

International Journal of Social Science and Humanities Research-MIYR

ISSN(print): 2788-9092 ISSN(Online): 2788-9106

Volume 5. Issue 2. 2025.06

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

TONGGALAGA • Erdenechimeg Sharavdorj



Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

TONGGALAGA¹, Erdenechimeg Sharavdorj^{2*}

¹*Department of Psychology, National University of Mongolia, Mongolia*

¹*qingtiangaga@163.com*

²*Department of Psychology, National University of Mongolia, Mongolia*

²*sherdenechimeg@gmail.com*

Abstract— This study aimed to comparatively assess the mental health status of university students in Mongolia and China's Inner Mongolia Autonomous Region using the Depression Anxiety Stress Scales-21 (DASS-21), based on the stress-vulnerability theoretical framework. The study was conducted in six public universities in Mongolia and six public universities in Inner Mongolia, covering students from the 1st to 5th year of study. A total of 2,661 samples were recruited, with 1,334 students from Mongolia and 1,327 students from Inner Mongolia. The results showed that Inner Mongolian students exhibited a higher prevalence of psychological distress (depression, anxiety, stress) than Mongolian students; female students and medical students had higher mental health risk levels; and first-year and third-year students reported more severe psychological symptoms than those in other grades. These findings indicate that regional, gender, academic year, and disciplinary factors significantly influence university students' mental health, highlighting the necessity of formulating targeted, culturally adapted mental health intervention strategies for different student groups.

Keywords— Mental Health, University Students, DASS-21 Scale, Cross-Cultural Comparison and Demographic Differences (Gender & Grade)

1. INTRODUCTION

With rapid global social transformation and the expansion of higher education, the mental health of university students has become an issue of increasing concern within educational systems and psychological research worldwide. The university stage is a critical period for young

Received: 2025.05.29

Reviewed: 2025.05.30

Accepted: 2025.06.19

*Corresponding author: Erdenechimeg Sharavdorj

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

people's cognitive, emotional, and social development, and it is also a sensitive period during which psychological issues frequently emerge. Numerous studies have shown that anxiety, depression, and chronic stress have become major barriers affecting students' mental health and academic performance [1]. In the post-pandemic era, under intensified social competition and increasingly complex employment conditions, the psychological pressure faced by university students continues to grow, raising a series of pressing psychological and educational concerns.

Against this backdrop, research on mental health from a cross-cultural perspective has attracted growing attention. Although Mongolia and China's Inner Mongolia Autonomous Region share similar ethnic compositions, they differ significantly in terms of social systems, educational policies, economic development levels, and mental health service infrastructures. These distinctions offer a unique lens for examining the manifestations and influencing factors of mental health under different sociocultural contexts.

This study focuses on a comparative analysis of the mental health status of university students in Mongolia and China's Inner Mongolia Autonomous Region, based on a large sample of 2,661 participants (1,334 Mongolian students and 1,327 Inner Mongolian students). The observed differences in mental health between these two groups may be attributed to various contextual factors. Mongolia and Inner Mongolia differ significantly in socio-economic development, educational systems, cultural traditions, and environmental conditions, all of which may influence students' psychological well-being. For instance, the urbanization level, access to mental health resources, academic pressure, and family support structures vary considerably, potentially explaining disparities in depression, anxiety, and stress levels. Previous research has demonstrated that cultural and environmental contexts play a critical role in shaping mental health outcomes. Studies employing the Depression Anxiety Stress Scales-21 (DASS-21) have shown its cross-cultural applicability and reliability in assessing psychological distress among diverse populations. Moreover, factors such as gender, academic year, and field of study have been consistently identified as significant predictors of mental health issues in university settings.

In recent years, a growing number of studies have examined the mental health status of university students in Mongolia and China's Inner Mongolia. In Mongolia, according to a survey conducted in 2013, the prevalence of chronic fatigue syndrome, anxiety disorder, somatic symptom disorder, and depressive disorder among Mongolians aged 16 to 64 was 16.2%, 18.4%, 11.9%, and 6.2%, respectively. However, a follow-up survey in November 2021 revealed a substantial and alarming increase in these psychological conditions, with chronic fatigue syndrome rising to 60.1%, anxiety disorder to 53.9%, somatic symptom disorder to 47.2%, and depressive disorder to 39.3% [2]. A study by Davaasambuu et al. (2017) at a technical college in Ulaanbaatar found that more than 14% of students exhibited depressive symptoms, with female students showing significantly higher levels of depression and suicidal ideation [3]. In China, Wang Shaojun et al. surveyed 18,867 university students in Inner Mongolia and found that Mongolian students had higher rates of psychological problems than Han students, and rural students experienced more stress than urban students. Overall, 45.57% of respondents showed signs of mental health issues, highlighting a need for improved psychological services [4]. Another study by Zhu Hao et al. involving 1,569 students at Inner Mongolia Medical University reported detection rates of 21.73% for depression, 29.32% for anxiety, and 11.03% for stress. The study identified positive interpersonal relationships, good physical health, and regular physical activity as protective factors, and found that female students had significantly lower levels of

depression and stress compared to male students [5]. The researchers recommended routine mental health monitoring and targeted interventions such as interpersonal skills training and physical activities.

This research is grounded in cognitive-behavioral theory, the stress-vulnerability model, and developmental psychology. By incorporating the cultural background differences between China and Mongolia, the study seeks to answer the following key questions: (1) Are there significant differences in the overall mental health levels of university students in Mongolia and Inner Mongolia? (2) How do demographic variables such as gender, academic year, and major influence mental health? (3) How can the impact mechanisms of culture and educational systems on students' mental health be understood?

