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Beyond Adaptation: The Mediating Role of Leisure Experiences in the Relationship Between Sociocultural Adaptation and Life Satisfaction Among Azerbaijani International Students

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ABSTRACT

International students' successful adaptation to the host country is closely associated with subjective well-being; however, the mechanisms linking sociocultural adaptation to life satisfaction are not yet fully understood. This study investigates the mediating role of leisure experience dimensions in the relationship between sociocultural adaptation and life satisfaction among Azerbaijani international students in Türkiye. Employing a cross-sectional quantitative design, data were collected from 122 students using the Sociocultural Adaptation Scale, Leisure Experience Scale, and Life Satisfaction Scale. A parallel multiple mediation model was tested using Hayes' PROCESS macro (Model 4) with 5,000 bootstrap resamples. The results indicate that sociocultural adaptation positively predicts life satisfaction, awareness, challenge, and boredom, while anxiety is not significant. Only awareness and challenge significantly predict life satisfaction, with challenge emerging as the sole significant mediator. These findings underscore the developmental role of leisure.

Keywords: Azerbaijani students, leisure experience, life satisfaction, parallel mediation model, sociocultural adaptation, survey

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INTRODUCTION

Globalization and the internationalization of higher education have significantly increased international student mobility in recent years. The number of students pursuing higher education outside their home countries reached approximately 7.3 million worldwide as of 2023 (UNESCO, 2026), more than tripling over the past two decades. This increase has transformed international student mobility from merely an academic form of mobility into a strategic element in countries' higher education policies, economic development goals, and intercultural interaction processes. In recent years, Türkiye has also emerged as a regional education hub, aligning with its internationalization policies in higher education (Ajjan, 2026; Arslan & Polat, 2023; Salimoğlu et al., 2024). According to the Council of Higher Education, Türkiye hosts nearly 350,000 international students from more than 200 countries and ranks sixth worldwide among host countries (Council of Higher Education [YÖK], 2025).

Azerbaijani students are a particularly relevant group for examining international student adaptation in Türkiye because of the historical, cultural, and linguistic ties between the two countries. Shared history, cultural ties, and linguistic proximity are key factors shaping Azerbaijani students' choice of Türkiye for higher education (Salimoğlu et al., 2024; Verdiyev & Özkul, 2018). While cultural affinity facilitates migration and adaptation, it does not eliminate all challenges associated with adapting to a new environment. Although Azerbaijani students generally do not experience major culture shock in Türkiye, they may encounter challenges such as differences in the academic system, bureaucratic processes, housing issues, loneliness, lack of social belonging, and difficulties adapting to institutional procedures (Can, 2021; Dangeni, 2023; Verdiyev & Özkul, 2018).

In this context, sociocultural adaptation is a key concept, referring to an individual's capacity to adapt effectively to the norms of a new social and academic environment (Ward & Kennedy, 1999). In the literature on cross-cultural adaptation, sociocultural adaptation is regarded as a key indicator encompassing an individual's daily living skills, social relationships, and capacity to adapt to the expectations of the new environment (Ward & Kennedy, 1999; Yerken et al., 2022). Previous studies indicate that sociocultural adaptation significantly affects international students' life satisfaction, psychological well-being, and overall adaptation processes (Gebru & Yuksel-Kaptanoglu, 2020; Ward & Kennedy, 1999; Yerken et al., 2022). However, the mechanisms through which sociocultural adaptation influences life satisfaction remain poorly understood. In particular, how international students experience daily life as they adapt to a new cultural environment, and which processes support life satisfaction, remains a key area of interest.

Leisure experiences represent a mechanism in international students' adaptation processes that has received limited scholarly attention. Participation in leisure activities plays a significant role in fostering social relationships, enhancing a sense of belonging, and increasing opportunities for interaction with the host community (Ajjan, 2026; Akgül & Ayyıldız Durhan, 2024; Ma, 2026). Recreational activities, sports, student clubs, and other forms of social participation not only assist in coping with cultural adjustment stress but also promote more active engagement with the new cultural environment (Ajjan, 2026; Akgül & Ayyıldız Durhan, 2024; Ma, 2026). Research indicates that leisure participation and social networks are closely linked to students' adjustment to university and opportunities for intercultural interaction (Glass et al., 2014; Gómez et al., 2014). However, the impact of leisure time on well-being is multidimensional, and not all leisure experiences yield identical outcomes. Leisure experiences include dimensions such as awareness, challenge, boredom, and anxiety, each of which may influence adaptation and subjective well-being through distinct mechanisms (Akgül & Ayyıldız Durhan, 2024). Leisure experiences that foster competence, support skill development, and involve manageable challenges may be especially effective in turning adaptation into life satisfaction.

However, international students' leisure processes are not limited to psychological experiences alone; they may also transform the types of activities they participate in. Existing research indicates that leisure participation among international students is intertwined with their social networks, access to recreational opportunities, intercultural relationships, and adjustment to the host university environment

(Glass et al., 2014; Gómez et al., 2014). Therefore, understanding the patterns of leisure preferences in both students' home countries and the host country can contribute to a more comprehensive understanding of the role of leisure experiences in adaptation and life satisfaction processes.

