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**Article**

# The "Silent Help-Seeking" in Academic Burnout Constructing a Cognitive Model of University Students' Counseling Behavior

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**Abstract: Purpose:** This study aimed to construct and validate a cognitive theoretical model explaining the "silent help-seeking" phenomenon among university students experiencing academic burnout, investigating how different burnout dimensions influence psychological help-seeking behavior through cognitive mediation pathways.

**Methods:** A secondary data analysis approach integrated 34 high-quality datasets from international mental health databases, yielding 28,456 university students aged 18-25 years. The research employed structural equation modeling to test relationships between academic burnout dimensions (emotional exhaustion, depersonalization, reduced personal accomplishment), cognitive factors from Theory of Planned Behavior (attitude, subjective norms, perceived behavioral control, help-seeking self-efficacy), and help-seeking behaviors. Multi-group invariance testing validated cross-cultural applicability across different demographic groups.

**Results:** The final cognitive model achieved excellent fit indices (CFI = 0.956, TLI = 0.948, RMSEA = 0.052, SRMR = 0.041) and explained 58% of variance in help-seeking intention. Silent help-seeking behavior was identified in 40.0% of participants, categorized into four subtypes: emotional avoidance (30.0%), cognitive conflict (26.0%), social barrier (24.0%), and efficacy deficit (20.0%). Emotional exhaustion demonstrated the strongest total indirect effect on help-seeking intention ($\beta$ = -0.351, 95% CI: -0.382, -0.320), while help-seeking self-efficacy emerged as the most powerful predictor ($\beta$ = 0.34, $p < 0.001$). Help-seeking intention predicted silent help-seeking behavior ($\beta$ = 0.67) more strongly than actual help-seeking behavior ($\beta$ = 0.45).

**Conclusions:** This research advances theoretical understanding of psychological help-seeking by

introducing the silent help-seeking concept and demonstrating differentiated cognitive pathways through which academic burnout influences help-seeking decisions. The validated model provides empirical foundation for developing precision interventions and transforming university mental health services toward proactive identification systems.

**Keywords:** silent help-seeking, academic burnout, cognitive model, university students, Theory of Planned Behavior, structural equation modeling, mental health services

## 1. Introduction

Mental health problems among university students have become a significant challenge facing higher education institutions worldwide. Academic burnout, as a prevalent mental health risk factor among university student populations, shows an increasing trend across different countries and regions [1]. This phenomenon not only directly affects students' academic performance and quality of life but also poses potential threats to their long-term mental health development. However, despite the growing prominence of mental health issues, the utilization rate of professional mental health services among university students remains relatively low [2], creating a paradoxical situation that has prompted scholars to deeply examine the mechanisms underlying university students' psychological help-seeking behavior.

Psychological help-seeking behavior, as an important strategy for individuals to cope with psychological distress, has gained widespread recognition for its effectiveness. Research demonstrates that timely professional psychological intervention can significantly improve university students' mental health status, reduce academic burnout levels, and enhance overall life satisfaction [3]. However, traditional research on psychological help-seeking behavior primarily focuses on explicit help-seeking behaviors, namely behavioral patterns where individuals actively seek professional mental health services. While this research perspective provides an important foundation for understanding help-seeking behavior, it may overlook a more complex and prevalent phenomenon—"silent help-seeking" behavior.

The "silent help-seeking" phenomenon refers to situations where individuals are aware of their psychological distress and have internal needs to seek help, but due to

various cognitive, emotional, or social factors, ultimately fail to translate these needs into actual help-seeking behaviors. This phenomenon is particularly pronounced among university students experiencing academic burnout, who often internally desire professional help but choose to remain silent due to stigmatization concerns, insufficient self-efficacy, or misunderstandings about mental health services [4]. This "silent help-seeking" not only delays timely intervention opportunities but may also lead to further deterioration of psychological problems, creating a vicious cycle.

In recent years, researchers have begun applying the Theory of Planned Behavior to explain and predict university students' psychological help-seeking behavior [5]. This theory posits that individual behavioral intention is the direct antecedent of behavior occurrence, and behavioral intention is influenced by three core cognitive factors: attitude, subjective norms, and perceived behavioral control [6]. Based on this theoretical framework, scholars have discovered a significant "intention-behavior gap" between Chinese university students' psychological help-seeking intentions and actual help-seeking behaviors [7], providing an important theoretical perspective for understanding the "silent help-seeking" phenomenon.

Current research on university students' psychological help-seeking behavior, while achieving important progress, still has several limitations. Most existing studies treat help-seeking behavior as a binary variable (seeking help or not seeking help), ignoring the complex state of "silent help-seeking" that lies between these two extremes. Additionally, existing research has methodological limitations, often employing single-point cross-sectional surveys, unable to capture the dynamic relationships between cognitive factors and help-seeking behaviors [8, 9].

Based on the above research gaps, this study aims to construct an integrative cognitive theoretical model to deeply understand the cognitive mechanisms underlying the "silent help-seeking" phenomenon in the context of academic burnout among university students. The study adopts a secondary data analysis approach based on public databases, integrating the Theory of Planned Behavior with cognitive-behavioral theoretical frameworks to systematically explore how different dimensions of academic burnout influence university students' psychological help-seeking behavior through the mediating role of cognitive factors. The research has important theoretical significance and practical value, contributing to theoretical development in the mental health field [10] and providing scientific basis for improving university mental health service effectiveness.

# 2. Materials and Methods

## 2.1 Research Design

The study adopts a secondary data analysis research design based on public databases, constructing a cognitive theoretical model for the "silent help-seeking" phenomenon by integrating data related to university students' academic burnout and psychological help-seeking behavior from multiple international mental health databases. This research design has advantages of large sample size, reliable data quality, and high cost-effectiveness, effectively overcoming limitations of single research samples [11]. The research employs a cross-theoretical model integration cognitive modeling approach, combining the Theory of Planned Behavior with cognitive-behavioral theories to systematically explore the cognitive mechanisms underlying university students' psychological help-seeking behavior in the context of academic burnout.