Through this research, we aim not only to provide empirical data on the current mental health status of university students in China and Mongolia but also to offer theoretical support and practical reference for the formulation and improvement of mental health education policies and intervention models in both countries.

2. THEORETICAL BACKGROUND

This study is grounded in Cognitive-Behavioral Theory and the Stress-Vulnerability Model. It incorporates perspectives from developmental psychology to analyze the differences and mechanisms in university students' mental health status under different cultural and educational systems.

Firstly, Cognitive-Behavioral Theory posits that individuals' interpretations of environmental stimuli and their cognitive patterns directly affect emotional and behavioral responses. University students facing academic pressure, interpersonal conflicts, and career uncertainty may develop negative automatic thoughts and irrational beliefs, which can easily trigger anxiety, depression, and other emotional problems. This theory emphasizes the recognizability and treatability of emotional issues, providing theoretical support for psychological assessment and intervention strategies [6].

Secondly, the Stress-Vulnerability Model [7] suggests that mental health problems arise from the interaction between internal psychological vulnerabilities and external environmental stressors. The university period marks a critical and vulnerable phase of transition from adolescence to adulthood. In a cross-cultural context, students in different countries may experience varying levels of structural stress (e.g., economic burden, employment pressure, political stability, and educational systems), leading to divergent psychological responses and significant group differences in mental health.

Additionally, developmental psychology highlights that late adolescence (ages 18-24) is a key stage for the formation of self-identity, exploration of social roles, and gradual improvement of emotional regulation abilities [8]. Poor adjustment during this stage can lead to emotional disorders, such as anxiety, depression, and chronic stress. Specifically, first-year students are in a transitional stage from home to campus life. In contrast, third-year students face academic intensification, internships, and career-related stress-corresponding with the grade-level differences identified in this study [9].

From a cross-cultural psychology perspective, cultural values (e.g., collectivism vs. individualism), educational systems, and social support structures are considered critical variables

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

influencing mental health [10]. This study compares university students from Mongolia and Inner Mongolia, offering a distinct cross-cultural perspective. Although both regions are predominantly inhabited by Mongolian ethnic groups, they differ significantly in terms of social systems, educational policies, levels of economic development, and distribution of mental health resources. This enhances the theoretical and practical significance of the comparison.

The DASS-21 (Depression Anxiety Stress Scales-21) is an internationally recognized self-report tool that is concise, easy to administer, and covers three dimensions: depression, anxiety, and stress. It is one of the most commonly used instruments in mental health screening among university students. Research shows that DASS-21 demonstrates good reliability and validity across multiple language versions and has been widely applied in diverse cultural contexts, including Asia, Europe, and North America. In this study, both the Mongolian and Chinese versions of DASS-21 have undergone pilot testing and exhibit high internal consistency and structural validity, making them suitable for comparative studies on the mental health of university students in Mongolia and Inner Mongolia [11].

In summary, this study systematically constructs a multi-theoretical framework to investigate university students' mental health issues. By leveraging the strengths of the DASS-21 scale and employing scientific measurement and analytical methods, it aims to uncover the mental health characteristics of student populations across cultural contexts and to provide theoretical support for future intervention design and educational policy-making.

3. RESEARCH DESIGN

3.1 Research Objectives

This study aims to conduct a cross-cultural comparison of the mental health status of university students in Mongolia and the Inner Mongolia Autonomous Region of China using the DASS-21 scale. It seeks to uncover differences and influencing factors related to depression, anxiety, and stress, and to explore the mechanisms by which variables such as gender, academic year, and field of study impact mental health. The ultimate goal is to provide scientific evidence to inform mental health education and intervention strategies in universities.

3.2 Research Hypotheses

- 1) There is a significant difference in the incidence of mental health problems between university students in Mongolia and those in the Inner Mongolia Autonomous Region of China, with students in Inner Mongolia exhibiting a higher rate of mental health issues.
- 2) Gender, academic year, and type of academic program significantly influence the mental health status of university students. Specifically, female students have a higher detection rate of mental health problems than male students; a significant gender difference exists among Mongolian students but not among students in Inner Mongolia; medical students show more severe mental health problems than non-medical students; and first- and third-year students report higher levels of mental health issues compared to second- and fourth-year students.

3.3 Instrument

The Depression Anxiety Stress Scales-21 (DASS-21), developed by Lovibond and Lovibond (1995), was employed to assess the mental health status of university students in this study. The DASS-21 is a widely used self-report instrument designed to measure the negative emotional states of depression, anxiety, and stress. It consists of 21 items, with 7 items dedicated to each of the three subscales: Depression, Anxiety, and Stress.

Each item asks respondents to rate the extent to which they have experienced a particular symptom over the past week. Ratings are made on a 4-point Likert scale ranging from 0 to 3, where 0 indicates “Did not apply to me at all,” 1 means “Applied to me to some degree, or some of the time,” 2 represents “Applied to me to a considerable degree, or a good part of the time,” and 3 stands for “Applied to me very much, or most of the time.” The scores for each subscale are summed and then multiplied by two to be comparable with the original DASS-42 scores.

The Depression subscale evaluates symptoms such as dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety subscale measures autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The Stress subscale assesses chronic non-specific arousal including difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive, and impatient.

The DASS-21 has been validated across diverse populations and cultural contexts, demonstrating high internal consistency, good construct validity, and satisfactory convergent validity with other established measures of depression and anxiety. Its brevity and psychometric robustness make it particularly suitable for large-scale epidemiological studies and cross-cultural research, such as the present study comparing university students from Mongolia and Inner Mongolia.

In the current study, the DASS-21 was administered in the participants’ native languages (Mongolian and Chinese) using validated translated versions. Prior to data collection, the translated scales were pilot tested to ensure linguistic clarity and cultural appropriateness.

