

Impact of Depression, Anxiety on Life Satisfaction and Cognitive Flexibility Among Female University Students

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Abstract

The present study examined the impact of anxiety and depression on cognitive flexibility and life satisfaction among female university students in Sialkot, Pakistan. University students frequently encounter academic, social, and personal challenges that increase their vulnerability to psychological distress, which may adversely affect cognitive functioning and subjective well-being. A quantitative, cross-sectional research design was employed. A total of 200 female undergraduate and graduate students aged 18–30 years were recruited from public and private universities through convenience sampling. Data were collected using the Aga Khan University Anxiety and Depression Scale (AKUADS), the Cognitive Flexibility Inventory (CFI), and the Satisfaction with Life Scale (SWLS). Descriptive statistics, Pearson product-moment correlation, simple linear regression, and one-way analysis of variance (ANOVA) were conducted using IBM SPSS Statistics Version 25. The findings revealed a significant negative relationship between anxiety and depression and cognitive flexibility ($r = -.220$, $p = .002$), as well as a strong negative relationship between anxiety and depression and life satisfaction ($r = -.495$, $p < .001$). Cognitive flexibility showed a positive but non-significant association with life satisfaction ($r = .110$, $p = .127$). Regression analyses indicated that anxiety and depression significantly predicted cognitive flexibility ($R^2 = .048$, $p = .002$) and life satisfaction ($R^2 = .245$, $p < .001$), with a stronger predictive effect on life satisfaction. ANOVA further demonstrated significant differences in life satisfaction across varying levels of psychological distress, whereas cognitive flexibility did not differ significantly. The findings highlight the importance of early identification and management of anxiety and depression to enhance cognitive functioning and life satisfaction among female university students. Universities should strengthen counseling services and implement evidence-based mental health interventions to promote students' psychological well-being.

Keywords: Anxiety, Depression, Cognitive Flexibility, Life Satisfaction, Female University Students, Psychological Well-Being.

Introduction

Mental health has become one of the most significant public health concerns worldwide, particularly among university students who experience numerous academic, social, emotional, and developmental challenges. The transition from adolescence to adulthood is accompanied by increased educational demands, career uncertainty, financial pressures, changing interpersonal relationships, and family expectations, all of which contribute to psychological distress. Female university students are especially vulnerable to emotional problems because

they often experience additional sociocultural pressures related to gender roles, academic achievement, family responsibilities, and future career expectations. Consequently, depression and anxiety have become increasingly prevalent among young women enrolled in higher education institutions. Depression is a common psychological disorder characterized by persistent sadness, hopelessness, loss of interest in previously enjoyable activities, reduced motivation, impaired concentration, sleep disturbances, fatigue, and feelings of worthlessness (American Psychiatric Association [APA], 2022). Depression negatively affects emotional functioning, academic performance, interpersonal relationships, physical health, and overall quality of life. According to the World Health Organization (2023), depression affects more than 280 million people globally and is among the leading causes of disability, particularly among adolescents and young adults. Anxiety is another highly prevalent mental health condition among university students. It is characterized by excessive worry, nervousness, physiological arousal, fear of uncertainty, and difficulties in emotional regulation (Barlow, 2002). While moderate anxiety may enhance motivation and performance, persistent or excessive anxiety interferes with daily functioning, decision-making, learning, concentration, and social relationships. Female students consistently report higher levels of anxiety than their male counterparts because of biological, psychological, and sociocultural factors (McLean et al., 2011). Depression and anxiety frequently occur together and substantially influence psychological functioning. Students experiencing these emotional difficulties often demonstrate poor academic performance, lower self-esteem, impaired interpersonal relationships, reduced psychological resilience, and diminished subjective well-being. The increasing prevalence of depression and anxiety among university students has prompted researchers to investigate factors that promote psychological adaptation and protect individuals from mental health problems. One important indicator of psychological well-being is life satisfaction. Life satisfaction refers to an individual's cognitive evaluation of the overall quality of life according to personally selected standards (Diener et al., 1985). Unlike temporary emotions, life satisfaction reflects a relatively stable judgment regarding one's achievements, relationships, health, education, and future expectations. Individuals with higher life satisfaction generally experience greater happiness, optimism, resilience, psychological well-being, and healthier interpersonal relationships. Conversely, depression and anxiety have consistently been associated with lower life satisfaction because negative emotions distort cognitive evaluations of life experiences. Another important psychological construct associated with mental health is cognitive flexibility. Cognitive flexibility refers to the ability to adapt thinking, modify behavioral strategies, consider alternative perspectives, and respond effectively to changing environmental demands (Dennis & Vander Wal, 2010). Individuals with greater cognitive flexibility demonstrate better emotional regulation, effective problem-solving, adaptive coping, and resilience during stressful situations. Conversely, individuals experiencing depression and anxiety often display rigid thinking patterns, negative cognitive biases, impaired decision-making, and difficulties adapting to challenging situations. Within the university environment, cognitive flexibility enables students to adjust successfully to academic demands, interpersonal challenges, technological changes, and career uncertainty. Students possessing greater cognitive flexibility are more capable of managing stress, solving problems creatively, and maintaining psychological well-being despite adversity. Recent psychological research suggests that cognitive flexibility serves as a protective factor against depression and anxiety by promoting adaptive coping and emotional resilience. Pakistan has experienced increasing concern regarding the mental health of university students. Academic competition, financial difficulties, unemployment concerns, family expectations, and cultural pressures contribute substantially to emotional distress among young adults. Female students may experience additional challenges associated with traditional gender expectations, social restrictions, safety concerns, and balancing educational aspirations with family responsibilities.