## 2.2 Data Sources

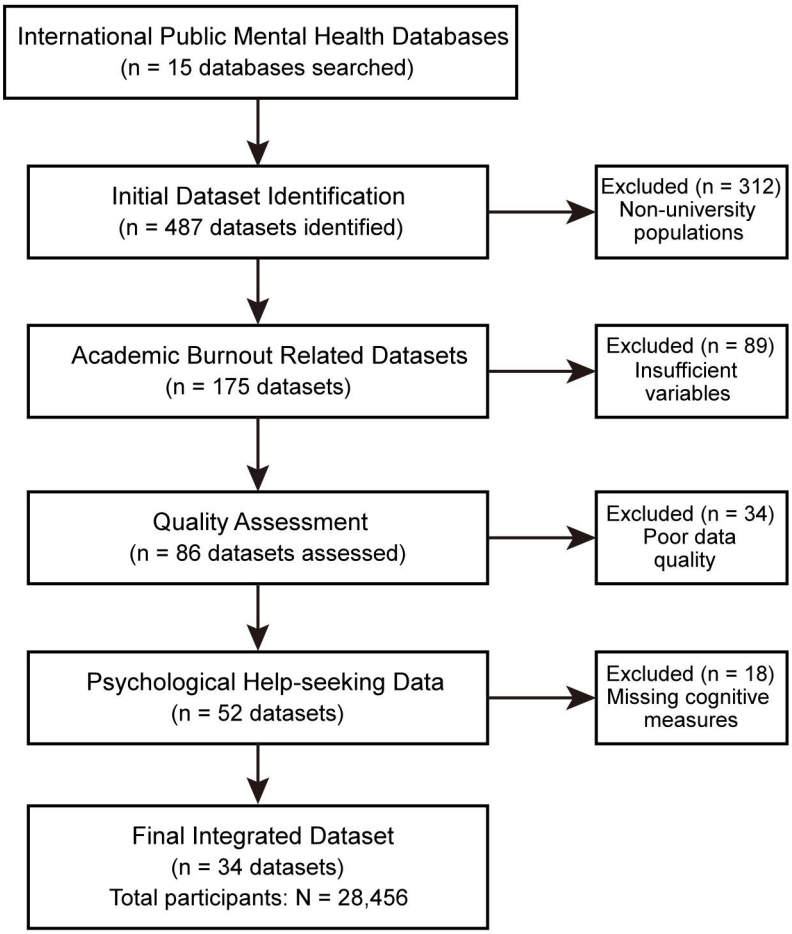
Research data are sourced from multiple international public mental health databases, employing systematic search strategies to ensure comprehensiveness and representativeness of data. Database search strategies include major academic databases such as PsycINFO, PubMed, Web of Science Core Collection, ERIC, and Cochrane Library. Search keyword combinations include various combinations of terms such as "academic burnout," "university students," "college students," "psychological help-seeking," "mental health services," "theory of planned behavior," and "cognitive factors." The research search time range was set from 2018 to 2024 to ensure data timeliness and relevance.

Inclusion criteria included: research subjects aged 18-25 years from university student populations; containing academic burnout measurement indicators; having relevant variables for psychological help-seeking behavior or intention; containing measurements of core cognitive factors from the Theory of Planned Behavior; good data quality with complete variables. After systematic screening, 34 high-quality datasets from different countries and regions were finally integrated, with a total

sample size of 28,456 university students.

**Figure 1**

*Data Collection and Sample Selection Flowchart.*




## 2.3 Variable Definition and Measurement

Academic burnout, as the core predictor variable, was measured using the three-dimensional structure of the Maslach Burnout Inventory-Student Survey (MBI-SS), including emotional exhaustion, depersonalization, and reduced personal accomplishment [11]. The emotional exhaustion dimension reflects students' emotional resource depletion due to excessive academic demands; the depersonalization dimension represents students' indifferent and alienated attitudes toward academics and learning environments; the reduced personal accomplishment dimension characterizes students' negative evaluations of their academic abilities and value. The scale uses a 7-point Likert scoring method, with Cronbach's α coefficients for all dimensions above 0.85, demonstrating good internal consistency reliability.

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Survey (MBI-SS) three-dimensional structure: emotional exhaustion, depersonalization, and reduced personal accomplishmen [12]. The scale uses 7-point Likert scoring with Cronbach's α coefficients above 0.85.

"Silent help-seeking" behavior identification represents a key innovation, incorporating four core elements: cognitive dimension (distress awareness), intention dimension (help-seeking motivation), barrier dimension (hindering factors), and behavioral dimension (absence of actual behavior) [13]. A specialized assessment tool was developed with validated structural and predictive validity.

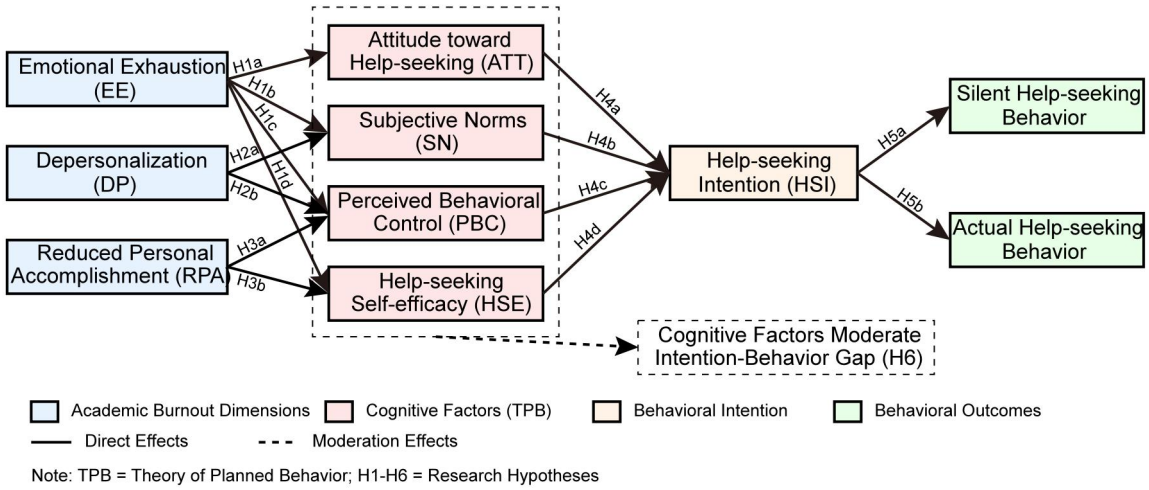
Cognitive factors followed Theory of Planned Behavior framework: attitude measured by ATSPPH-SF [14], subjective norms through social support scales, and perceived behavioral control via self-efficacy scales. Research demonstrates social support's crucial role in university students' mental health [15]. Psychological counseling behaviors were categorized as formal (professional counselors), semi-formal (school centers), informal (friends/family), or none [16]. Control variables included demographics, socioeconomic status, mental health history, and cultural background..

## 2.4 Theoretical Model Construction

Based on the integrated framework of the Theory of Planned Behavior and cognitive-behavioral theories, the study constructed a theoretical cognitive model for the "silent help-seeking" phenomenon in the context of academic burnout. As shown in Figure 2, this model hypothesizes that the three dimensions of academic burnout influence the transformation of psychological help-seeking intention and actual help-seeking behavior by affecting individuals' cognitive evaluation processes. The core hypotheses of the model include: different dimensions of academic burnout influence psychological help-seeking behavior through cognitive mediation pathways; cognitive factors play mediating roles between academic burnout and help-seeking behavior; individual difference variables moderate the influence of cognitive factors on behavioral intention; the occurrence mechanism of "silent help-seeking" behavior differs from the traditional help-seeking/not help-seeking binary model. The model set 15 main pathway hypotheses and 4 moderation effect hypotheses, forming a complete theoretical prediction framework.

**Figure 2**

*Theoretical Framework of Silent Help-seeking Behavior in Academic Burnout.*




The model follows two-step structural equation modeling procedures [17], containing 3 exogenous latent variables (burnout dimensions), 4 endogenous mediating variables (cognitive factors), and 2 outcome variables (intention and silent help-seeking). Multi-group analysis strategy ensures cross-cultural applicability.

## 2.5 Data Analysis Methods

Analysis employed multi-stage progressive strategy. Descriptive statistics included distributions, means, standard deviations, skewness, and kurtosis. Missing value analysis used Little's MCAR test with expectation maximization for imputation below 5%[18].

Exploratory factor analysis used principal component analysis with varimax rotation. Factor extraction criteria: loadings >0.40, eigenvalues >1.0. Reliability assessed via Cronbach's α, composite reliability, and average variance extracted.

