating no multicollinearity concerns (Hair et al., 2019).

4.4. Hypothesis Testing Results

Table 4: Direct Path Hypothesis Testing Results

Hypothesis	Path	β	SE	t	p	f^2	Result
H1a	Behavior-Focused \rightarrow Self-Efficacy	0.287	0.086	3.34	.001	.115	Supported
H1b	Natural Reward \rightarrow Self-Efficacy	0.319	0.089	3.58	< .001	.142	Supported
H1c	Constructive Thought \rightarrow Self-Efficacy	0.401	0.078	5.14	< .001	.225	Supported
H2	Sleep Quality \rightarrow Self-Efficacy	-0.243	0.076	-3.20	.002	.083	Supported
H3a	Behavior-Focused \rightarrow Career Decidedness	0.156	0.074	2.11	.035	.034	Supported
H3b	Natural Reward \rightarrow Career Decidedness	0.089	0.065	1.37	.168	.016	Not supported
H3c	Constructive Thought \rightarrow Career Decidedness	0.189	0.071	2.66	.008	.049	Supported
H4	Sleep Quality \rightarrow Career Decidedness	-0.198	0.067	-2.96	.003	.045	Supported
H5	Self-Efficacy \rightarrow Career Decidedness	0.523	0.058	9.02	< .001	.412	Supported
H6a	Behavior-Focused \rightarrow Career Prep Behavior	0.125	0.071	1.76	.079	.022	Not supported
H6b	Natural Reward \rightarrow Career Prep Behavior	0.098	0.063	1.56	.120	.018	Not supported
H6c	Constructive Thought \rightarrow Career Prep Behavior	0.187	0.069	2.71	.007	.041	Supported
H7	Sleep Quality \rightarrow Career Prep Behavior	-0.167	0.058	-2.88	.004	.041	Supported
H8	Self-Efficacy \rightarrow Career Prep Behavior	0.294	0.064	4.59	< .001	.128	Supported
H9	Career Decidedness \rightarrow Career Prep Behavior	0.487	0.062	7.85	< .001	.351	Supported

Note. Bootstrap 95% CIs based on 10,000 replications. Effect size benchmarks: $f^2 = 0.02$ (small), 0.15 (medium), 0.35 (large; Cohen, 1988).

Twelve of 15 direct-path hypotheses received empirical support (80.0%). Three unsupported hypotheses (H3b, H6a, H6b) all involved direct paths bypassing the cognitive mediation mechanisms. Among the supported paths, constructive thought strategies exhibited the strongest

4.3. Structural Model Assessment

The structural model demonstrated strong quality. SRMR was 0.063, below the 0.08 threshold, and NFI was 0.912, exceeding 0.90. The model achieved substantial explanatory power: self-efficacy $R^2 = 0.542$ (moderate), career decidedness $R^2 = 0.619$ (substantial), and career preparation behavior $R^2 = 0.684$ (substantial). Predictive relevance was confirmed through positive Q^2 values for all endogenous constructs: self-efficacy ($Q^2 = 0.232$), career decidedness ($Q^2 = 0.209$), and career preparation behavior ($Q^2 = 0.371$), indicating medium predictive relevance (Hair et al., 2019).

association with self-efficacy ($\beta = 0.401$, $p < .001$, $f^2 = 0.225$). The paths from self-efficacy to career decidedness ($\beta = 0.523$, $f^2 = 0.412$) and from career decidedness to career preparation behavior ($\beta = 0.487$, $f^2 = 0.351$) demonstrated large effects.