Despite growing awareness of student mental health, relatively limited empirical research has simultaneously examined depression, anxiety, life satisfaction, and cognitive flexibility among Pakistani female university students. The present study seeks to investigate the impact of depression and anxiety on life satisfaction and cognitive flexibility among female university students in Pakistan. Understanding these relationships may contribute to the development of effective psychological interventions, university counseling services, and mental health promotion programs designed to improve students' psychological well-being and academic success.

Literature Review

Depression

Depression is one of the most common mental disorders worldwide and significantly affects emotional, cognitive, behavioral, and social functioning. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) defines depression as a mood disorder characterized by persistent sadness, diminished interest or pleasure, feelings of guilt, sleep disturbances, fatigue, impaired concentration, and recurrent thoughts of death (American Psychiatric Association, 2022). Depression ranges from mild emotional distress to severe clinical disorders requiring psychological and pharmacological treatment. According to Beck's Cognitive Theory of Depression (1967), depression develops because individuals possess dysfunctional cognitive schemas that produce negative automatic thoughts about themselves, their environment, and the future. Beck described this process as the cognitive triad, emphasizing that negative thinking contributes to emotional distress and behavioral withdrawal. Contemporary research continues to support this theory, demonstrating that maladaptive cognitive processes play a central role in the development and maintenance of depression (Disner et al., 2011). Among university students, depression has become increasingly prevalent because of academic workload, examination stress, social isolation, financial difficulties, and uncertainty regarding future careers. Recent international studies estimate that approximately one-third of university students experience clinically significant depressive symptoms during their academic careers (Auerbach et al., 2018; Ibrahim et al., 2023). Female students consistently report higher depression levels than males, highlighting the importance of gender-specific mental health research.

Anxiety

Anxiety refers to persistent feelings of apprehension, nervousness, fear, and physiological arousal in response to perceived threats. Barlow (2002) conceptualized anxiety as an emotional state characterized by heightened vigilance and anticipation of future danger. Although anxiety serves adaptive functions by preparing individuals to respond to challenging situations, excessive anxiety interferes with academic performance, decision-making, concentration, emotional regulation, and interpersonal functioning. University students commonly experience anxiety because of academic examinations, competitive educational environments, financial concerns, social pressures, and career uncertainty. Recent studies indicate that anxiety prevalence among university students has increased substantially following the COVID-19 pandemic, particularly among female students (Son et al., 2020; WHO, 2023).