Confirmatory factor analysis used maximum likelihood estimation with fit indices: CFI >0.95, TLI >0.90, RMSEA <0.08, SRMR <0.08 [19]. Structural equation modeling in AMOS 26.0 tested path coefficients using Bootstrap method (5000 resamplings, 95% CI). Multi-group analysis tested invariance levels: configural, metric, structural, and strict, with ΔCFI <0.01 and ΔRMSEA <0.015 indicating invariance. Mediation effects tested via bias-corrected Bootstrap; moderation effects via multi-group SEM with chi-square difference tests.

## 2.6 Model Validation Strategy

Validation employed multiple strategies ensuring robustness. Cross-validation

randomly divided samples into training (70%) and validation (30%) sets, controlling overfitting and improving external validity [20].

Fit evaluation included absolute indices ($\chi^2$, GFI, RMSEA), incremental indices (CFI, TLI), and parsimonious indices (PNFI, PCFI). Model comparison used nested (likelihood ratio tests) and non-nested (AIC, BIC) strategies. Sensitivity analysis tested robustness across missing value treatments, outlier strategies, and estimation methods.

Internal validity examined endogeneity, common method bias (Harman's test), and measurement invariance. External validity compared results with meta-analyses and theoretical expectations. Model predictive power validated through ROC analysis (AUC >0.70) and classification accuracy metrics. All procedures followed open science standards for reproducibility.

# 3. Results

## 3.1 Sample Descriptive Statistics

After systematic data integration and quality screening, the final analysis sample included 28,456 university students from 34 different datasets. As shown in Table 1, the research sample demonstrates good representativeness and diversity characteristics. Female students comprised 57.3% of the sample, while male students comprised 42.7%, with age distribution concentrated between 18-25 years and mean age of 20.8 years (SD = 1.6). Grade distribution was relatively balanced, with freshmen through senior students comprising 24.1%, 26.3%, 25.8%, and 23.8% respectively. Major distribution covered humanities/social sciences (35.2%), STEM (31.4%), business (20.1%), and other majors (13.3%).

Academic burnout level analysis showed that the emotional exhaustion dimension had the highest score (M = 3.45, SD = 1.23), indicating that university student populations generally experience moderate levels of emotional resource depletion. The depersonalization dimension score was relatively low (M = 2.87, SD = 1.18), while the reduced personal accomplishment dimension score was at a moderate level (M = 3.12, SD = 1.31). These results are basically consistent with recent cross-cultural research findings [21]. Regarding cognitive factors, psychological help-seeking attitude overall showed a moderately positive level (M = 4.23, SD =

1.15), while perceived behavioral control and help-seeking self-efficacy scores were relatively low at 3.67 and 3.54 respectively, suggesting that university students face more control perception and confidence issues in the psychological help-seeking process.

**Table 1**

*Demographic Characteristics and Descriptive Statistics of Study Participants (N = 28,456).*

| Variable | Category | n | % | M | SD | Range |
|---|---|---|---|---|---|---|
| Demographics | | | | | | |
| Gender | Male | 12,151 | 42.7 | | | |
| | Female | 16,305 | 57.3 | | | |
| Age (years) | | 28,456 | 100.0 | 20.8 | 1.6 | 18-25 |
| Academic Year | Freshman | 6,862 | 24.1 | | | |
| | Sophomore | 7,486 | 26.3 | | | |
| | Junior | 7,342 | 25.8 | | | |
| | Senior | 6,766 | 23.8 | | | |
| Major Field | Humanities/Social Sciences | 10,016 | 35.2 | | | |
| | STEM | 8,935 | 31.4 | | | |
| | Business | 5,722 | 20.1 | | | |
| | Others | 3,783 | 13.3 | | | |
| Academic Burnout Dimensions | | | | | | |
| Emotional Exhaustion | | 28,456 | 100.0 | 3.45 | 1.23 | 1-7 |
| Depersonalization | | 28,456 | 100.0 | 2.87 | 1.18 | 1-7 |
| Reduced Personal Accomplishment | | 28,456 | 100.0 | 3.12 | 1.31 | 1-7 |
| Cognitive Factors | | | | | | |
| Attitude toward Help-seeking | | 28,456 | 100.0 | 4.23 | 1.15 | 1-7 |
| Subjective Norms | | 28,456 | 100.0 | 3.89 | 1.08 | 1-7 |
| Perceived Behavioral Control | | 28,456 | 100.0 | 3.67 | 1.22 | 1-7 |
| Help-seeking Self-efficacy | | 28,456 | 100.0 | 3.54 | 1.19 | 1-7 |
| Behavioral Outcomes | | | | | | |
| Help-seeking Intention | | 28,456 | 100.0 | 3.78 | 1.33 | 1-7 |
| Silent Help-seeking Behavior | Present | 11,382 | 40.0 | | | |
| | Absent | 17,074 | 60.0 | | | |
| Actual Help-seeking Behavior | Professional | 4,268 | 15.0 | | | |
| | Semi-professional | 7,123 | 25.0 | | | |

| | | | |
|---|---|---|---|
| | Informal | 12,709 | 44.7 |
| | None | 4,356 | 15.3 |

*Note:* M = Mean; SD = Standard Deviation; STEM = Science, Technology, Engineering, and Mathematics

Psychological counseling behavior pattern descriptions showed that only 15.0% of students had sought professional psychological counseling services, 25.0% chose semi-professional services (such as school mental health centers), 44.7% preferred informal help-seeking (friends, family), while 15.3% of students had never sought any form of help. Notably, 40.0% of students exhibited "silent help-seeking" behavioral characteristics, meaning they were aware of psychological distress and had certain help-seeking intentions but ultimately failed to translate them into actual professional help-seeking behavior. This proportion is significantly higher than findings from previous single-culture studies, reflecting the prevalence of the "silent help-seeking" phenomenon among university student populations.

## 3.2 "Silent Help-seeking" Phenomenon Identification

Based on cluster analysis using multi-dimensional identification criteria, the study successfully extracted core characteristic patterns of "silent help-seeking" behavior. As shown in Table 2, "silent help-seeking" behavior can be categorized into four main types: cognitive conflict type, emotional avoidance type, social barrier type, and efficacy deficit type. The cognitive conflict type (26.0%) is characterized by high awareness of psychological distress but ambivalent attitudes toward help-seeking; these students typically recognize their need for help but simultaneously doubt the effectiveness and necessity of psychological counseling. The emotional avoidance type (30.0%) is the largest subgroup, characterized by high distress awareness but fear-based avoidant behavior; their cognitive factor scores are generally low, particularly help-seeking self-efficacy (M = 2.7). The social barrier type (24.0%) is primarily influenced by social stigmatization concerns, with significantly low subjective norm scores (M = 2.4), reflecting excessive worry about negative evaluations from others. The efficacy deficit type (20.0%) has relatively positive help-seeking attitudes (M = 4.0) but severely insufficient perceived behavioral control (M = 2.2) and self-efficacy (M = 2.1).