However, in the literature, international students' experiences have largely been examined within the context of culture shock, loneliness, academic stress, psychological issues, and acculturative pressures; the explanatory role of leisure experiences in the relationship between sociocultural adaptation and life satisfaction has been relatively neglected (Bista et al., 2026; Zuo et al., 2026). Although leisure experience has been conceptualized as a multidimensional construct encompassing awareness, challenge, boredom, and anxiety (Akgül & Ayyıldız Durhan, 2024), it remains unclear whether these dimensions operate similarly in the relationship between sociocultural adaptation and life satisfaction. Furthermore, in the context of Azerbaijani students studying in Türkiye, few empirical studies examine the role of subdimensions of leisure experiences in the relationship between sociocultural adaptation and life satisfaction. Accordingly, this study examines the mediating role of the subdimensions of leisure experience (awareness, challenge, boredom, and anxiety) in the relationship between levels of sociocultural adaptation and life satisfaction among Azerbaijani international students, within a parallel multiple mediation model.

CONCEPTUAL FRAMEWORK

The conceptual framework integrates sociocultural adaptation, leisure experience, and life satisfaction to explain how international students' functioning in a new cultural environment relates to their life evaluations through everyday leisure experiences. Adaptation is conceptualized not only as the ability to manage practical demands in the host environment but also as encompassing psychosocial factors such as social relationships, sense of belonging, social connectedness, and psychological well-being (Ajjan, 2026; Day et al., 2025; Samadieh et al., 2026). Leisure experience is posited as a potential experiential pathway linking sociocultural adaptation to life satisfaction. Accordingly, the following sections address sociocultural adaptation, leisure experience, and life satisfaction as the principal constructs underlying the proposed mediation model.

Sociocultural Adaptation

In the context of international student mobility, the acculturation literature generally addresses adaptation through two main dimensions: psychological adaptation and sociocultural adaptation (Mahmood et al., 2026; Searle & Ward, 1990; Şeker & Akman, 2016). While psychological adaptation refers to the individual's emotional well-being, self-efficacy, and internal balance experienced in a new cultural environment, sociocultural adaptation denotes the individual's ability to function effectively within new social, academic, and daily life settings, adapt to social norms, and cope with the practical challenges of daily life (Ward & Kennedy, 1999). Although these dimensions are conceptually distinct, international students' adjustment also involves psychosocial processes through which social experiences and psychological functioning interact. In particular, social connectedness, perceived support, sense of belonging, and self-efficacy may link students' experiences within the host environment to their psychological well-being (Day et al., 2025; Samadieh et al., 2026).

For international students, sociocultural adaptation encompasses not merely a passive adjustment to a new environment, but a multidimensional process that includes adapting to the academic system, participating in campus life, and managing transportation, housing, health, and bureaucratic processes (Casas Trujillo & Dabney-Fekete, 2026; Gebru & Yuksel-Kaptanoglu, 2020). In this process, the individual's ability to develop social relationships, learn local cultural norms, and foster a sense of belonging to their new environment plays a significant role. These social experiences are particularly relevant because international students' relationships with peers, faculty, and the broader university environment can contribute to both their sense of belonging and their psychological adjustment (Ajjan, 2026; Samadieh et al., 2026).

The theoretical foundations of sociocultural adaptation largely rest on the Culture Learning Approach and stress-coping models (Lazarus & Folkman, 1984). According to the Culture Learning Approach, an individual may initially experience various adaptation difficulties in a new cultural environment; however, as knowledge about the target culture accumulates and social skills develop over time, the adaptation process progresses (Searle & Ward, 1990). Studies focusing on students from post-Soviet countries indicate that while linguistic and historical proximity may reduce some adaptation barriers, a deeper learning process regarding social relationships and cultural norms continues (Yerken et al., 2022). This is particularly relevant to Azerbaijani students in Türkiye, whose linguistic and cultural proximity to the host society may facilitate certain aspects of everyday sociocultural adjustment without eliminating the need to learn institution-specific and social norms (Verdiyev & Özkul, 2018; Yerken et al., 2022). In this process, factors such as peer relationships, faculty support, and institutional climate are among the key components shaping students' adaptation experiences (Ajjan, 2026; Samadieh et al., 2026).

Studies indicate that sociocultural adaptation is not merely an outcome variable but also a significant predictor of an individual's subjective well-being (Abu Khadra et al., 2025). International students who develop more functional relationships with their environment from a sociocultural perspective and reduce feelings of alienation exhibit lower levels of acculturative stress and depressive symptoms (Zuo et al., 2026). Furthermore, psychosocial resources embedded in the adaptation process, including social connectedness, perceived support, and a sense of mastery, may contribute to students' psychological well-being and broader evaluations of their lives (Abu Khadra et al., 2025; Day et al., 2025; Yerken et al., 2022).