Life Satisfaction

Life satisfaction represents the cognitive component of subjective well-being. Diener et al. (1985) defined life satisfaction as an individual's global evaluation of life quality according to personal standards and expectations. Individuals with greater life satisfaction generally report better psychological health, stronger interpersonal relationships, optimism, resilience, and higher quality of life. Research consistently demonstrates that depression and anxiety

negatively influence life satisfaction. Individuals experiencing depressive symptoms often interpret life events pessimistically, reducing overall life evaluations. Similarly, chronic anxiety contributes to dissatisfaction by increasing worry, uncertainty, and emotional distress (Diener et al., 2018).

Cognitive Flexibility

Cognitive flexibility refers to an individual's capacity to modify thinking patterns, shift perspectives, adapt behavior, and generate alternative solutions when faced with changing circumstances (Dennis & Vander Wal, 2010). It represents an important executive cognitive function associated with resilience, adaptive coping, creativity, and emotional regulation. Individuals possessing high cognitive flexibility demonstrate greater psychological adjustment because they effectively manage stressful situations and reinterpret challenges positively. Conversely, depression and anxiety are associated with cognitive rigidity, repetitive negative thinking, impaired decision-making, and reduced problem-solving abilities (Gabrys et al., 2018).

Depression, Anxiety, Life Satisfaction, and Cognitive Flexibility

Previous research consistently indicates that depression and anxiety negatively predict both life satisfaction and cognitive flexibility. Students experiencing depressive and anxious symptoms generally report poorer subjective well-being, lower academic achievement, impaired coping skills, and reduced psychological resilience (Çelik et al., 2021; Gabrys et al., 2018). Cognitive flexibility has also been identified as a protective factor that reduces emotional distress and enhances life satisfaction by facilitating adaptive coping strategies. Although international studies have extensively examined these variables independently, relatively few investigations have simultaneously explored depression, anxiety, life satisfaction, and cognitive flexibility among Pakistani female university students. Therefore, the present study addresses an important gap by examining these relationships within the cultural and educational context of Pakistan. The findings may provide valuable evidence for university counselors, psychologists, educators, and policymakers seeking to improve student mental health and psychological well-being.

Method

Research Design

This study investigates the linked between anxiety, depression, cognitive flexibility, and life satisfaction between female university students and using a quantitative, cross sectional method.

Participants

The study comprised 200 female university students enrolled in undergraduate and graduate programs at public and private universities in Sialkot, Pakistan. Participants were recruited using a convenience sampling technique based on their accessibility and willingness to participate in the study. The participants ranged in age from 18 to 30 years. Inclusion criteria required participants to be female university students within the specified age range, provide informed consent, and complete all study questionnaires. Questionnaires with substantial missing or incomplete responses were excluded from the final analysis to ensure the accuracy and reliability of the data.

Measures

Agha Khan University Anxiety and Depression Scale (AKUADS)

Symptoms of anxiety and depression were assessed using the Agha Khan University Anxiety and Depression Scale (AKUADS), developed by Ali et al. (1998). The AKUADS is a culturally appropriate self-report instrument designed to screen for symptoms of anxiety and depression in the Pakistani population. The scale consists of 25 items, including both psychological and somatic symptoms experienced during the preceding two weeks. Each item is rated on a 4-point Likert scale, ranging from 0 (Never) to 3 (Always). Total scores range from 0 to 75, with higher scores indicating greater levels of anxiety and depressive symptoms. Previous studies have demonstrated excellent psychometric properties, with an overall Cronbach's alpha of approximately .93, indicating high internal consistency (Ali et al., 1998). The AKUADS has also shown satisfactory validity and has been widely used in clinical and community-based research in Pakistan.

Cognitive Flexibility Inventory (CFI)

Cognitive flexibility was measured using the Cognitive Flexibility Inventory (CFI) developed by Dennis and Vander Wal (2010). The CFI is a 20-item self-report measure designed to assess an individual's ability to perceive difficult situations as controllable, generate alternative explanations for life events, and produce multiple solutions to challenging situations. Responses are recorded on a 7-point Likert scale, ranging from 1 (Strongly disagree) to 7 (Strongly agree). The inventory comprises two subscales: Alternatives and Control. Higher total scores indicate greater cognitive flexibility and more adaptive cognitive functioning. The original scale demonstrated excellent internal consistency, with a Cronbach's alpha of .90, while the Alternatives and Control subscales yielded reliability coefficients of .91 and .84, respectively (Dennis & Vander Wal, 2010). The CFI has been extensively validated across diverse cultural and student populations.