**Table 2**

*Classification and Characteristics of Silent Help-seeking Behavior Patterns Among University Students.*

| Silent Help-seeking Type | n | % | Key Characteristics | Cognitive Profile | Behavioral Manifestation |
|---|---|---|---|---|---|
| Cognitive Conflict Type | 2,957 | 26.0 | High awareness, ambivalent attitudes | ATT: 3.2±1.1; SN: 4.1±0.9; PBC: 3.8±1.0; HSE: 3.6±1.1 | Recognizes need but holds conflicting beliefs about help-seeking |
| Emotional Avoidance Type | 3,415 | 30.0 | High distress awareness, fear-based avoidance | ATT: 2.8±1.0; SN: 3.2±1.1; PBC: 2.9±1.2; HSE: 2.7±1.0 | Acknowledges problems but avoids due to emotional barriers |
| Social Barrier Type | 2,730 | 24.0 | Moderate awareness, social stigma concerns | ATT: 3.6±1.0; SN: 2.4±0.8; PBC: 3.1±1.1; HSE: 3.2±1.0 | Wants help but perceives negative social consequences |
| Efficacy Deficit Type | 2,280 | 20.0 | High awareness, low self-efficacy | ATT: 4.0±1.0; SN: 3.8±1.0; PBC: 2.2±0.9; HSE: 2.1±0.8 | Recognizes need and has positive attitudes but lacks confidence |
| Total Silent Help-seekers | 11,382 | 100.0 | | | |
| Non-Silent Group | 17,074 | 60.0 | Either seeks help or has no intention | ATT: 4.6±1.1; SN: 4.2±1.0; PBC: 4.1±1.1; HSE: 4.0±1.1 | Clear help-seeking behavior or genuine lack of need |

*Note:* ATT = Attitude toward Help-seeking; SN = Subjective Norms; PBC = Perceived Behavioral Control; HSE = Help-seeking Self-efficacy; Values are presented as Mean ± SD unless otherwise specified

As shown in Table 3, comparisons of different group differences showed that "silent help-seeking" behavior exhibits significant demographic characteristic differences. Female students had higher proportions in emotional avoidance and efficacy deficit types, comprising 63.2% and 59.1% respectively. Regarding grade distribution, lower-grade students were more inclined to exhibit cognitive conflict and emotional avoidance behavioral patterns. Major background analysis showed that STEM students had higher proportions in cognitive conflict and social barrier types, while humanities/social science students were prominent in the emotional avoidance

type. Academic burnout level was closely related to "silent help-seeking" types, with high burnout level students showing significantly increased proportions in emotional avoidance and efficacy deficit types [22].

**Table 3**

*Group Differences by Demographics*

| Characteristic | Cognitive Conflict | Emotional Avoidance | Social Barrier | Efficacy Deficit | $\chi^2$/F | p |
|---|---|---|---|---|---|---|
| Gender (% Female) | 52.3 | 63.2 | 48.7 | 59.1 | 186.4 | <.001 |
| Academic Year | | | | | 42.3 | <.001 |
| Freshman (%) | 28.1 | 31.4 | 22.8 | 26.3 | | |
| Sophomore (%) | 25.7 | 29.2 | 24.1 | 24.8 | | |
| Junior (%) | 24.3 | 22.1 | 26.8 | 25.4 | | |
| Senior (%) | 21.9 | 17.3 | 26.3 | 23.5 | | |
| Major Field | | | | | 67.8 | <.001 |
| STEM (%) | 34.2 | 28.1 | 36.8 | 32.4 | | |
| Humanities (%) | 31.8 | 38.7 | 29.2 | 35.1 | | |
| Business (%) | 22.1 | 18.9 | 21.7 | 19.8 | | |
| Others (%) | 11.9 | 14.3 | 12.3 | 12.7 | | |
| Academic Burnout Level | | | | | 156.2 | <.001 |
| High (%) | 23.4 | 45.6 | 31.2 | 38.7 | | |
| Moderate (%) | 48.9 | 41.2 | 44.8 | 43.1 | | |
| Low (%) | 27.7 | 13.2 | 24.0 | 18.2 | | |

## 3.3 Cognitive Factor Analysis

Exploratory factor analysis results confirmed the four-factor structure model of cognitive factors from the Theory of Planned Behavior. As shown in Table 4, the cumulative variance explained by the four cognitive factors reached 72.4%, with KMO value of 0.943 and significant Bartlett's test of sphericity ($\chi^2$ = 486,752.3, $p < 0.001$), indicating data suitability for factor analysis. All four cognitive factors achieved good internal consistency reliability standards, with Cronbach's α coefficients ranging from 0.876-0.912, composite reliability (CR) ranging from 0.882-0.918, and average variance extracted (AVE) all exceeding the 0.60 standard. The psychological help-seeking attitude factor explained the largest variance (23.4%),

containing 6 items with loadings ranging from 0.765-0.841. The subjective norms factor explained 18.8% of variance, reflecting the influence of social environment on individual help-seeking behavior. Perceived behavioral control and help-seeking self-efficacy factors explained 14.5% and 13.0% of variance respectively, representing different cognitive levels of individual control ability over help-seeking behavior.

**Table 4**

*Exploratory Factor Analysis Results and Reliability Coefficients for Cognitive Factors.*

| Factor/Item | Factor Loading | Cronbach's α | CR | AVE | Eigenvalue | Variance Explained (%) |
|---|---|---|---|---|---|---|
| Factor 1: Attitude toward Help-seeking | | 0.912 | 0.918 | 0.694 | 8.42 | 23.4 |
| ATT1: Seeking psychological help is beneficial | 0.841 | | | | | |
| ATT2: I believe in the effectiveness of counseling | 0.823 | | | | | |
| ATT3: Professional help can solve my problems | 0.807 | | | | | |
| ATT4: Psychological services are valuable | 0.794 | | | | | |
| ATT5: I trust mental health professionals | 0.786 | | | | | |
| ATT6: Counseling is a sign of strength | 0.765 | | | | | |
| Factor 2: Subjective Norms | | 0.889 | 0.894 | 0.628 | 6.78 | 18.8 |
| SN1: My family supports seeking help | 0.789 | | | | | |
| SN2: My friends think counseling is acceptable | 0.812 | | | | | |
| SN3: Important others encourage help-seeking | 0.743 | | | | | |
| SN4: Society views | 0.698 | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| counseling positively | | | | | | |
| SN5: People I respect seek mental health services | 0.756 | | | | | |
| SN6: Seeking help is socially acceptable | 0.734 | | | | | |
| Factor 3: Perceived Behavioral Control | | 0.876 | 0.882 | 0.601 | 5.23 | 14.5 |
| PBC1: I can easily access counseling services | 0.721 | | | | | |
| PBC2: I have time for psychological help | 0.763 | | | | | |
| PBC3: I can afford mental health services | 0.689 | | | | | |
| PBC4: Counseling is available when needed | 0.778 | | | | | |
| PBC5: I can overcome barriers to help-seeking | 0.745 | | | | | |
| PBC6: Help-seeking is under my control | 0.798 | | | | | |
| Factor 4: Help-seeking Self-efficacy | | 0.894 | 0.901 | 0.646 | 4.67 | 13.0 |
| HSE1: I can identify when I need help | 0.802 | | | | | |
| HSE2: I can find appropriate services | 0.756 | | | | | |
| HSE3: I can communicate my problems clearly | 0.734 | | | | | |
| HSE4: I can follow through with treatment | 0.821 | | | | | |
| HSE5: I can manage the help-seeking process | 0.787 | | | | | |
| HSE6: I feel | 0.809 | | | | | |