Leisure Experience

Traditional approaches define leisure time as the period remaining after fulfilling obligatory responsibilities, whereas contemporary recreation literature conceptualizes leisure as a subjective experience and a psychological state (Caldwell et al., 1992). Within this framework, leisure experience refers to recreational activities undertaken voluntarily, characterized by a sense of freedom and autonomy.

According to the approach developed by Caldwell et al. (1992), the leisure experience is not a unidimensional structure; it consists of four fundamental subdimensions that reflect the individual's perceptions within recreational processes (Akgül & Ayyıldız Durhan, 2024). Awareness refers to the individual's awareness of the restorative and developmental aspects of leisure time and their desire to make the most of this time consciously. The challenge dimension concerns the individual pushing their own limits and developing new skills through recreational activities (Csikszentmihalyi, 1990). The boredom dimension reflects the feelings of dissatisfaction and aimlessness arising from the inability to structure leisure time effectively; the anxiety dimension, on the other hand, refers to the social or psychological tension an individual experiences during leisure activities or while managing this time (Chu et al., 2026).

For international students, leisure experiences include a range of activities such as participation in campus clubs, sports, artistic pursuits, exploration of local cultural venues, and the development of peer relationships. Thus, leisure functions not only as entertainment but also as an experiential context that supports social integration and a sense of belonging (Ajjan, 2026; Ma, 2026). According to Putnam's (2000) social capital framework, recreational participation can strengthen bonds within social groups (bonding) and facilitate the formation of relationships with the host community (bridging). In this way, leisure provides a social context in which international students can develop interpersonal connections and engage more actively with the host environment.

In particular, the challenge and awareness dimensions of leisure experience reflect developmental aspects of how individuals perceive and engage with their leisure time (Akgül & Ayyıldız Durhan, 2024). The challenge dimension is particularly relevant to experiences involving skill development and engagement with demanding activities, which can be interpreted in relation to the balance between perceived skills and challenges described in flow theory (Csikszentmihalyi, 1990). In this context, increased sociocultural adaptation may support students in structuring their leisure time more consciously and

actively; however, the relationship with the negative dimensions of leisure may vary depending on contextual conditions (Akgül & Ayyıldız Durhan, 2024).

Life Satisfaction

Life satisfaction is a fundamental component of subjective well-being, defined as an individual's cognitive evaluation of their life based on personal criteria (Diener et al., 1985). Unlike transient emotional states, life satisfaction represents a long-term, holistic assessment of one's life. For international students, life satisfaction extends beyond academic achievement and serves as an important indicator of the overall quality of their experience in a new cultural environment (Abu Khadra et al., 2025).

It is noted that the factors associated with international students' well-being have a multi-layered structure. Sociocultural adaptation (Arslan & Polat, 2023; Yerken et al., 2022), social support, meaning in life, and resilience (Mahmood et al., 2026), and the quality of recreational experiences (Akgül & Ayyıldız Durhan, 2024) represent important dimensions of the international student experience. Additionally, social relationships, opportunities for interaction, and a sense of belonging within the university environment are also relevant to students' adjustment and psychological well-being (Ajjan, 2026; Day et al., 2025). Taken together, these findings suggest that international students' broader well-being is shaped not only by adjustment to the host environment but also by the quality of the social and experiential contexts in which that adjustment occurs.

Hypothesis Development

Sociocultural Adaptation and Leisure Experiences

According to the cultural learning approach, the extent to which international students adapt to the social, academic, and cultural norms of the host country shapes their daily life practices and recreational experiences (Searle & Ward, 1990). It is anticipated that students with a high level of sociocultural adaptation may be more proactive in accessing recreational opportunities, structure their leisure time more consciously, and be more open to new experiences (Caldwell et al., 1992; Verdiyev & Özkul, 2018). Conversely, difficulties experienced during the adaptation process may be associated with certain negative dimensions of the leisure experience (Zuo et al., 2026). Given the multidimensional nature of leisure experience, sociocultural adaptation may therefore be associated differently with awareness, challenge, boredom, and anxiety. In this context, the following hypotheses have been developed:

H1. Sociocultural adaptation has a significant and positive effect on life satisfaction.

H2. Sociocultural adaptation significantly influences the awareness dimension of leisure experience.

H3. Sociocultural adaptation significantly influences the challenge dimension of leisure experience.

H4. Sociocultural adaptation significantly influences the boredom dimension of leisure experience.

H5. Sociocultural adaptation significantly influences the anxiety dimension of leisure experience.