4.5. Mediation Analysis Results

Table 5: Sequential Mediation Analysis Results

Mediation Path	Indirect Effect	95% CI	<i>p</i>	VAF
Simple mediation (via Self-Efficacy)				
BF → SE → Career Prep	0.084	[0.041, 0.132]	.001	40.2%
NR → SE → Career Prep	0.094	[0.052, 0.141]	< .001	49.0%
CT → SE → Career Prep	0.118	[0.073, 0.168]	< .001	38.7%
Sleep → SE → Career Prep	-0.071	[-0.118, -0.031]	.002	29.8%
Sequential mediation (SE → CD)				
BF → SE → CD → Career Prep	0.072	[0.032, 0.118]	.041	34.2%
NR → SE → CD → Career Prep	0.081	[0.041, 0.127]	.008	41.8%
CT → SE → CD → Career Prep	0.102	[0.058, 0.151]	< .001	47.3%
Sleep → SE → CD → Career Prep	-0.062	[-0.094, -0.033]	.009	38.7%

Note. BF = behavior-focused strategies; NR = natural reward strategies; CT = constructive thought strategies; SE = self-efficacy; CD = career decidedness. VAF = variance accounted for. All CIs based on 10,000 bootstrap replications. All eight mediation pathways were statistically significant.

The term "sequential mediation" refers to the statistical ordering of variables based on theoretical reasoning rather than temporally sequenced causal processes. VAF values ranged from 29.8% to 49.0% for simple mediation and 34.2% to 47.3% for sequential mediation, suggesting partial mediation in most pathways, with natural reward strategies approaching full mediation (VAF = 49.0%), consistent with the non-significant direct path (H6b).

4.6. Cultural Boundary Conditions

The non-support for H3b (natural reward strategies → career decidedness, $\beta = 0.089$, $p = .168$) reveals potential cultural boundary conditions operating in collectivistic contexts. Korean career decisions involve complex negotiations between individual preferences and family expectations (Kim et al., 2016), in which strategies centered on personal enjoyment may conflict with collectivistic decision-making requirements.

5. Discussion

5.1. Theoretical Contributions and Model Validation

This study provides initial empirical support for a well-being-career integration model among Korean university students. The direct-path hypothesis support rate (80.0%), complete support for all mediation pathways, substantial explanatory power ($R^2 = 0.684$), and confirmed predictive relevance ($Q^2 = 0.371$ for career preparation behavior) provide compelling evidence for the proposed model. This level of variance explanation exceeds typical benchmarks in career development research.

The successful incorporation of sleep quality as a significant correlate represents a meaningful expansion of career development theory. The consistent negative associations between sleep quality and all career variables ($\beta = -0.167$ to -0.243 , all $ps < .01$) establish physiological well-being as a previously overlooked factor. These findings extend SCCT by demonstrating that the "personal factors" domain should encompass foundational physiological states. The findings converge with recent research demonstrating the effectiveness of integrated well-being approaches in university settings (Bjerke & Nordbø, 2024; Hung et al.,

2024).

5.2. Full Mediation Patterns and Theoretical Implications

The non-significant direct paths from behavior-focused strategies (H6a, $\beta = 0.125$, $p = .079$) and natural reward strategies (H6b, $\beta = 0.098$, $p = .120$) to career preparation behavior, combined with their significant indirect effects through self-efficacy (VAF = 40.2% and 49.0%) and the sequential pathway (VAF = 34.2% and 41.8%), suggest full mediation patterns. This aligns with Bandura's (1977) proposition that self-efficacy beliefs are formed through enactive mastery experiences, which self-leadership strategies systematically provide, and with SCCT's theoretical premise that personal inputs influence career actions primarily through cognitive mediating mechanisms (Lent & Brown, 2013). The contrast with constructive thought strategies, which maintained a significant direct path (H6c, $\beta = 0.187$, $p = .007$), suggests that cognitive self-leadership strategies possess unique properties enabling direct behavioral activation.

These differential mediation patterns carry important implications for career intervention design. Programs incorporating behavior-focused and natural reward strategies should explicitly include efficacy-building components, whereas constructive thought interventions may yield both direct and mediated benefits.

5.3. Cultural Boundary Conditions and Theoretical Refinements

The non-support for H3b provides critical insights into cultural boundary conditions for self-leadership theory in collectivistic contexts, consistent with Mau's (2000) cross-cultural research. Self-leadership theory was originally developed within individualistic cultural frameworks (Manz, 1986; Neck & Houghton, 2006), and the present findings highlight the need for culturally sensitive applications. The consistent non-significance of natural reward strategies in both the direct path to career decidedness (H3b) and career preparation behavior (H6b) suggests a systematic cultural filtering effect. In collectivistic career decision-making contexts, intrinsic enjoyment-based strategies may be systematically attenuated at multiple stages of the career development process.