3.4 Research Design

This study adopts a cross-sectional survey design. The sample consists of 1,334 university students from Mongolia and 1,327 students from the Inner Mongolia Autonomous Region of China. The measurement tool is the DASS-21 mental health scale (in Mongolian and Chinese versions), used to assess levels of depression, anxiety, and stress. Participants are grouped according to gender, academic year, field of study, and nationality. Data analysis includes independent sample t-tests, one-way ANOVA, and descriptive statistics (means and percentages) to explore the factors influencing mental health.

4. DATA ANALYSIS

The study involved a total of 2,661 university students aged 17-25 from six public universities in Mongolia (National University of Mongolia, Mongolian National University of Education, Mongolian University of Science and Technology, Mongolian National University of Medical

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

Sciences, Mongolian University of Life Sciences, and Mongolian State University of Arts and Culture) and six public universities in Inner Mongolia (Inner Mongolia University, Inner Mongolia Normal University, Inner Mongolia Medical University, Inner Mongolia Agricultural University, Inner Mongolia University of Science and Technology, and Inner Mongolia University of the Arts), covering students from the 1st to 5th year of study.

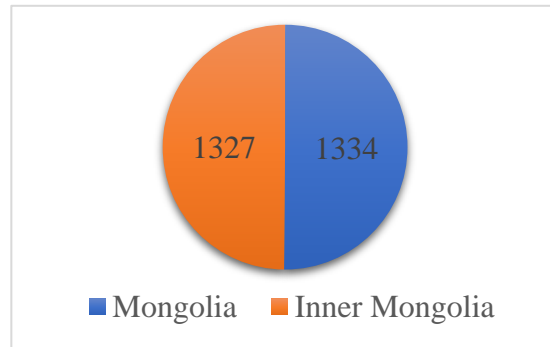


Fig. 1 Number of Mongolian and Inner Mongolian Students Participating in the Study

According to Figure 1, a total of 1,334 students from Mongolia and 1,327 students from Inner Mongolia participated in the study.

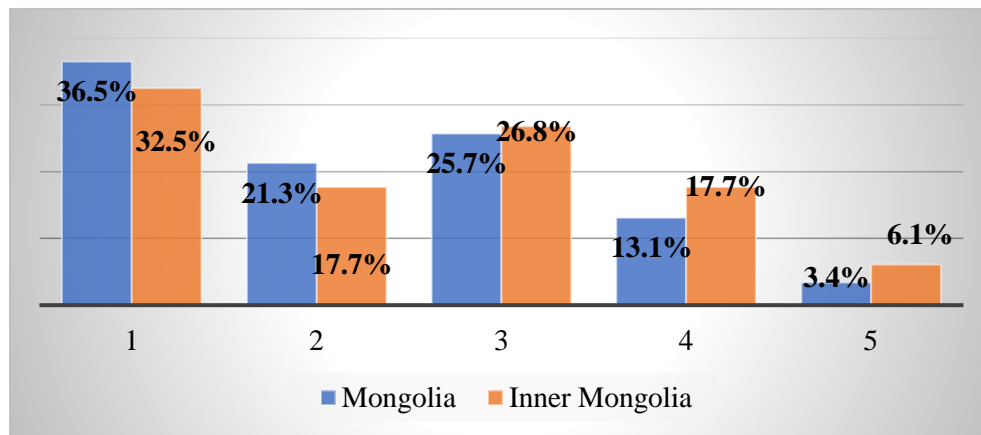


Fig. 2 Distribution of Mongolian and Inner Mongolian Student Participants by Year of Study (%)

According to Figure 2, among the Mongolian student participants, 36.5% were first-year students, 21.3% were second-year students, 25.7% were third-year students, 13.1% were fourth-year students, and 3.4% were fifth-year students. Among the Inner Mongolian students, 32.5% were first-year students, 17.7% were second-year students, 26.8% were third-year students, 15.2% were fourth-year students, and 6.1% were fifth-year students.

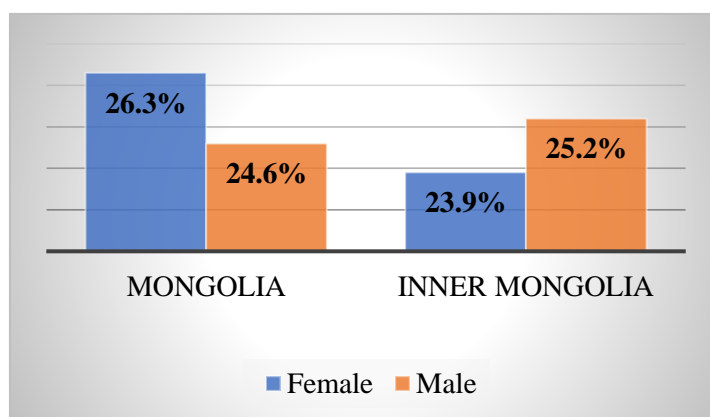


Fig. 3 Gender Distribution of Mongolian and Inner Mongolian Student Participants (%)

As shown in Figure 3, among the Mongolian student participants, 26.3% (699) were female and 23.9% (635) were male. Among the Inner Mongolian students, 24.6% (656) were female and 25.2% (671) were male.