Subdimensions of Leisure Experience and Life Satisfaction

Theoretical approaches regarding the restorative and experiential functions of leisure suggest that meaningful and autonomous engagement with leisure time can contribute to positive individual experiences (Caldwell et al., 1992). In particular, the awareness and challenge dimensions reflect more active and developmental aspects of leisure experience (Akgül & Ayyıldız Durhan, 2024). The challenge dimension may also be considered in relation to flow theory, in which optimal experience is associated with a balance between perceived challenges and individual skills (Csikszentmihalyi, 1990). These positive dimensions may therefore be especially relevant to life satisfaction because they reflect a more purposeful and development-oriented engagement with leisure. By contrast, boredom and anxiety represent distinct negative dimensions of leisure experience (Akgül & Ayyıldız Durhan, 2024). Accordingly, the effects of

the four leisure experience dimensions on life satisfaction are examined separately rather than being assumed to operate in the same direction or with the same magnitude. Accordingly, the following hypotheses have been formulated:

H6. The awareness dimension of leisure experience has a significant and positive effect on life satisfaction.

H7. The challenge dimension of leisure experience has a significant and positive effect on life satisfaction.

H8. The boredom dimension of leisure experience has a significant effect on life satisfaction.

H9. The anxiety dimension of leisure experience has a significant effect on life satisfaction.

The Mediating Role of Leisure Experience

In the acculturation literature, it is noted that the effect of sociocultural adaptation on life satisfaction is shaped not only directly but also through the individual's daily life experiences (Ward & Kennedy, 1999; Yerken et al., 2022). It is thought that individuals who are more socioculturally adapted may be able to structure their leisure time more effectively, and that these experiences may contribute to life satisfaction (Akgül & Ayyıldız Durhan, 2024; Csikszentmihalyi, 1990). From this perspective, leisure experience may function as an experiential mechanism through which adaptation to the host environment is translated into broader evaluations of life satisfaction. Because awareness, challenge, boredom, and anxiety represent distinct dimensions of leisure experience, their indirect roles are examined separately within the parallel mediation model. In this context, the following mediation hypotheses have been developed:

H10. Awareness plays a significant mediating role in the relationship between sociocultural adaptation and life satisfaction.

H11. Challenge plays a significant mediating role in the relationship between sociocultural adaptation and life satisfaction.

H12. Boredom plays a significant mediating role in the relationship between sociocultural adaptation and life satisfaction.

H13. Anxiety plays a significant mediating role in the relationship between sociocultural adaptation and life satisfaction.

METHOD

Research Design

This study employed a correlational survey design within a quantitative research framework. This approach enabled the examination of relationships among naturally occurring variables without manipulation and facilitated testing whether leisure experience dimensions statistically mediate the association between sociocultural adaptation and life satisfaction. The study specifically investigated the parallel mediating role of leisure experience subdimensions in the relationship between sociocultural adaptation and life satisfaction among Azerbaijani international students.

Participants

The study sample consisted of Azerbaijani international students enrolled at Yozgat Bozok University during the 2025–2026 academic year. According to the university's official student statistics, 608 Azerbaijani students were enrolled at Yozgat Bozok University during the study period. A total of 122 students participated voluntarily, representing approximately 20% of the study population. Thus, the participating sample represented approximately one-fifth of the identified Azerbaijani student population at the university.

The Yozgat Bozok University Ethics Committee for Social and Humanities Sciences approved the study (Decision No. 30/5, Date: November 19, 2025). Participation in the study was voluntary; informed

consent was obtained from participants, and data were used solely for scientific purposes. Care was taken to ensure participant confidentiality and anonymity throughout all stages of the research.

Instruments

A survey technique was utilized to collect data for the study. The survey form consisted of four sections. The first section included questions on participants' demographic characteristics, including gender, age, class, faculty, duration of stay in Türkiye, income status, employment status, and accommodation type. Additionally, the questionnaire included questions to determine the types of activities participants most frequently engaged in during their leisure time in Türkiye and Azerbaijan. In this context, physical, cultural, artistic, tourist, digital, and eco-recreational activities, as well as group social activities in home or dormitory settings, were evaluated. These variables were used in descriptive analyses to characterize the students' leisure context.

In the second section, the Leisure Experience Scale (LES) was used. The original form of the scale, *the Leisure Experience Battery for Adolescents*, was developed by Caldwell et al. (1992). The Turkish adaptation of the scale and the validity–reliability study on an adult sample were conducted by Akgül and Ayyıldız Durhan (2024). The scale consists of 11 items and four subscales: boredom, awareness, challenge, and anxiety. Participants rated the items on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). In the confirmatory factor analysis, it was determined that the scale's four-factor structure fit well (χ^2/df = 1.81, RMSEA = .05, SRMR = .03, CFI = .98, GFI = .96). In the adaptation study, it was reported that the Cronbach's alpha coefficients for the subscales ranged from .73 to .89. In this study, the scale's overall internal consistency coefficient was calculated as .71; the Cronbach's alpha coefficients for the subscales were .60 for boredom, .66 for awareness, .71 for challenge, and .64 for anxiety. The awareness and anxiety subdimensions each consist of only two items, which may affect their internal consistency coefficients. The scale was used to assess participants' cognitive and emotional experiences during leisure time.