Satisfaction with Life Scale (SWLS)

Life satisfaction was assessed using the Satisfaction with Life Scale (SWLS) developed by Diener et al. (1985). The SWLS is a widely used measure of the cognitive component of subjective well-being and evaluates individuals' overall satisfaction with their lives. The scale consists of five items, each rated on a 7-point Likert scale ranging from 1 (Strongly disagree) to 7 (Strongly agree). Total scores range from 5 to 35, with higher scores reflecting greater life satisfaction. The SWLS has demonstrated excellent psychometric properties across different cultures and age groups, with reported Cronbach's alpha coefficients ranging from .79 to .89, and approximately .87 in the original validation study (Diener et al., 1985). The scale has consistently shown good construct validity, convergent validity, and test-retest reliability, making it one of the most frequently used instruments for assessing subjective well-being.

Procedure

Prior to data collection, formal permission and ethical approval were obtained from concerned institutions. After receiving approval, permission was sought from the administrations of selected public and private universities in Sialkot to approach potential participants. Female students who met the inclusion criteria were informed about the purpose, objectives, and voluntary nature of the study. Those who agreed to participate provided written informed consent before completing the questionnaires. Data were collected through paper-based questionnaires administered in classroom settings and other appropriate university locations. Participants first completed a demographic information form, followed by the Agha Khan University Anxiety and Depression Scale (AKUADS), the Cognitive Flexibility Inventory (CFI), and the Satisfaction with Life Scale (SWLS). The entire assessment required

approximately 15–20 minutes to complete. Participants were encouraged to respond honestly and independently, and they were assured that there were no right or wrong answers. After data collection, the questionnaires were screened for completeness, and forms with substantial missing data or incomplete responses were excluded from the final analysis. The collected data were coded and entered into IBM SPSS Statistics Version 25 for statistical analysis.

Ethical Considerations

The study was conducted in accordance with established ethical principles for psychological research. Ethical approval was obtained from the Departmental Research Ethics Committee, Department of Psychology, Government College Women University Sialkot, prior to the commencement of data collection. Participation in the study was entirely voluntary, and written informed consent was obtained from all participants before their inclusion in the research. Participants were informed about the purpose of the study, the research procedures, their right to decline participation, and their freedom to withdraw from the study at any stage without penalty or negative consequences. Confidentiality and anonymity were strictly maintained by assigning identification codes instead of recording participants' names or other identifying information. All collected data were used solely for academic and research purposes and were stored securely to prevent unauthorized access.

Results

Descriptive Statistics

Table 1.1 Descriptive Statistics of the Study Variables (N = 200)

Variable	<i>N</i>	<i>M</i>	<i>SD</i>
Anxiety and Depression (AKUADS)	198	74.83	12.35
Cognitive Flexibility (CFI)	197	94.50	15.49
Life Satisfaction (SWLS)	197	16.44	5.93

Note. *M* = Mean; *SD* = Standard Deviation; AKUADS = Aga Khan University Anxiety and Depression Scale; CFI = Cognitive Flexibility Inventory; SWLS = Satisfaction with Life Scale.

Table 1.1 presents the descriptive statistics of the study variables. The participants obtained a mean score of 74.83 (*SD* = 12.35) on the Aga Khan University Anxiety and Depression Scale (AKUADS), indicating the presence of anxiety and depressive symptoms among the female university students. The mean score for the Cognitive Flexibility Inventory (CFI) was 94.50 (*SD* = 15.49), suggesting a moderate level of cognitive flexibility within the sample. Similarly, the mean score on the Satisfaction with Life Scale (SWLS) was 16.44 (*SD* = 5.93), reflecting relatively low to moderate levels of life satisfaction among the participants. Overall, the descriptive statistics provide an overview of the central tendency and variability of the study variables and serve as the basis for subsequent correlational and regression analyses.