Table 1. Names and Codes of Participating Universities in Mongolia and Inner Mongolia

Code	Name of University in Mongolia	Code	Name of University in Inner Mongolia
1	National University of Mongolia (NUM)	7	Inner Mongolia University (IMU)
2	Mongolian National University of Medical Sciences (MNUMS)	8	Inner Mongolia Medical University (IMMU)
3	Mongolian State University of Arts and Culture (MSUAC)	9	Inner Mongolia University of Science and Technology (IMUST)
4	Mongolian State University of Education (MSUE)	10	Inner Mongolia Normal University (IMNU)
5	Mongolian University of Life Sciences (MULS)	11	Inner Mongolia Agricultural University (IMAU)
6	Mongolian University of Science and Technology (MUST)	12	Inner Mongolia University of Technology (IMUT)

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

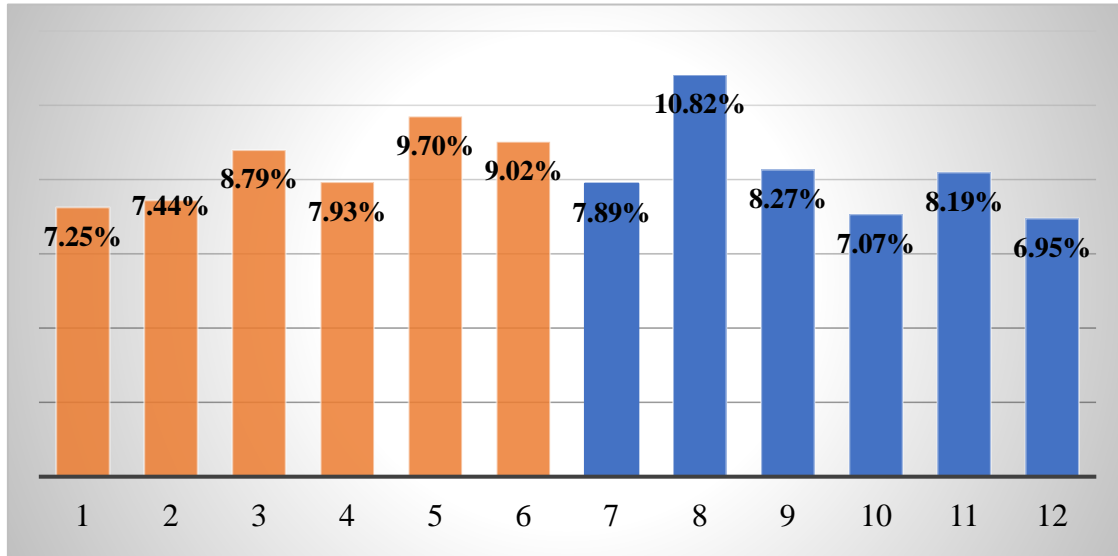


Fig. 4 Distribution of Participating Mongolian and Inner Mongolian University Students by Institution (%)

According to Figure 4, among the Mongolian students who participated in the study: 7.25% (193 students) were from the National University of Mongolia (NUM), 7.44% (198 students) from the Mongolian National University of Medical Sciences (MNUMS), 8.79% (234 students) from the Mongolian State University of Arts and Culture (MSUAC), 7.93% (211 students) from the Mongolian State University of Education (MSUE), 9.70% (258 students) from the Mongolian University of Life Sciences (MULS), 9.02% (240 students) from the Mongolian University of Science and Technology (MUST).

Among the Inner Mongolian students: 7.89% (210 students) were from Inner Mongolia University (IMU), 10.82% (288 students) from Inner Mongolia Medical University (IMMU), 8.27% (220 students) from Inner Mongolia University (IMU), 7.07% (188 students) from Inner Mongolia Normal University (IMNU), 8.19% (218 students) from Inner Mongolia Agricultural University (IMAU), 6.95% (185 students) from Inner Mongolia University of Technology (IMUT).

Table 2. Reliability Coefficient of the DASS-21 Scale (Cronbach's Alpha)

Cronbach's Alpha	Items
0.940	21

As shown in Table 2, the reliability of the DASS-21 scale was tested using Cronbach's Alpha, yielding a coefficient of $r = 0.940$. Since a reliability coefficient $r > 0.7$ indicates acceptable reliability, this result demonstrates that the DASS-21 scale is highly reliable.

Table 3. KMO and Bartlett's Test of Sampling Adequacy for the DASS-21 Scale

Indicator	Value
KMO	0.767
Bartlett's Test	
Approx. Chi-Square	36514.232
df	3
Sig	0.000

Bartlett's Test results indicate a KMO value of 0.767, greater than 0.5, and a significance level of $p = 0.000 < 0.01$. This implies that the DASS-21 scale is statistically significant and that the data have adequate correlations for factor analysis.

Table 4. Distribution Analysis of SCL-90 and DASS-21 Scores of Mongolian and Inner Mongolian University Students

Kolmogorov–Smirnov Test Results			
Subscale	Statistic	df	Sig
Stress	0.062	2660	0.114
Anxiety	0.021	2660	0.129
Depression	0.078	2660	0.137
<i>a. Lilliefors Significance Correction applied</i>			

The Kolmogorov–Smirnov test results indicate that all three subscales (stress, anxiety, and depression) of the DASS-21 scale do not significantly deviate from a normal distribution ($p > 0.05$), suggesting that the data meet the assumptions of normality.