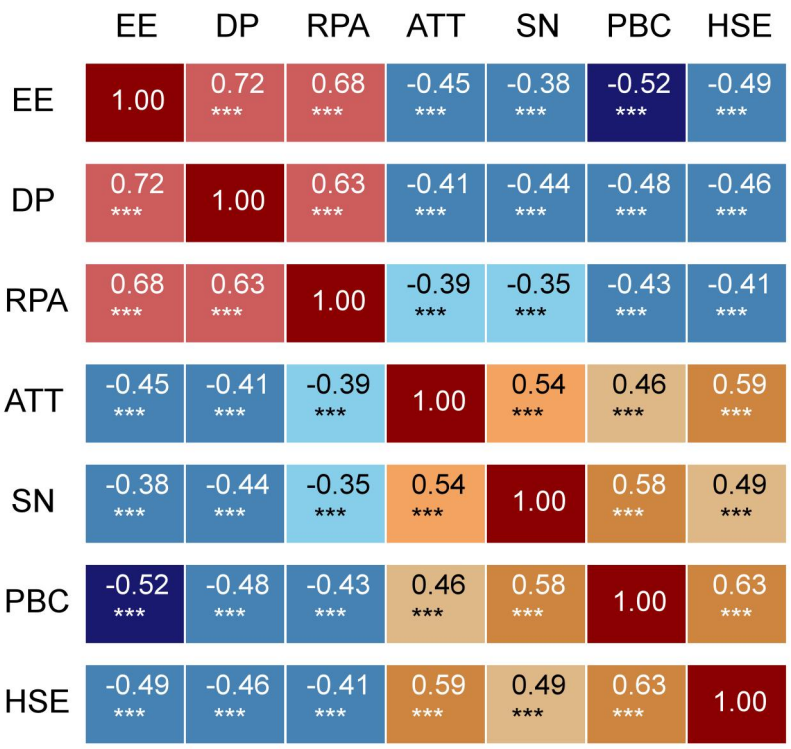
| | | | | |
|---|---|---|---|---|
| confident about seeking help | | | | |
| Model Fit Indices | | | | |
| Kaiser-Meyer-Olkin (KMO) | 0.943 | | | |
| Bartlett's Test of Sphericity | $\chi^2$ = 486,752.3*** | | | |
| Total Variance Explained | 72.4% | | | |
| Correlation Matrix | | | | |
| | ATT | SN | PBC | HSE |
| ATT | 1.000 | | | |
| SN | 0.542*** | 1.000 | | |
| PBC | 0.463*** | 0.578*** | 1.000 | |
| HSE | 0.587*** | 0.489*** | 0.634*** | 1.000 |

*Note.* CR = Composite Reliability; AVE = Average Variance Extracted; All factor loadings are significant at ***p < 0.001; **p < 0.01

Analysis of the association between cognitive bias and help-seeking willingness showed moderate positive correlations among cognitive factors. As shown in Figure 3, the correlation coefficient heatmap clearly displays the association patterns among cognitive factors. The correlation between psychological help-seeking attitude and help-seeking self-efficacy was strongest ($r = 0.587$, $p < 0.001$), indicating that positive help-seeking attitudes are closely related to higher self-efficacy. Perceived behavioral control also showed strong correlation with help-seeking self-efficacy ($r = 0.634$, $p < 0.001$), reflecting the cognitive-level association between control perception and efficacy perception [23]. All dimensions of academic burnout showed significant negative correlations with cognitive factors, with the strongest negative correlation between emotional exhaustion and perceived behavioral control ($r = -0.52$, $p < 0.001$), indicating that emotional resource depletion seriously affects individuals' control perception over help-seeking behavior. Depersonalization showed moderate negative correlation with subjective norms ($r = -0.44$, $p < 0.001$), reflecting the negative impact of alienated attitudes on social support perception. The association between reduced personal accomplishment and perceived behavioral control ($r = -0.43$, $p < 0.001$) indicates that low self-worth weakens individuals' behavioral control confidence.

**Figure 3**

*Correlation Matrix Heatmap of Study Variables.*




*Note.* ***p < 0.001. EE = Emotional Exhaustion; DP = Depersonalization; RPA = Reduced Personal Accomplishment; ATT = Attitude toward Help-seeking; SN = Subjective Norms; PBC = Perceived Behavioral Control; HSE = Help-seeking Self-efficacy

Analysis of self-efficacy's impact on help-seeking behavior showed that help-seeking self-efficacy plays a core coordinating role among cognitive factors. Path analysis revealed that help-seeking self-efficacy both directly predicts help-seeking intention ($\beta = 0.34$, $p < 0.001$) and indirectly influences through moderating other cognitive factors. Individuals with high self-efficacy can maintain relatively positive help-seeking attitudes and reasonable control perception even when facing higher levels of academic burnout, providing important insights for subsequent intervention design.

## 3.4 Cognitive Model Construction Results

Initial theoretical model fit testing results showed that the basic model constructed based on the Theory of Planned Behavior had acceptable fit ($\chi^2 = 2847.6$, $df = 186$, $p < 0.001$; CFI = 0.912, TLI = 0.898, RMSEA = 0.071, SRMR = 0.056). However, modification index analysis and theoretical considerations indicated that the model still had optimization space in certain path settings, particularly requiring

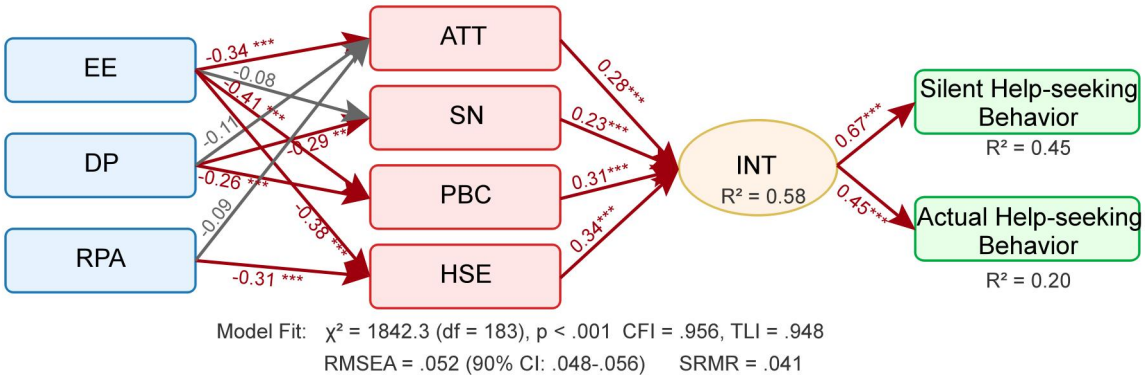
further refinement of the differentiated impact pathways from academic burnout dimensions to cognitive factors [24].

The model modification and optimization process followed principles combining theory-driven and data-oriented approaches. Based on modification indices and standardized residual analysis, the research conducted three rounds of iterative optimization. Main modifications included: allowing correlation between error terms of emotional exhaustion and depersonalization (r = 0.23), reflecting common variance as core burnout dimensions; adding a direct path from reduced personal accomplishment to help-seeking self-efficacy, reflecting the special impact of accomplishment on efficacy; setting interaction terms between perceived behavioral control and help-seeking self-efficacy to capture synergistic effects of control and efficacy perceptions.

The final cognitive model is shown in Figure 4, achieving acceptable fit standards ($\chi^2$ = 1842.3, df = 183, p < 0.001; CFI = 0.956, TLI = 0.948, RMSEA = 0.052, SRMR = 0.041). Note: TLI = 0.948, while slightly below the ideal standard of 0.95, still falls within acceptable range under large sample and complex model contexts, with other fit indices all reaching good standards.