In the third section, the Life Satisfaction Scale (LSS) was used. Developed by Diener et al. (1985), this scale measures individuals' general life satisfaction through subjective evaluations. The scale consists of five items and a single dimension. Dağlı and Baysal (2016) conducted a validity and reliability study of the Turkish adaptation of the scale. The scale is a 5-point Likert-type scale (1 = Strongly Disagree, 5 = Strongly Agree), and higher scores indicate higher life satisfaction. In this study, the scale's internal consistency coefficient was calculated as .67.

In the fourth section, the Sociocultural Adaptation Scale (SCAS) was used to assess participants' levels of adaptation to a new cultural environment. The scale aims to measure individuals' levels of adaptation to daily living skills, social relationships, and the norms of the host society in a different cultural environment (Ward & Kennedy, 1999). The scale's adaptation into Turkish, as well as its validity and reliability studies, were conducted by Şeker and Akman (2016). The scale consists of 29 items. Participants rated the items on a 5-point Likert-type scale (1 = Not at all difficult, 5 = Extremely difficult). Higher scores on the scale indicate that the individual experiences greater difficulty in the social and cultural adaptation process and therefore reflect a lower level of sociocultural adaptation. However, to facilitate interpretation of the current study's findings, scale scores were reverse-coded so that higher scores indicate greater sociocultural adaptation. In the Turkish adaptation study, the scale was reported to exhibit a unifactorial structure and to have a Cronbach's alpha internal consistency coefficient of .94. In this study, however, the scale's internal consistency coefficient was .85.

Data Analysis

Descriptive statistics were first calculated, and reliability analyses were conducted to assess the internal consistency of the scales. Correlation analysis was used to examine relationships among variables. To test the mediating effects predicted in the research model, a parallel multiple mediation analysis was

conducted using Hayes' PROCESS macro (Model 4). The significance of the indirect effects was evaluated using 95% bootstrap confidence intervals based on 5,000 resamples (Hayes, 2022).

Prior to the analyses, the data were examined to determine whether they met the assumptions of parametric tests and were evaluated for normality, skewness, and kurtosis. The results indicated that sociocultural adaptation (skewness = 0.528, kurtosis = −0.891), LES–boredom (0.097, −0.603), LES–awareness (0.119, −0.654), LES–challenge (−0.552, −0.066), LES–anxiety (−0.296, −0.686), and life satisfaction (0.897, 1.061) were within acceptable limits. The fact that all values fell within ±2 indicates that the data met the assumption of normality at an acceptable level (George & Mallery, 2010). Accordingly, parametric methods were preferred in the subsequent analyses.

RESULTS

Descriptive Statistics

A total of 122 international students participated in the study. Women accounted for 77.9% (n = 95) of the participants, while men accounted for 22.1% (n = 27). The mean age of the participants was 22.60 (SD = 1.49), ranging from 20 to 27 years. Additionally, the participants' average length of stay in Türkiye was calculated as 4.16 years (SD = 1.31).

It was determined that the vast majority of participants lived in dormitories (74.6%, n = 91), had a middle-income level (63.9%, n = 78), and were not employed (70.5%, n = 86). Accordingly, 29.5% of participants (n = 36) were employed. Income status was assessed based on participants' reported family income. In the income status analysis, 19.7% of participants (n = 24) were in the high-income group, and 16.4% (n = 20) were in the low-income group.

When examining descriptive statistics for scale scores, participants' levels of sociocultural adaptation were relatively high (M = 3.43, SD = 0.50), as were their life satisfaction scores (M = 4.02, SD = 0.65). Among the subdimensions of leisure experience, the highest average was observed in the awareness dimension (M = 3.30, SD = 0.75), while the lowest average was observed in the boredom dimension (M = 2.62, SD = 0.80). The mean scores for the challenge (M = 3.17, SD = 0.72) and anxiety (M = 3.11, SD = 0.75) dimensions were similar.

Findings Regarding Leisure Activity Preferences

When participants' leisure activity preferences were examined, leisure time in Türkiye was most frequently spent on physical activities (50.8%, n = 62). This was followed by artistic activities (21.3%, n = 26) and tourist activities (18.0%, n = 22). It was observed that digital activities (5.7%, n = 7), including browsing social media, playing digital games, watching videos or films, and listening to music, cultural activities (2.5%, n = 3), and eco-recreational activities (1.6%, n = 2) were preferred to a more limited extent. In contrast, participants' leisure activity preferences in their home country showed a more balanced distribution, with physical activities accounting for 31.1% (n = 38), followed by tourist activities (24.6%, n = 30), cultural activities (16.4%, n = 20), artistic activities (15.6%, n = 19), and digital activities (12.3%, n = 15). This finding suggests that while Azerbaijani students in the study tended to focus more on physical activities during their time in Türkiye, their reported leisure activities in Azerbaijan showed a more diverse pattern.