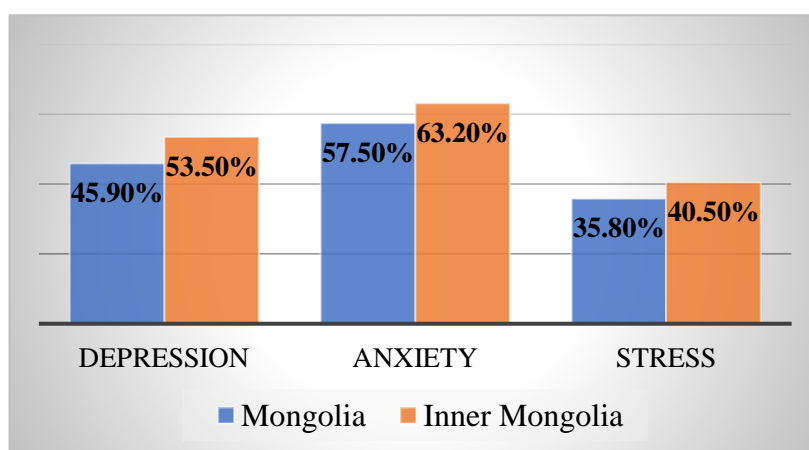


Fig. 5 Percentage of Mongolian and Inner Mongolian students' depression, anxiety, and stress scores on the DASS-21 scale (%)

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

As shown in Figure 5, when comparing the results of Mongolian students (45.9% for depression, 57.5% for anxiety, and 35.8% for stress) with those of Inner Mongolian students (53.5% for depression, 63.2% for anxiety, and 40.5% for stress), the scores of Mongolian students were relatively lower.

Table 5. Comparison of DASS-21 Scores between Mongolian and Inner Mongolian Students Using Independent Samples T-Test

	F	Sig.	t	df	Sig. (2-tailed)
Depression	1.197	.274	-1.412	2659	.158
Anxiety	4.447	.035	-2.386	2658.726	.017
Stress	1.031	.310	-0.924	2659	.356

As shown in Table 5, the anxiety levels between Mongolian and Inner Mongolian students showed a statistically significant difference ($t = -2.386$, $p = 0.017 < 0.05$), with Mongolian students reporting relatively lower anxiety levels than Inner Mongolian students. This difference may be attributed to variations in academic pressure, mental health awareness, and access to psychological support services, which tend to be more developed and competitive in Inner Mongolia.

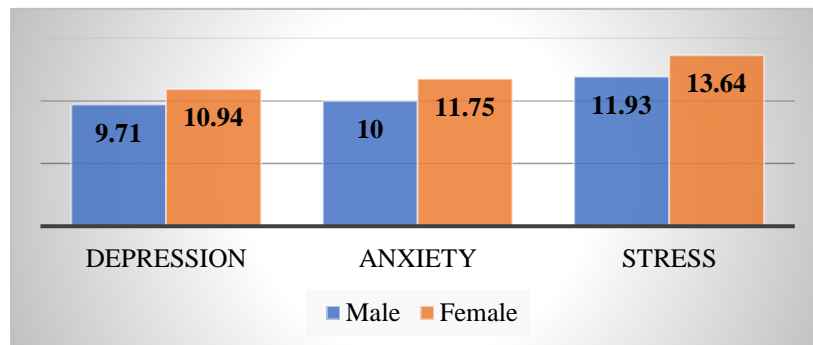


Fig. 6 Average Scores of Mongolian Students on the DASS-21 (Depression, Anxiety, Stress) by Gender

As illustrated in Figure 6, the average scores of Mongolian students on the DASS-21 scale revealed that female students had higher levels of depression (10.94), anxiety (11.75), and stress (13.64) compared to male students, whose scores were 9.71, 10.00, and 11.93, respectively.

Table 6. Comparison of DASS-21 Scores by Gender Among Mongolian Students Using Independent Samples T-Test

	M	SD	t	df	Sig. (2-tailed)
Depression	10.33	10.13	2.210	1328.161	.027
Anxiety	10.88	8.86	3.598	1332	.000
Stress	12.79	16.36	1.907	1328.556	.057

As seen in Table 6, there were statistically significant gender differences in depression ($p = .027$) and anxiety ($p = .000$) scores among Mongolian students ($p < 0.05$), with female students reporting relatively higher scores. However, the difference in stress scores by gender was not statistically significant ($p = 0.057$, which is greater than 0.05). This result may be attributed to gender differences in emotional expression, social expectations, and coping styles, which make female students more susceptible to reporting symptoms of depression and anxiety. The non-significant difference in stress scores suggests that academic and life pressures may be similarly distributed between male and female students.

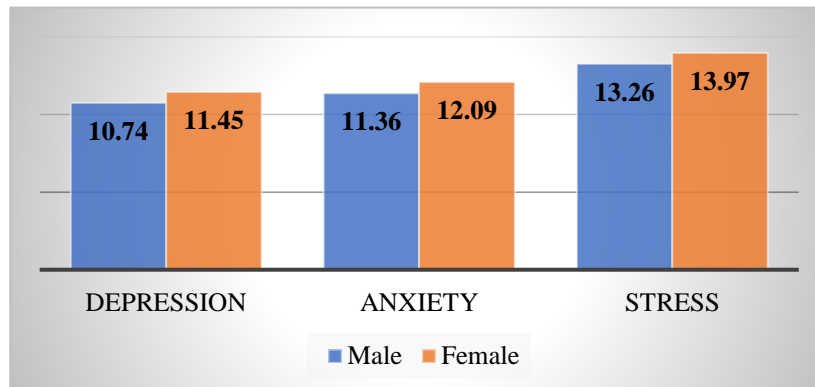


Figure 7. Mean Scores of Depression, Anxiety, and Stress on the DASS-21 Scale by Gender among Inner Mongolian University Student Participants

As shown in Figure 7, the mean scores for depression (11.45), anxiety (12.09), and stress (13.97) on the DASS-21 scale among female university students in Inner Mongolia were higher than those of their male counterparts, whose scores were 10.74, 11.36, and 13.28 respectively.