Table 1.2 Pearson Product–Moment Correlations among Anxiety and Depression, Cognitive Flexibility, and Life Satisfaction (N = 200)

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Anxiety and Depression (AKUADS)	74.83	12.35	—		
2. Cognitive Flexibility (CFI)	94.50	15.49	-.220**	—	
3. Life Satisfaction (SWLS)	16.44	5.93	-.495***	.110	—

Note. *M* = Mean; *SD* = Standard Deviation; AKUADS = Aga Khan University Anxiety and Depression Scale; CFI = Cognitive Flexibility Inventory; SWLS = Satisfaction with Life Scale. $p < .01^{**}$, $p < .001^{***}$.

Table 1.2 presents the Pearson product-moment correlations among the study variables. Anxiety and depression showed a significant negative correlation with cognitive flexibility ($r = -.220$, $p = .002$), indicating that higher levels of anxiety and depressive symptoms were associated with lower cognitive flexibility. Similarly, anxiety and depression were significantly and negatively correlated with life satisfaction ($r = -.495$, $p < .001$), suggesting that participants experiencing greater psychological distress reported lower levels of life satisfaction. Although cognitive flexibility was positively related to life satisfaction ($r = .110$), the relationship was not statistically significant ($p = .127$). These findings indicate that increased anxiety and depression are associated with poorer psychological functioning, particularly reduced life satisfaction and cognitive flexibility.

Table 2.1 Linear Regression Analyses Predicting Cognitive Flexibility and Life Satisfaction from Anxiety and Depression (N = 200)

Dependent Variable	Predictor	B	SE B	β	<i>t</i>	<i>p</i>	R^2	<i>F</i>
Cognitive Flexibility	Anxiety and Depression (AKUADS)	−0.275	0.088	−.220	−3.13	.001**	.048	9.77**
Life Satisfaction	Anxiety and Depression (AKUADS)	−0.238	0.030	−.495	−7.94	<.001***	.245	63.05***

Note. AKUADS = Aga Khan University Anxiety and Depression Scale. *B* = Unstandardized regression coefficient; *SE B* = Standard error of *B*; β = Standardized regression coefficient; R^2 = Coefficient of determination. $p < .01$. * $p < .001$.

Table 2.1 presents the results of the simple linear regression analyses examining the predictive effect of anxiety and depression on cognitive flexibility and life satisfaction. Anxiety and depression significantly and negatively predicted cognitive flexibility, $F(1, 193) = 9.77$, $p = .002$, accounting for 4.8% of the variance ($R^2 = .048$). The negative standardized regression coefficient ($\beta = -.220$) indicates that higher levels of anxiety and depression were associated with lower levels of cognitive flexibility. Similarly, anxiety and depression significantly predicted life satisfaction, $F(1, 194) = 63.05$, $p < .001$, explaining 24.5% of the variance ($R^2 = .245$). The standardized regression coefficient ($\beta = -.495$) indicates a strong negative relationship, suggesting that participants with higher levels of anxiety and depression reported significantly lower life satisfaction. Overall, anxiety and depression emerged as significant negative predictors of both cognitive flexibility and life satisfaction, with a substantially stronger predictive effect observed for life satisfaction.

Table 3.1 One-Way ANOVA for Differences in Cognitive Flexibility and Life Satisfaction Across Anxiety and Depression (AKUADS) Groups (N = 200)

Dependent Variable	df (Between, Within)	<i>F</i>	<i>p</i>
Cognitive Flexibility (CFI)	(51, 143)	0.93	.041
Life Satisfaction (SWLS)	(51, 144)	2.60	< .001***

Note. AKUADS = Aga Khan University Anxiety and Depression Scale; CFI = Cognitive Flexibility Inventory; SWLS = Satisfaction with Life Scale. * $p < .001$.

Table 3.1 presents the results of the one-way analysis of variance (ANOVA) examining differences in cognitive flexibility and life satisfaction across anxiety and depression (AKUADS) groups. The analysis revealed **no statistically significant differences** in cognitive flexibility among the AKUADS groups, $F(51, 143) = 0.93, p = .612$, indicating that cognitive flexibility did not vary significantly across different levels of anxiety and depression. In contrast, the ANOVA showed **significant differences** in life satisfaction across the AKUADS groups, $F(51, 144) = 2.60, p < .001$, suggesting that participants with different levels of anxiety and depression differed significantly in their life satisfaction. Specifically, higher levels of anxiety and depression were associated with lower levels of life satisfaction.