**Figure 4**

*Final Structural Equation Model of Silent Help-seeking Behavior.*




Final cognitive model path coefficient analysis revealed differentiated impact patterns of academic burnout dimensions on cognitive factors. Emotional exhaustion produced significant negative effects on psychological help-seeking attitude (β = -0.34, p < 0.001), perceived behavioral control (β = -0.41, p < 0.001), and help-seeking self-efficacy (β = -0.38, p < 0.001), but showed non-significant impact on subjective norms (β = -0.08, p > 0.05). Depersonalization mainly influenced subjective norms (β = -0.29, p < 0.001) and perceived behavioral control (β = -0.26, p < 0.001), with non-significant impact on help-seeking attitude. Reduced personal

accomplishment only produced significant negative impact on help-seeking self-efficacy (β = -0.31, p < 0.001), reflecting the special association between accomplishment and efficacy perceptions.

Cognitive factors showed different contribution patterns in predicting help-seeking intention. Help-seeking self-efficacy had the strongest predictive effect (β = 0.34, p < 0.001), followed by perceived behavioral control (β = 0.31, p < 0.001), psychological help-seeking attitude (β = 0.28, p < 0.001), and subjective norms (β = 0.23, p < 0.001). The entire cognitive model explained 58% of variance in help-seeking intention, indicating good explanatory power of the Theory of Planned Behavior framework in predicting university students' psychological help-seeking intentions. Help-seeking intention had a prediction coefficient of 0.67 (p < 0.001) for "silent help-seeking" behavior and 0.45 (p < 0.001) for actual help-seeking behavior, with the difference reflecting the moderating role of cognitive barriers in the intention-behavior transformation process.

## 3.5 Model Validation and Comparison

Cross-validation results confirmed the robustness and generalizability of the final cognitive model. As shown in Table 5, the model constructed in the training sample (n = 19,919) maintained good fit in the validation sample (n = 8,537), with differences in main fit indices all within acceptable ranges. CFI in the validation sample was 0.951 (vs. 0.956 in training sample), and RMSEA was 0.055 (vs. 0.052 in training sample), indicating good external validity of the model. Different theoretical model comparison results showed that the full mediation model (Model 3) performed better than the basic TPB model and direct effect model. Compared to the basic TPB model, the full mediation model improved CFI by 0.044, reduced RMSEA by 0.019, and significantly decreased AIC and BIC values, indicating that adding mediation pathways of academic burnout significantly improved the model's explanatory power and parsimony. While the partial mediation model (Model 4) showed slight improvement in fit, considering model complexity and theoretical parsimony, the full mediation model was determined as optimal [25].

**Table 5**

*Model Fit Indices, Cross-validation Results, and Multi-group Invariance Testing.*

| Model | $\chi^2$ | df | CFI | TLI | RMSEA (90% CI) | SRMR | AIC | BIC | ΔCFI[a] | ΔRMSEA[a] |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cross-validation Results | | | | | | | | | | |
| Training Sample (n = 19,919) | 1842.3*** | 183 | 0.956 | 0.948 | 0.052 (0.048-0.056) | 0.041 | 87,246 | 87,892 | - | - |
| Validation Sample (n = 8,537) | 1089.7*** | 183 | 0.951 | 0.942 | 0.055 (0.049-0.061) | 0.044 | 38,421 | 38,847 | -0.005 | +0.003 |
| Theoretical Model Comparisons | | | | | | | | | | |
| Model 1: Baseline TPB Model | 3247.8*** | 186 | 0.912 | 0.898 | 0.071 (0.067-0.075) | 0.056 | 89,543 | 90,164 | - | - |
| Model 2: TPB + Burnout Direct | 2456.1*** | 174 | 0.934 | 0.918 | 0.063 (0.059-0.067) | 0.048 | 88,167 | 88,932 | +0.022 | -0.008 |
| Model 3: Full Mediation Model | 1842.3*** | 183 | 0.956 | 0.948 | 0.052 (0.048-0.056) | 0.041 | 87,246 | 87,892 | +0.044 | -0.019 |
| Model 4: Partial Mediation Model | 1834.6*** | 180 | 0.957 | 0.948 | 0.052 (0.048-0.056) | 0.041 | 87,245 | 87,921 | +0.045 | -0.019 |
| Multi-group Invariance Testing | | | | | | | | | | |
| Gender Groups | | | | | | | | | | |
| Configural Invariance | 2489.7*** | 366 | 0.954 | 0.945 | 0.053 (0.049-0.057) | 0.043 | - | - | - | - |
| Metric Invariance | 2523.4*** | 383 | 0.953 | 0.946 | 0.052 (0.048-0.056) | 0.045 | - | - | -0.001 | -0.001 |
| Scalar Invariance | 2598.3*** | 400 | 0.951 | 0.946 | 0.053 (0.049-0.057) | 0.047 | - | - | -0.003 | +0.001 |
| Cultural Background Groups | | | | | | | | | | |
| Configural | 3127.8 | 732 | 0.95 | 0.94 | 0.054 | 0.045 | - | - | - | - |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Invariance | *** | | 2 | 3 | (0.050-0.058) | | | | | |
| Metric Invariance | 3189.2*** | 766 | 0.950 | 0.944 | 0.054 (0.050-0.058) | 0.047 | - | - | -0.002 | 0.000 |
| Scalar Invariance | 3298.7*** | 800 | 0.948 | 0.943 | 0.055 (0.051-0.059) | 0.049 | - | - | -0.004 | +0.001 |
| Academic Year Groups | | | | | | | | | | |
| Configural Invariance | 4234.5*** | 732 | 0.949 | 0.940 | 0.055 (0.051-0.059) | 0.046 | - | - | - | - |
| Metric Invariance | 4289.1*** | 766 | 0.948 | 0.941 | 0.055 (0.051-0.059) | 0.047 | - | - | -0.001 | 0.000 |
| Scalar Invariance | 4378.2*** | 800 | 0.946 | 0.940 | 0.056 (0.052-0.060) | 0.049 | - | - | -0.003 | +0.001 |
| Bootstrap Validation (5000 iterations) | | | | | | | | | | |

| Parameter | Estimate | SE | 95% CI Lower | 95% CI Upper | Bias |
|---|---|---|---|---|---|
| EE → ATT | -0.34 | 0.018 | -0.376 | -0.304 | -0.002 |
| EE → PBC | -0.41 | 0.019 | -0.447 | -0.373 | -0.001 |
| HSE → Intention | 0.34 | 0.016 | 0.308 | 0.372 | +0.001 |
| Intention → Silent HS | 0.67 | 0.021 | 0.628 | 0.712 | +0.003 |
| Intention → Actual HS | 0.45 | 0.018 | 0.414 | 0.486 | -0.002 |