Table 7. Independent Sample T-test Results for Gender Differences in DASS-21 Scores among Inner Mongolian University Students

	M	SD	t	df	Sig. (2-tailed)
Depression	11.10	7.02	1.052	1325	.293
Anxiety	11.73	6.65	1.448	1325	.148
Stress	13.62	7.14	1.035	1325	.301

As shown in Table 7, the gender differences in depression ($p = 0.293$), anxiety ($p = 0.148$), and stress ($p = 0.301$) scores among Inner Mongolian university students based on the DASS-21 scale were not statistically significant ($p > 0.05$). This lack of significant gender differences may indicate that male and female students in Inner Mongolia experience similar levels of depression, anxiety, and stress, possibly due to shared social pressures and coping resources in this region.

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

Table 8. ANOVA Results Comparing DASS-21 Depression, Anxiety, and Stress Scores by Academic Year among Mongolian University Students

Variable		Sum of Squares	df	Mean Square	F	Sig.
Stress	Between Groups	42.414	4	8.483	6.061	.000
	Within Groups	1552.211	1333	1.400		
	Total	1594.624	1337			
Anxiety	Between Groups	80.795	4	16.159	6.902	.000
	Within Groups	2596.446	1333	2.341		
	Total	2677.241	1337			
Depression	Between Groups	52.117	4	10.423	6.292	.000
	Within Groups	1837.093	1333	1.657		
	Total	1889.211	1337			

For Mongolian university students, the ANOVA results comparing depression, anxiety, and stress scores on the DASS-21 scale across academic years showed that the p-values were less than 0.05. This indicates that there were statistically significant differences among the academic year groups. Based on these results, a Post Hoc analysis was conducted to further examine the differences in depression, anxiety, and stress scores across academic years among Mongolian university students as measured by the DASS-21 scale.

Table 9. Post Hoc Comparison of DASS-21 Depression, Anxiety, and Stress Scores by Academic Year among Mongolian University Students

Variable	Compared Years	Mean Difference	Std. Error	Sig.
Stress	1 vs 2	.580*	.094	.000
	1 vs 4	.591*	.111	.000
	1 vs 5	.536*	.204	.009
	3 vs 2	-.641*	.101	.000
	3 vs 4	.652*	.117	.000
	3 vs 5	.597*	.208	.004
Anxiety	1 vs 2	.837*	.123	.000
	1 vs 4	.813*	.145	.000
	1 vs 5	.709*	.266	.008
	3 vs 2	-.641*	.101	.000
	3 vs 4	.905*	.153	.000
	3 vs 5	.801*	.271	.003
Depression	1 vs 2	.625*	.105	.000
	1 vs 4	.622*	.124	.000
	3 vs 2	-.671*	.113	.000
	3 vs 4	.668*	.131	.000
	3 vs 5	.487*	.232	.036

As shown in Table 9, first- and third-year Mongolian students had significantly higher scores in depression, anxiety, and stress compared to students in other academic years. This may be explained by the fact that first-year students are adapting to a new environment and beginning independent living, while third-year students might be experiencing uncertainty about future career paths and pressure related to upcoming graduation.

Table 10. ANOVA Comparison of DASS-21 Depression, Anxiety, and Stress Scores by Academic Year among Inner Mongolian University Students

Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Stress	Between Groups	92.622	4	18.524	14.583	.000
	Within Groups	1349.044	1326	1.270		
	Total	1441.666	1330			
Anxiety	Between Groups	186.633	4	37.327	17.279	.000
	Within Groups	2294.134	1326	2.160		
	Total	2480.767	1330			
Depression	Between Groups	100.022	4	20.004	12.639	.000
	Within Groups	1680.940	1326	1.583		
	Total		1780.963	1330		

According to Table 10, the ANOVA comparison of depression, anxiety, and stress scores among Inner Mongolian university students across different academic years showed p-values less than 0.05, indicating statistically significant differences among the academic years. Based on these results, a Post Hoc analysis was conducted to further explore the differences in DASS-21 depression, anxiety, and stress scores by academic year among Inner Mongolian students.

Table 11. Comparison of the DASS-21 Results of Inner Mongolian Student Participants Across Academic Years Using Post Hoc Analysis

Variable	Year Comparison	Mean Difference	Std. Error	Sig.
Stress	1 vs 2	.384*	.107	.000
	1 vs 3	-.199*	.090	.028
	1 vs 4	.317*	.112	.005
	2 vs 3	-.582*	.113	.000
	3 vs 4	.516*	.117	.000
Anxiety	1 vs 2	.655*	.137	.000
	1 vs 3	-.249*	.116	.032
	1 vs 4	.438*	.144	.002
	2 vs 3	-.904*	.145	.000
	3 vs 4	.687*	.151	.000
Depression	1 vs 2	.407*	.114	.000
	1 vs 3	-.324*	.097	.001
	2 vs 3	-.731*	.121	.000
	3 vs 4	.555*	.126	.000

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

As shown in Table 11, the first-year Inner Mongolian students participating in the study showed relatively higher levels of depression, anxiety, and stress. This could be attributed to challenges in adapting to a new environment. In addition, third-year Inner Mongolian students also displayed relatively high levels of depression, anxiety, and stress, which may be related to the pressure of graduation and major decision-making examinations.

Table 12. Comparison of the DASS-21 Depression, Anxiety, and Stress Scores of Mongolian Student Participants Across Universities Using ANOVA

Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Stress	Between Groups	12.300	5	2.460	2.573	.045
	Within Groups	2077.412	1333	1.564		
	Total	2089.712	1338			
Anxiety	Between Groups	44.274	5	8.855	3.597	.003
	Within Groups	3269.118	1333	2.462		
	Total	3313.392	1338			
Depression	Between Groups	41.789	5	8.358	4.652	.000
	Within Groups	2386.106	1333	1.797		
	Total	2427.895	1338			

When comparing the DASS-21 results of Mongolian student participants across different universities using ANOVA (see Appendix 21), the p-values were all less than 0.05. This indicates that there were statistically significant differences between universities.