Correlation Analysis

Bivariate relationships between research variables were examined using Pearson's product-moment correlation coefficient (Table 1). The findings indicate that sociocultural adaptation was significantly and positively associated with boredom (r = .21, p = .018), awareness (r = .23, p = .010), challenge (r = .27, p = .003), and life satisfaction (r = .27, p = .003). Because SCAS scores were reverse-coded in the present study so that higher scores represented greater sociocultural adaptation, these positive coefficients indicate that higher sociocultural adaptation was associated with higher scores on boredom,

awareness, challenge, and life satisfaction. In contrast, no significant relationship was found between sociocultural adaptation and anxiety (r = .13, p = .138). Additionally, awareness (r = .35, p < .001) and challenge (r = .33, p < .001) were positively associated with life satisfaction, whereas boredom and anxiety were not significantly associated with life satisfaction.

Table 1

Pearson Correlation Matrix Among Variables

Variable	1	2	3	4	5	6
1. SCAS	—					
2. LES–boredom	.21*	—				
3. LES–awareness	.23*	.30***	—			
4. LES–challenge	.27**	.00	.49***	—		
5. LES–anxiety	.13	.20*	.22*	.44***	—	
6. LSS	.27**	.06	.35***	.33***	.00	—

Note. N = 122. SCAS = Sociocultural Adaptation Scale (reverse-coded; higher scores indicate greater sociocultural adaptation); LES = Leisure Experience Scale; LSS = Life Satisfaction Scale. *p < .05. **p < .01. ***p < .001.

Parallel Multiple Mediation Analysis

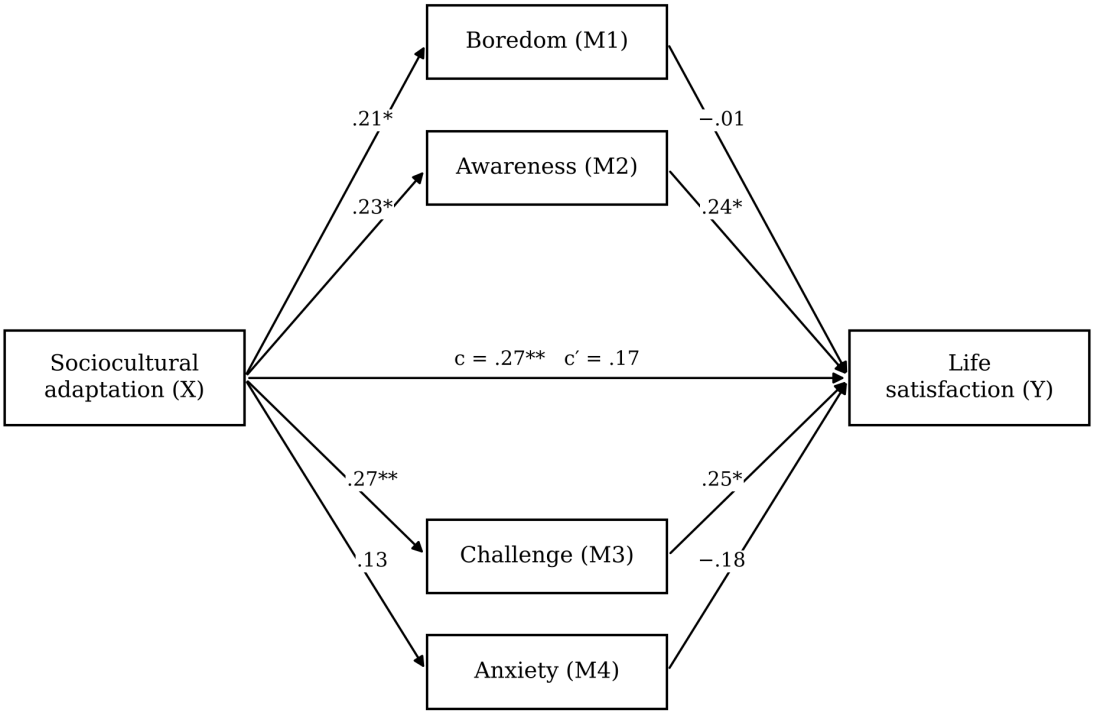
The role of the subdimensions of leisure experience (M1: Boredom, M2: Awareness, M3: Challenge, M4: Anxiety) as parallel mediators in the relationship between sociocultural adaptation (X) and life satisfaction (Y) was tested using PROCESS Model 4 proposed by Hayes (2022). The statistical significance of the indirect effects was assessed using 95% bootstrap confidence intervals based on 5,000 resamples. As prerequisites for the analyses, it was confirmed that there was no multicollinearity issue among the predictor variables (all VIF < 5) and no autocorrelation issue (Durbin-Watson ≈ 2). Although the White test indicated the possibility of heteroscedasticity, bootstrap confidence intervals were used to evaluate the indirect effects.