This finding reinforces the need for culturally adapted self-leadership interventions that reframe natural rewards within collectively meaningful career narratives. For Korean university students, identifying career paths that simultaneously generate intrinsic satisfaction and fulfill familial expectations may represent the optimal application of natural reward strategies.

5.4. Methodological Contributions

This study demonstrates the value of comprehensive measurement model evaluation within PLS-SEM frameworks. The three-item self-efficacy scale, validated through a sequential protocol (reliability \rightarrow EFA \rightarrow CFA \rightarrow invariance testing), demonstrates that abbreviated measures can maintain construct validity while reducing respondent burden, with all reliability indicators meeting established thresholds ($\alpha = 0.705$, $\rho_A = 0.706$, CR = 0.837, AVE = 0.630). The comprehensive evaluation protocol—incorporating multiple reliability indicators, convergent validity, discriminant validity (HTMT), multicollinearity diagnostics (VIF), and predictive relevance (Q^2)—establishes a replicable template for PLS-SEM reporting.

5.5. Implications for Campus Health Services

The findings suggest three tiers of intervention for campus health services. The first tier involves sleep health integration: campus career centers should consider incorporating routine sleep quality screening as part of career counseling intake assessments. The second tier involves self-leadership development, emphasizing constructive thought strategies given their largest effect size ($f^2 = 0.225$) and only significant direct path to career preparation behavior ($\beta = 0.187$, $p = .007$). The third tier involves culturally responsive career counseling that integrates family perspectives, given the systematic non-significance of natural reward strategies in collectivistic career decision-making. The substantial mediation role of self-efficacy (VAF = 29.8–49.0%) indicates that efficacy-building activities should be integrated across all three tiers.

5.6. Limitations

Several limitations warrant consideration. First, the cross-sectional design precludes causal inference, and the mediation analyses represent patterns of association rather than established causal chains. Second, all study variables were assessed through self-report measures at a single time point, creating potential for common method bias. While procedural remedies were employed (respondent anonymity, counterbalanced scale presentation, validated measures with distinct response anchors), the study did not include a statistical test for common method bias. Future research should incorporate temporal separation of predictor and criterion measures. Third, the absence of control variables such as depression, anxiety, socioeconomic background, and academic performance may inflate effect estimates. Fourth, the exclusive reliance on self-reported sleep quality may share method variance with other self-reported career variables. Fifth, the gender imbalance (65.3% female) was addressed through measurement invariance testing; however,

the male subsample ($n = 74$) limited the power for detecting gender differences. Sixth, the cultural specificity of the Korean sample limits generalizability.

5.7. Future Research Directions

Longitudinal research employing multiple measurement waves is essential to establish causal mechanisms. Future studies should integrate objective sleep measurement technologies and comprehensive common method bias testing. Cross-cultural validation studies are needed to establish boundary conditions. Randomized controlled trials testing integrated well-being-career interventions should measure both immediate outcomes and long-term career development indicators.

6. Conclusions

This study proposes and provides initial empirical support for a well-being-career integration model among Korean career-transitioning university students. The model explained 68.4% of variance in career preparation behavior, 12 of 15 direct-path hypotheses were supported, all mediation pathways reached significance, and predictive relevance was confirmed for all endogenous constructs ($Q^2 = 0.209-0.371$). The findings demonstrate that effective career development may require attention to both self-regulatory capabilities and foundational physiological well-being, operating through cognitive pathways involving self-efficacy and career decidedness. The cultural boundary conditions identified, particularly the systematic non-significance of natural reward strategies, highlight the importance of culturally sensitive approaches. Given the cross-sectional design, potential for common method bias, and absence of control variables, future research employing longitudinal designs, objective sleep measurement, and experimental intervention testing is essential.

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