Based on these results, a Post Hoc analysis was conducted to further explore the differences in depression, anxiety, and stress scores measured by the DASS-21 across the universities attended by Mongolian students.

Table 13. Post Hoc Comparison of DASS-21 Scores Among Mongolian University Students from Different Schools

Variable	School Code	Mean Difference	Standard Error	Sig.
Stress	1 vs 5	.235*	.119	.049
	4 vs 5	.267*	.116	.022
Anxiety	1 vs 5	.361*	.149	.016
	2 vs 3	.425*	.152	.005
	2 vs 5	.581*	.148	.000
	2 vs 6	.361*	.151	.017
	4 vs 5	.346*	.146	.018
Depression	1 vs 5	.449*	.128	.000
	2 vs 3	.341*	.129	.008
	2 vs 5	.539*	.127	.000
	4 vs 5	.350*	.124	.005
	5 vs 6	-.316*	.120	.009

As shown in Table 13, students from school code 5 had relatively lower levels of depression, anxiety, and stress, whereas students from school code 2 had relatively higher levels of depression and anxiety compared to those from other schools.

Table 14. ANOVA Comparison of Depression, Anxiety, and Stress Scores on the DASS-21 Among Inner Mongolian University Students from Different Schools

Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Anxiety	Between Groups	28.221	5	5.644	2.363	.038
	Within Groups	3111.955	1326	2.388		
	Total	3140.176	1331			
Depression	Between Groups	29.974	5	5.995	3.637	.003
	Within Groups	2147.477	1326	1.648		
	Total	2177.451	1331			

The ANOVA results for Inner Mongolian university students' DASS-21 scores show that the *p*-values are less than 0.05 (see Appendix 22), indicating statistically significant differences in depression and anxiety levels between schools.

Based on these results, a Post Hoc analysis was conducted to further clarify the differences in depression and anxiety scores on the DASS-21 scale among Inner Mongolian students from different schools.

Table 15. Post Hoc Comparison of DASS-21 Scores Among Inner Mongolian University Students from Different Schools

Variable	School Code	Mean Difference	Standard Error	Sig.
Anxiety	8 vs 9	.405*	.138	.003
	8 vs 10	.309*	.145	.033
	8 vs 12	.337*	.146	.021
Depression	7 vs 9	.274*	.124	.027
	8 vs 9	.395*	.115	.001
	8 vs 10	.319*	.120	.008
	8 vs 11	.308*	.115	.008
	8 vs 12	.367*	.121	.002

As shown in Table 15, the students from school code 8 had significantly higher levels of depression and anxiety compared to students from other schools. Medical university students tend to experience higher levels of psychological problems compared to other majors due to several reasons: heavy academic workload and high pressure; complex and demanding course content; emotional stress from clinical internships and exposure to life-and-death situations; intense competition leading to increased anxiety and stress; and irregular study and lifestyle patterns affecting their physical and mental health. Additionally, medical students often have high self-expectations and perfectionistic tendencies, which can further increase their psychological burden.

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

5. CONCLUSION

This study conducted a large-sample comparative analysis of the mental health status of university students in Mongolia and China's Inner Mongolia Autonomous Region using the DASS-21 scale. Several key findings emerged that have both theoretical and practical implications.

1) **Significant Regional Differences:**

University students in Inner Mongolia scored significantly higher than Mongolian university students on the overall DASS-21 score and each of its three subscales: depression, anxiety, and stress. This suggests that the psychological distress level among students in Inner Mongolia is comparatively more severe. The difference may be attributed to variations in educational pressure, social expectations, lifestyle factors, or availability of psychological services between the two regions.

2) **Gender Differences in Mental Health:**

Female university students in both regions exhibited higher levels of psychological problems compared to their male counterparts. Notably, significant gender differences were observed among Mongolian students but not among Inner Mongolian students. This gender disparity may reflect sociocultural factors, different coping mechanisms, or variations in emotional expression. These results underline the need for gender-sensitive approaches in mental health interventions.

3) **Discipline-Based Differences:**

Medical students in both Mongolia and Inner Mongolia reported significantly higher levels of depression, anxiety, and stress compared to non-medical students. The intense academic workload, exposure to medical realities (e.g., illness and death), and high expectations may contribute to their elevated mental health risk. Mental health services in medical universities should be prioritized and adapted to their unique academic environment.

4) **Academic Year Variation:**

First-year and third-year students showed significantly higher levels of psychological symptoms than those in other academic years. First-year students often struggle with adapting to a new environment, academic challenges, and social transitions. Third-year students may face heightened pressure related to internships, thesis writing, or career planning. These findings highlight the need for stage-specific psychological support systems across university life.

5) **Cross-Cultural Applicability of DASS-21:**

The study validated the cross-cultural applicability of the DASS-21 scale in assessing depression, anxiety, and stress among Mongolian and Inner Mongolian university students. Its consistency in identifying psychological distress in both regions demonstrates its usefulness as a standardized screening tool for cross-national student populations.

5.1 Theoretical Implications

The findings contribute to the growing body of literature on cross-cultural mental health assessment and university student well-being. First, the study supports the **stress-vulnerability**

model, showing that students in different academic years and disciplines may have varying levels of vulnerability to stress. Second, the **gender-role theory** is reinforced by the observed gender disparities in mental health, especially in the Mongolian context. Furthermore, the study demonstrates the **cross-cultural reliability of the DASS-21**, supporting its use in international research settings where standardized mental health comparisons are essential.