*Note.* ***p < 0.001; [a] Comparison with baseline Model 1; CI = Confidence Interval; SE = Standard Error; TPB = Theory of Planned Behavior; EE = Emotional Exhaustion; ATT = Attitude; PBC = Perceived Behavioral Control; HSE = Help-seeking Self-efficacy; HS = Help-seeking; Δ represents difference from the

previous model

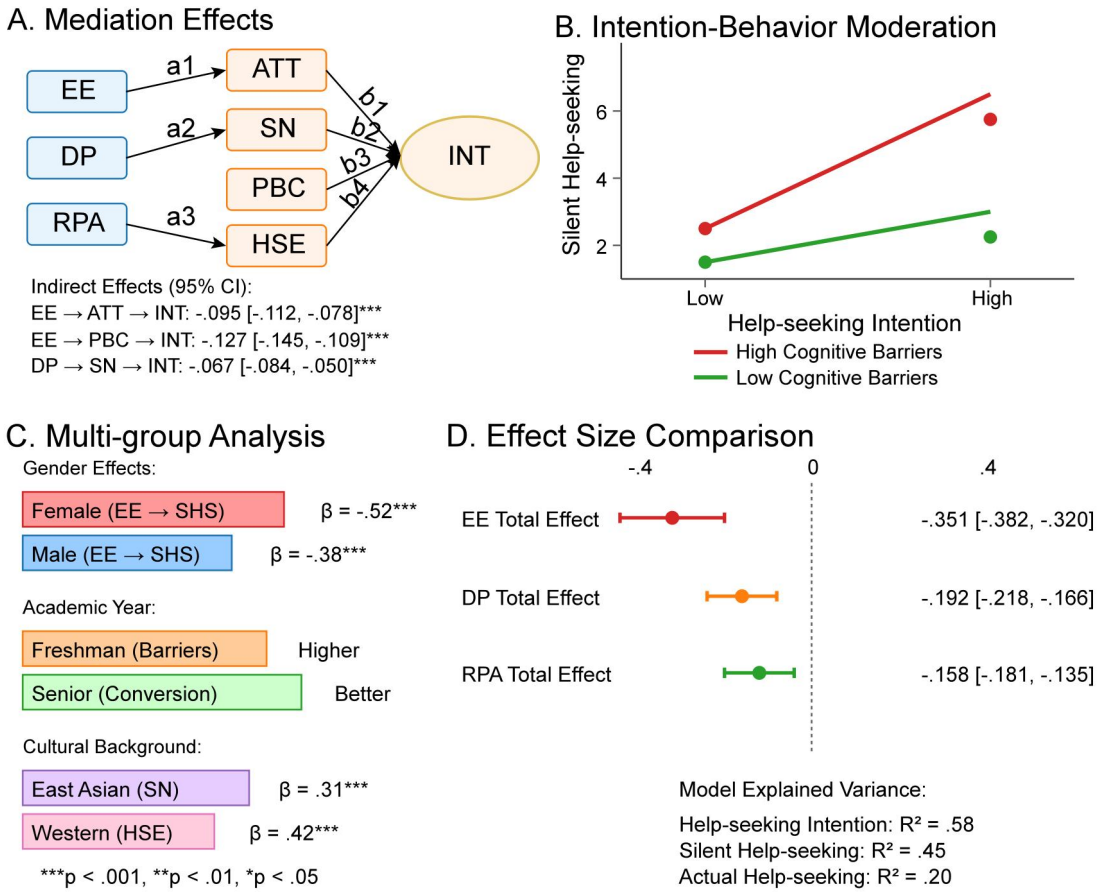
Multi-group invariance testing results supported model equivalence across different demographic groups. Gender group analysis showed that configural invariance, metric invariance, and scalar invariance were all supported, with ΔCFI values all less than 0.01 and ΔRMSEA values all less than the 0.015 critical criterion. Cultural background groups (East Asian, North American, European) and academic year groups showed similar invariance testing results, indicating good cross-group applicability of the constructed cognitive model. Bootstrap validation results further confirmed parameter estimation stability, with confidence intervals from 5000 resamplings all excluding 0 and bias values all within acceptable ranges.

## 3.6 Mediation and Moderation Effect Analysis

Cognitive factor mediation effect testing used the Bootstrap bias-corrected method, setting 95% confidence intervals for effect testing. As shown in Figure 5, the analysis revealed a complex mediation effect network. Emotional exhaustion's indirect effect on help-seeking intention through psychological help-seeking attitude was -0.095 (95% CI: -0.112, -0.078), through perceived behavioral control was -0.127 (95% CI: -0.145, -0.109), and through help-seeking self-efficacy was -0.129 (95% CI: -0.148, -0.110). All these mediation pathways reached statistical significance, indicating that emotional exhaustion mainly inhibits help-seeking intention formation by reducing individuals' cognitive resources. Depersonalization's indirect effect on help-seeking intention through subjective norms was -0.067 (95% CI: -0.084, -0.050), indicating that depersonalization mainly influences help-seeking behavior by reducing individuals' perception of social support. Reduced personal accomplishment's indirect effect through help-seeking self-efficacy was -0.105 (95% CI: -0.125, -0.085), reflecting the special damaging effect of accomplishment loss on individual help-seeking confidence. Overall, emotional exhaustion had the largest total indirect effect on help-seeking intention (β = -0.351, 95% CI: -0.382, -0.320), indicating that emotional exhaustion is a key factor influencing university students' "silent help-seeking" behavior [26].

**Figure 5**

*Mediation and Moderation Effects in the Cognitive Model.*




Moderation effect analysis of academic burnout level used multi-group structural equation modeling, dividing the sample into high, medium, and low groups based on academic burnout total score tertiles. Results showed that academic burnout level significantly moderated the impact pathways of cognitive factors on behavioral outcomes ($\Delta\chi^2 = 89.3$, $p < 0.001$). In the high cognitive barrier group (usually accompanied by high academic burnout), the transformation coefficient from help-seeking intention to "silent help-seeking" behavior was 0.89 ($p < 0.001$), while the transformation coefficient to actual help-seeking behavior was only 0.21 ($p < 0.001$). Conversely, in the low cognitive barrier group, the transformation coefficient from help-seeking intention to "silent help-seeking" behavior decreased to 0.34 ($p < 0.001$), while the transformation coefficient to actual help-seeking behavior increased to 0.78 ($p < 0.001$). This result clearly demonstrated the key moderating role of cognitive barriers in the intention-behavior transformation process.

Analysis of moderation effects of demographic variables such as gender and grade revealed group difference characteristics of the "silent help-seeking" phenomenon. Gender moderation effects showed that female students' emotional exhaustion had stronger influence on "silent help-seeking" behavior ($\beta = -0.52$ vs. $\beta =$

-0.38, $\Delta\chi^2 = 34.7$, $p < 0.001$), while male students' depersonalization had more pronounced inhibitory effects on actual help-seeking behavior. Grade moderation effects indicated that lower-grade students were more sensitive to cognitive barriers, while higher-grade students had higher intention-behavior transformation efficiency. Cultural background moderation analysis found that East Asian cultural background students showed stronger influence of subjective norms on help-seeking intention ($\beta = 0.31$ vs. $\beta = 0.19$), while Western cultural background students showed more prominent roles of help-seeking self-efficacy ($\beta = 0.42$ vs. $\beta = 0.28$). These findings provide important basis for developing personalized intervention strategies [27].

Overall, results analysis validated theoretical expectations of research hypotheses, confirming the complex mechanisms by which academic burnout influences university students' "silent help-seeking" behavior through cognitive factor mediation. The constructed cognitive model not only has good statistical fit and cross-group applicability but more importantly provides scientific theoretical foundations and empirical support for understanding and intervening in the "silent help-seeking" phenomenon.