The regression models predicting each leisure experience dimension from sociocultural adaptation were significant for boredom (R^2 = .045, F(1, 120) = 5.719, p = .018), awareness (R^2 = .054, F(1, 120) = 6.824, p = .010), and challenge (R^2 = .071, F(1, 120) = 9.203, p = .003). In other words, sociocultural adaptation explained 4.5% of the variance in boredom, 5.4% of the variance in awareness, and 7.1% of the variance in challenge. The regression model predicting anxiety from sociocultural adaptation was not significant (R^2 = .018, F(1, 120) = 2.226, p = .138). The outcome model predicting life satisfaction from sociocultural adaptation and the four leisure experience dimensions was statistically significant and explained 20.8% of the variance in life satisfaction (R^2 = .208, F(5, 116) = 6.108, p < .001).

The total effect of sociocultural adaptation on life satisfaction was significant (B = 0.347, β = .267, SE = 0.114, t = 3.031, p = .003). When the four mediators were included in the model, the direct effect of sociocultural adaptation on life satisfaction was no longer significant (B = 0.225, β = .173, SE = 0.114, t = 1.966, p = .052). However, the total indirect effect was significant (B = 0.122, β = .094, Boot SE = 0.066, 95% CI [0.007, 0.270]). Thus, the combined indirect effect through the four leisure experience dimensions was statistically significant. We then examined specific indirect effects to determine which mediator contributed to this overall indirect association.

The model structure is shown in Figure 1.

Figure 1
Parallel Multiple Mediation Model



Note. Standardized coefficients (β) are reported; c = total effect; c′ = direct effect. Bootstrap = 5,000. *p < .05. **p < .01.

Path Coefficients (Paths a and b)

Table 2
Path Coefficients

	Path *a* (X → M)					Path *b* (M → Y)			
Mediator	*B*	β	*SE*	*t*	*p*	*B*	β	*SE*	*p*
Boredom	0.342	.213	0.143	2.391	.018*	−0.010	−.012	0.075	.895
Awareness	0.350	.232	0.134	2.612	.010*	0.202	.235	0.087	.022*
Challenge	0.384	.267	0.126	3.034	.003**	0.223	.246	0.099	.026*
Anxiety	0.202	.135	0.136	1.492	.138	−0.154	−.177	0.082	.064

Note. N = 122. Path *a* = X → mediator; path *b* = mediator → Y (controlling for X). X = sociocultural adaptation; Y = life satisfaction. *p < .05. **p < .01.

The effect of sociocultural adaptation on boredom was significant (path *a*; B = 0.342, β = .213, SE = 0.143, t = 2.391, p = .018), whereas boredom did not significantly predict life satisfaction (path *b*; B = −0.010, β = −.012, SE = 0.075, t = −0.132, p = .895). Sociocultural adaptation significantly predicted both awareness (B = 0.350, β = .232, p = .010) and challenge (B = 0.384, β = .267, p = .003), and both dimensions significantly and positively predicted life satisfaction (awareness: B = 0.202, β = .235, p = .022; challenge: B = 0.223, β = .246, p = .026). In contrast, sociocultural adaptation did not significantly predict anxiety (B = 0.202, β = .135, p = .138), and the association between anxiety and life satisfaction was likewise non-significant (B = −0.154, β = −.177, p = .064) (Table 2).

Specific Mediating Effects

Table 3

Bootstrap Specific Indirect Effects

Indirect path	*B*	β	Boot *SE*	Boot LLCI	Boot ULCI
SCAS → Boredom → LSS	−0.003	−.003	0.038	−0.069	0.091
SCAS → Awareness → LSS	0.071	.055	0.052	−0.004	0.191
SCAS → Challenge → LSS	0.086	.066	0.050	0.003	0.195*
SCAS → Anxiety → LSS	−0.031	−.024	0.027	−0.094	0.010

Note. Bootstrap = 5,000 resamples; 95% confidence intervals are reported. SCAS = sociocultural adaptation; LSS = life satisfaction; LLCI = lower limit of the confidence interval; ULCI = upper limit of the confidence interval. *CI does not include zero (significant mediation).

The indirect effect mediated by boredom was not significant (B = −0.003, β = −.003, 95% CI [−0.069, 0.091]). The indirect effect mediated by awareness was not significant (B = 0.071, β = .055, 95% CI [−0.004, 0.191]). The indirect effect mediated by challenge was statistically significant (B = 0.086, β = .066, 95% CI [0.003, 0.195]); the confidence interval does not include zero. The indirect effect mediated by anxiety was not significant (B = −0.031, β = −.024, 95% CI [−0.094, 0.010]). Thus, challenge was the only leisure experience dimension with a statistically significant specific indirect effect in the parallel mediation model.

Summary of Hypothesis Test Results

The overall results of hypothesis testing showed that H1, H2, H3, H4, H6, H7, and H11 were supported, whereas H5, H8, H9, H10, H12, and H13 were not supported. Sociocultural adaptation demonstrated a significant total effect on life satisfaction, supporting H1. In addition, sociocultural adaptation significantly predicted the awareness (H2), challenge (H3), and boredom (H4) dimensions of leisure experience, but it did not significantly predict anxiety; therefore, H5 was not supported. Regarding the effects of leisure experience dimensions on life satisfaction, awareness (H6) and challenge (H7) were found to positively and significantly predict life satisfaction. In contrast, boredom (H8) and anxiety (H9) did not show statistically significant effects.