Discussion

The present study examined the impact of anxiety and depression on cognitive flexibility and life satisfaction among female university students in Pakistan. The findings revealed that anxiety and depression were significantly and negatively associated with both cognitive flexibility and life satisfaction. Furthermore, anxiety and depression significantly predicted cognitive flexibility and life satisfaction, indicating that greater psychological distress is linked with poorer cognitive functioning and reduced subjective well-being. These findings support the study hypotheses and are consistent with contemporary theories of emotional regulation and cognitive functioning. The first major finding demonstrated a significant negative relationship between anxiety and depression and cognitive flexibility. Female students reporting higher levels of anxiety and depressive symptoms exhibited lower cognitive flexibility. This finding is consistent with Beck's Cognitive Theory (1967), which proposes that depression and anxiety are characterized by rigid, negative thinking patterns that reduce individuals' ability to generate alternative interpretations and adaptive solutions. Individuals experiencing psychological distress often become cognitively inflexible, making it difficult to adapt to changing situations and solve problems effectively. The present findings are consistent with the international research of Gabrys et al. (2018), who concluded that cognitive flexibility serves as a protective psychological resource against depression and anxiety by enhancing adaptive coping and emotional regulation. Likewise, Kalia et al. (2022) reported that university students with greater cognitive flexibility experienced significantly lower levels of psychological distress and demonstrated better adjustment to academic stressors. Similarly, Dennis and Vander Wal (2010) found that cognitively flexible individuals are more capable of reappraising stressful situations, thereby reducing symptoms of anxiety and depression. These findings are also supported by Pakistani studies. Abbas et al. (2025) reported that resilience and self-compassion were positively associated with psychological well-being among government school teachers, suggesting that adaptive psychological characteristics reduce emotional distress and improve cognitive functioning. Likewise, Rizwan and Ahmad (2021) found that psychological resilience significantly buffered anxiety and depressive symptoms among Pakistani university students, improving adaptive coping abilities. The second important finding revealed a strong negative relationship between anxiety and depression and life satisfaction. Students experiencing greater psychological distress reported significantly lower levels of life satisfaction. This finding supports the conceptualization of subjective well-being proposed by Diener et al. (1985), which suggests that depression and anxiety negatively influence individuals' cognitive evaluation of their lives. Persistent psychological distress often diminishes optimism, hope, interpersonal satisfaction, and overall quality of life.

The present findings are consistent with numerous international investigations. Diener et al. (2018) concluded that depression is among the strongest predictors of reduced life satisfaction

across cultures. Similarly, Brailovskaia et al. (2021) found that anxiety and depressive symptoms significantly decreased life satisfaction among university students during periods of academic and social stress. Furthermore, World Health Organization (2023) reports continue to identify depression as one of the leading contributors to reduced quality of life and disability among young adults. Within Pakistan, similar findings have been reported by Abbas et al. (2024), who demonstrated that happiness, gratitude, and socioeconomic status positively predicted psychological well-being among adults, indicating that positive emotional functioning contributes substantially to life satisfaction. Likewise, Abbas et al. (2024) found that social support significantly enhanced quality of life among adolescents, emphasizing the importance of positive psychological resources in maintaining subjective well-being. Contrary to expectations, cognitive flexibility demonstrated a positive but statistically non-significant relationship with life satisfaction. Although previous studies have generally reported positive associations between these variables, the present findings suggest that cognitive flexibility alone may not sufficiently explain life satisfaction among Pakistani female university students. Cultural values, family expectations, religious beliefs, financial concerns, academic workload, and social support may exert stronger influences on subjective well-being than cognitive flexibility itself. These findings differ somewhat from those of Martin and Rubin (1995) and Dennis and Vander Wal (2010), who reported significant positive relationships between cognitive flexibility and psychological well-being. However, the present findings correspond with studies suggesting that cognitive flexibility may indirectly influence life satisfaction through mediating variables such as resilience, coping strategies, emotional intelligence, and perceived social support rather than exerting a direct effect.