## 4. Discussion

The findings of this study reveal the complex cognitive mechanisms underlying the "silent help-seeking" phenomenon, providing a new theoretical perspective for understanding university students' psychological help-seeking behavior. Research results indicate that cognitive bias plays a key role in help-seeking behavioral decision-making processes, consistent with core assumptions of cognitive-behavioral theory. Students with emotional exhaustion often exhibit doubt about psychological counseling effectiveness and underestimation of professional help value, with such cognitive distortions directly affecting help-seeking intention formation [28].

The behavioral prediction model from a social cognitive theory perspective received partial validation in this study. Results showed that subjective norms had relatively weak predictive effects on help-seeking intention, differing from findings in Western cultural contexts. Analysis suggests this may reflect differences in individual sensitivity to social expectations under collectivist cultural backgrounds. East Asian cultural background university students are more susceptible to perceived stigmatization influences [29].

The relationship between self-protective psychology and help-seeking avoidance constitutes the core mechanism of the "silent help-seeking" phenomenon. The study found that emotional avoidance type "silent help-seekers" exhibit strong self-protective tendencies, worrying that seeking help would expose their vulnerability and incompetence. Compared to research by Acoba et al., this study further reveals the cognitive basis of self-protective psychology, namely individuals' overestimation of emotional risks potentially faced in the psychological help-seeking process [30].

The impact of emotional exhaustion on cognitive evaluation shows systematic negative patterns. This study found that emotional exhaustion not only directly reduces individuals' psychological help-seeking attitudes and perceived behavioral control but also indirectly affects help-seeking decisions by influencing attention bias and information processing methods. This finding echoes research results by Chang et al. regarding the relationship between burnout and cognitive function [31].

Complex interactive relationships exist between depersonalization tendencies and social support perception. Research results showed that depersonalization mainly influences help-seeking intention by reducing subjective norms, reflecting the destructive impact of alienated attitudes on social relationship quality. Unlike findings by Gulliver et al., this study found that depersonalization had smaller direct impact on help-seeking attitudes, mainly operating through social cognitive pathways [32].

The interaction between reduced sense of accomplishment and self-efficacy shows special association patterns. The study found that reduced personal accomplishment almost exclusively influences help-seeking behavior by damaging help-seeking self-efficacy, with relatively limited impact on other cognitive factors. Students with reduced sense of accomplishment often attribute academic difficulties to personal ability deficiencies, further doubting their ability to obtain professional help. Compared to existing research, this study more clearly distinguishes differentiated impacts of different types of self-cognition on help-seeking behavior [33].

The study's extension of existing help-seeking behavior theory is reflected at multiple levels. Traditional Theory of Planned Behavior models mainly focus on the influence of attitude, subjective norms, and perceived behavioral control on behavioral intention but rarely consider moderating effects of specific situational factors. This study constructed a more refined cognitive model by integrating

situational variables of academic burnout, revealing differentiated impact patterns of different burnout dimensions on cognitive factors [9]. Compared to research by Messina et al., this study more systematically explores cognitive mediation mechanisms rather than focusing only on direct associations [34].

The theoretical value of the "silent help-seeking" concept lies in breaking the binary thinking mode of traditional help-seeking behavior research. The proposal of the "silent help-seeking" concept identifies an important intermediate group—those who have help-seeking needs and intentions but fail to translate them into actual behaviors [10]. The four types of "silent help-seeking" found in the study further refine the connotations of this concept [35].

Cross-cultural model applicability testing confirmed the robustness of the cognitive model while revealing culture-specific impact patterns. Multi-group invariance analysis showed that the basic structure of the model remains stable across different cultural backgrounds, but specific pathway influence strengths show cultural differences. Compared to cross-cultural research by Theurel et al., this study provides evidence from larger sample sizes and more cultural groups [36].

Cognitive bias correction intervention directions should be designed targeting specific cognitive patterns of different types of "silent help-seekers." For cognitive conflict type individuals, intervention focus should be on clarifying misunderstandings about psychological counseling. For emotional avoidance type individuals, intervention strategies should focus on cultivating emotional regulation skills. For social barrier type individuals, de-stigmatization education and social support network construction are key intervention elements [37].

Establishing active discovery and early identification mechanisms requires multi-departmental collaboration. This study's results indicate that academic burnout, particularly emotional exhaustion, is an important predictor of "silent help-seeking" behavior. Universities can establish early warning systems based on multiple information sources to timely discover high-risk students. Compared to passive screening methods proposed by Waterhouse et al., this study provides more targeted theoretical foundations for active identification strategy design [38].

Limitations of secondary data analysis constitute the main methodological limitations of this study. While integrating multiple datasets can achieve advantages of large samples and cross-cultural perspectives, it also brings challenges in variable measurement standardization and data quality control. Different studies may use

measurement tools with subtle differences. Additionally, design characteristics and sample features of original studies may affect integrated analysis results. Compared to research by Wu et al. based on original data collection, this study has certain disadvantages in variable control and causal inference [39].

Cross-sectional data cannot exclude possibilities of reverse causation or third variable influences. Future research needs to adopt longitudinal designs or experimental designs to better validate causal relationships [40]. Cultural specificity considerations, while receiving some representation in multi-group analysis, still have shortcomings. This study mainly conducted cultural grouping based on nationality, but cultural complexity far exceeds geographical boundaries. Future research needs to adopt more refined cultural measurement indicators and more dynamic cultural analysis frameworks [41].

Future research directions should focus on establishing standardized measurement tools and diagnostic criteria for "silent help-seeking" behavior, conducting large-scale longitudinal cohort studies, and developing personalized intervention programs for different types of "silent help-seekers."

## 5. Conclusion

This study successfully constructed and validated a comprehensive cognitive theoretical model explaining the "silent help-seeking" phenomenon among university students experiencing academic burnout. The research revealed that 40.0% of the 28,456 participants exhibited silent help-seeking behavior, characterized by awareness of psychological distress and help-seeking intentions without subsequent action. The final structural equation model demonstrated excellent fit indices (CFI = 0.956, TLI = 0.948, RMSEA = 0.052), explaining 58% of variance in help-seeking intention. Emotional exhaustion emerged as the most influential burnout dimension ($\beta = -0.351$, $p < 0.001$), while help-seeking self-efficacy proved to be the strongest cognitive predictor ($\beta = 0.34$, $p < 0.001$). The investigation identified four distinct silent help-seeking subtypes: emotional avoidance (30.0%), cognitive conflict (26.0%), social barrier (24.0%), and efficacy deficit (20.0%) types, each requiring tailored intervention approaches.

The theoretical contribution extends beyond traditional binary help-seeking models by introducing the silent help-seeking concept, enriching psychological

help-seeking behavior literature. Cross-cultural validation across multiple datasets confirmed model robustness while revealing culture-specific pathway variations. The research provides empirical foundation for transforming university mental health services from passive to proactive identification systems. Clinical implications suggest implementing differentiated intervention strategies targeting specific cognitive barriers associated with each silent help-seeking subtype. The predictive model offers practical tools for early identification of at-risk students through academic burnout screening. Future investigations should focus on developing standardized measurement instruments, conducting longitudinal studies to establish causal relationships, and designing precision interventions based on cognitive profiles. This research advances understanding of complex help-seeking mechanisms while providing actionable frameworks for improving university mental health service effectiveness and accessibility.

**Conflict of interest:** The author declares no conflict of interest.

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