5.2 Practical Implications

From a policy and intervention standpoint, the results provide critical insights for educational institutions and mental health practitioners:

- **Targeted Mental Health Services:** Mental health programs should be tailored according to students' academic year, gender, and academic major. First-year orientation programs should include stress management components, while third-year students would benefit from career counseling and psychological support.
- **Gender-Sensitive Interventions:** Universities should offer gender-responsive mental health services, such as peer support groups for female students or emotional expression workshops.
- **Discipline-Specific Counseling:** Medical students require additional psychological support, such as resilience training, burnout prevention, and faculty mentoring programs.
- **Cross-Border Collaboration:** Given the similarities and differences found between the two regions, cross-border collaborations between Mongolian and Inner Mongolian universities could help share resources, expertise, and culturally adapted mental health practices.
- **Routine Screening:** Institutions should consider implementing regular psychological screenings using validated tools such as the DASS-21 to monitor and respond to students' mental health needs.

5.3 Conclusion

In conclusion, this study provides valuable empirical evidence on the mental health conditions of university students in Mongolia and China's Inner Mongolia Autonomous Region. The identified factors—such as gender, academic year, and field of study—highlight the multifaceted nature of psychological distress among students. By demonstrating the DASS-21's cross-cultural utility, the study lays a foundation for further comparative research and underscores the urgency of developing targeted, culturally appropriate mental health interventions. Addressing the unique needs of different student groups will contribute to the broader goal of promoting student well-being and academic success across borders.

REFERENCES

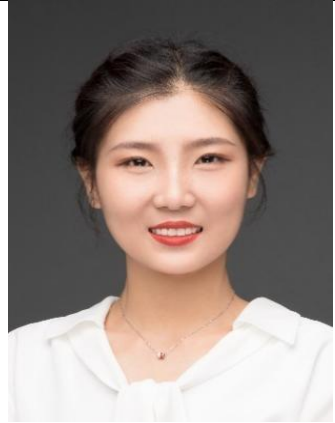
- [1] Beiter R, Nash R, McCrady M, Rhoades D, Linscomb M, Clarahan M, Sammut S. " The prevalence and correlates of depression, anxiety, and stress in a sample of college students." *Journal of Affective Disorders* Mar.1 (2015): 90-96. DOI: [10.1016/j.jad.2014.10.054](https://doi.org/10.1016/j.jad.2014.10.054)
- [2] Delgermaa Anujin, Sharavdorj Erdenechimeg. " The effect of forest therapy on the mood states of young adults in Ulaanbaatar." *International Journal of Social Science and Humanities Research-MIYR* 3.4 (2023): 1-15. DOI: <https://doi.org/10.53468/mifyr.2023.03.04.01>

Mental health of university students in Mongolia and Inner Mongolia: A DASS-21 comparison

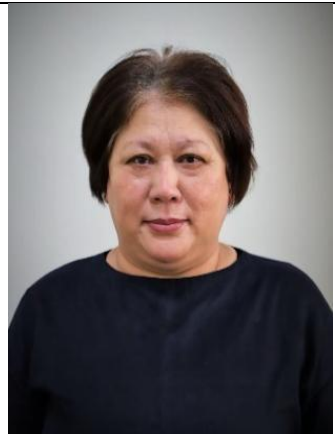
- [3] Davaasambuu S, Aira T, Hamid P, Wainberg M, Witte S. " Risk and Resilience Factors for Depression and Suicidal Ideation in Mongolian College Students." *Ment Health Prev* Mar.5 (2017): 33–39. DOI: [10.1016/j.mhp.2017.01.002](https://doi.org/10.1016/j.mhp.2017.01.002)
- [4] 王少君, 张微, 德力格尔. "内蒙古学生心理健康状况研究: 基于 Kessler-10 量表的分析." *内蒙古教育学报* 4.1(2020):124-132. DOI: <https://link.oversea.cnki.net/doi/10.16835/j.cnki.1000-9817.2022.04.023>
- [5] 朱浩,冯珂,王雅妮. "基于抽样调查的在校大学生抑郁、焦虑、压力状况研究." *包头医学院学报* 10.1 (2023): 69-75. DOI:[10.16833/j.cnki.jbmc.2023.10.014](https://doi.org/10.16833/j.cnki.jbmc.2023.10.014).
- [6] Beck, A. T. *Cognitive therapy and the emotional disorders*. New York: International Universities Press, 1976.
- [7] Zubin, Joseph Spring, Bonnie. " Vulnerability: A new view of schizophrenia." *Journal of Abnormal Psychology* 86.2 (1977):103–126. DOI: <https://doi.org/10.1037/0021-843X.86.2.103>
- [8] Arnett, Jeffrey Jensen. " Emerging adulthood: A theory of development from the late teens through the twenties. " *American Psychologist* 55.5 (2000): 469-480. DOI: <https://doi.org/10.1037/0003-066X.55.5.469>
- [9] Erikson, E. H. *Identity: Youth and crisis*. W. W. Norton & Company, 1968.
- [10] Triandis, H. C. *Individualism and collectivism*. Boulder, CO: Westview Press, 1995.
- [11] Lovibond, S. H., Lovibond, P. F. *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Psychology Foundation of Australia, 1995.

AUTHOR'S INTRODUCTION

1. First Author

	TONGGALAGA qingtiangaga@gmail.com
	<p>Doctoral student at the Department of Psychology Department, the National University of Mongolia.</p> <p>Work: Teacher at No. 39 Middle School of Hohhot, Inner Mongolia Autonomous Region, China.</p> <p>Work field: Child health psychology, counseling psychology.</p>

2. Corresponding Author

	Erdenechimeg Sharavdorj sherdenechimeg@gmail.com
	<p>Ph.D in the National University of Mongolia</p> <p>Work: An associate professor and lecturer of the Department of Psychology, at the National University of Mongolia.</p> <p>Work field: Clinical, commination and health psychology</p>