Regression analyses further demonstrated that anxiety and depression significantly predicted both cognitive flexibility and life satisfaction. However, psychological distress explained a substantially larger proportion of variance in life satisfaction (24.5%) than in cognitive flexibility (4.8%). These findings suggest that emotional distress has a stronger influence on students' subjective well-being than on their cognitive adaptability. Similar findings were reported by Auerbach et al. (2018) and Son et al. (2020), who observed that depression and anxiety substantially impair psychological well-being and academic functioning among university students. The ANOVA findings further indicated that life satisfaction differed significantly across varying levels of anxiety and depression, whereas cognitive flexibility did not. This suggests that life satisfaction is more sensitive to variations in psychological distress than cognitive flexibility. Emotional disturbances appear to influence students' overall evaluation of life more consistently than they affect cognitive processing abilities. Overall, the findings highlight the urgent need to address anxiety and depression among female university students in Pakistan. Universities should strengthen psychological counseling services, implement mental health awareness campaigns, provide stress-management training, and encourage early identification of emotional difficulties. Such interventions are likely to improve students' life satisfaction, academic adjustment, and overall psychological well-being.

Conclusion

The present study investigated the impact of anxiety and depression on cognitive flexibility and life satisfaction among female university students in Pakistan. The findings revealed that higher levels of anxiety and depression were associated with lower cognitive flexibility and reduced life satisfaction. Anxiety and depression significantly predicted both outcome variables, with a stronger predictive effect observed for life satisfaction. Although cognitive flexibility was positively associated with life satisfaction, this relationship was not statistically significant. Overall, the study demonstrates that psychological distress is an important determinant of students' cognitive functioning and subjective well-being. These findings contribute to the growing literature on university student mental health and emphasize the

importance of early psychological interventions to promote healthier academic and personal adjustment.

Practical and Theoretical Implications

Practical Implications

The findings have important implications for universities, psychologists, counselors, and policymakers. Universities should establish accessible mental health counseling centers that provide screening, psychological assessment, and evidence-based interventions for anxiety and depression. Psychoeducation programs focusing on stress management, emotional regulation, cognitive restructuring, and adaptive coping should be integrated into student support services. Faculty members should also be trained to recognize early signs of psychological distress and refer students for professional support. These initiatives may improve students' psychological well-being, academic performance, and overall life satisfaction.

Theoretical Implications

The present study contributes to the existing literature by providing empirical evidence supporting cognitive theories of depression and subjective well-being within the Pakistani cultural context. The findings reinforce Beck's Cognitive Theory by demonstrating that anxiety and depression are associated with reduced cognitive flexibility and lower life satisfaction. Furthermore, the study extends previous research by simultaneously examining these variables among Pakistani female university students, thereby contributing to cross-cultural understanding of psychological distress and its consequences.

Limitations

Several limitations should be considered when interpreting the findings. First, the cross-sectional research design prevents causal inferences regarding the relationships among anxiety, depression, cognitive flexibility, and life satisfaction. Second, participants were recruited through convenience sampling from universities in Sialkot, limiting the generalizability of the findings to other regions of Pakistan. Third, all variables were assessed using self-report questionnaires, increasing the possibility of response bias and social desirability effects. Fourth, the study included only female university students; therefore, the findings cannot be generalized to male students or non-student populations. Finally, other important psychological variables, including resilience, emotional intelligence, coping strategies, mindfulness, self-compassion, and perceived social support, were not examined and may also influence cognitive flexibility and life satisfaction.

Recommendations

Based on the findings and limitations of the present study, several recommendations are proposed. Future studies should employ longitudinal or experimental research designs to better understand causal relationships among anxiety, depression, cognitive flexibility, and life satisfaction. Researchers should recruit larger and more diverse samples from different provinces and universities across Pakistan using probability sampling techniques to enhance generalizability. Future investigations should include both male and female participants to explore potential gender differences. Additionally, researchers are encouraged to examine the roles of resilience, mindfulness, emotional intelligence, self-compassion, coping strategies, social support, and academic stress as potential mediators or moderators. Universities should implement comprehensive mental health promotion programs, routine psychological screening, and evidence-based counseling interventions to improve students' emotional well-being, cognitive functioning, and life satisfaction.

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