With respect to the mediation hypotheses, only the challenge dimension significantly mediated the relationship between sociocultural adaptation and life satisfaction, supporting H11. By contrast, the indirect effects of awareness (H10), boredom (H12), and anxiety (H13) were not statistically significant; therefore, these hypotheses were not supported.

DISCUSSION

In this study, we examined the relationship between sociocultural adaptation and life satisfaction among Azerbaijani international students, and the mediating roles of the leisure experience subdimensions (boredom, awareness, challenge, and anxiety) in this relationship, within the framework of a parallel multiple mediation model. The findings support the effect of sociocultural adaptation on life satisfaction while demonstrating that the different subdimensions of leisure experience play distinct roles in this process. In particular, the significant mediating role of the challenge subdimension suggests that leisure can be viewed not merely as a space for rest but also as a developmental resource in international students' adaptation and well-being. This interpretation is particularly noteworthy given that physical activity was the most frequently reported leisure preference among participants in Türkiye. Previous studies have shown that recreation and physical activity can provide international students with contexts for social interaction, intercultural friendship, and adaptation to the host university environment (Glass et al., 2014; Li & Zizzi, 2018).

The study's first finding indicates that sociocultural adaptation has a positive and significant predictive effect on life satisfaction (H1 is supported). This finding is consistent with the literature, which suggests that sociocultural adaptation enhances an individual's capacity to function effectively in a new cultural environment, leading to positive outcomes for subjective well-being (Şeker & Akman, 2016; Ward & Kennedy, 1999). International students' learning of the host society's academic, social, and daily life norms may contribute to their developing a higher sense of mastery in the face of environmental demands (Casas Trujillo & Dabney-Fekete, 2026). In this context, it can be argued that Azerbaijani students' higher level of adaptation to academic and social life in Türkiye positively influences their overall evaluations of their lives. Similarly, linguistic and sociocultural proximity between Azerbaijan and Türkiye supports adaptation by facilitating students' management of daily life (Salimoğlu et al., 2024; Verdiyev & Özkul, 2018).

The study's second key finding is that sociocultural adaptation significantly and positively predicts the awareness (H2) and challenge (H3) subdimensions of leisure experience. This finding supports the approach highlighted by Caldwell et al. (1992) and Akgül and Ayyıldız Durhan (2024), which posits that leisure is not merely a temporal category but also a subjective and psychological experience. Individuals who are more socioculturally adapted may face fewer barriers in accessing leisure activities and become more integrated into campus life, which could facilitate their structuring of leisure time in a more conscious and developmental manner (Ma, 2026). In particular, the finding regarding the challenge dimension suggests that students with high levels of adaptation may be more inclined to participate in new social roles, engage in diverse activities, and be open to experiences that foster personal growth (Ajjan, 2026; Dangeni, 2023). This interpretation is consistent with research showing that constraints on recreation among international students are negatively associated with host-national friendships and several dimensions of adaptation to college (Glass et al., 2014).

The descriptive findings of the present study further contextualize the challenge result. Physical activities were reported by 50.8% of participants as their primary leisure preference in Türkiye, compared with 31.1% in Azerbaijan. The challenge dimension of leisure involves testing one's capacities and developing skills, while physical activity may provide settings in which international students interact with peers and develop multicultural friendships (Akgül & Ayyıldız Durhan, 2024; Li & Zizzi, 2018). Li and Zizzi (2018), for example, found that physical activity served as a context for peer interaction and friendship development among international students. Accordingly, the prominence of physical activity in the present sample may provide one contextual explanation for the significance of the challenge dimension. However, because activity type was examined only descriptively and was not included in the mediation model, this interpretation should be regarded as a plausible explanation rather than as a tested mechanism.

One notable finding in the study is the identification of a positive, significant relationship between sociocultural adaptation and the boredom subdimension (H4 is supported). At first glance, this result—which does not fully align with theoretical expectations—may be due to Azerbaijani students' ability to adapt more quickly to daily life, given cultural and linguistic proximity. As sociocultural adaptation increases, students' access to social and recreational opportunities may expand, potentially making leisure time more prominent. However, the fact that this time cannot always be filled with structured, developmental, or meaningful activities may also lead some students to experience boredom. This finding suggests that not only the accessibility but also the quality of leisure time is important (Zuo et al., 2026). Because the present study did not assess the frequency, structure, or perceived meaningfulness of specific activities, the positive association between sociocultural adaptation and boredom should be interpreted cautiously rather than attributed to a particular behavioral mechanism.

Sociocultural adaptation was not significantly associated with leisure anxiety (H5 was not supported). Thus, in this sample, higher sociocultural adaptation was not accompanied by significantly higher or lower levels of anxiety specifically within leisure experiences. This finding should not be interpreted as indicating that international students do not experience anxiety in other areas of their lives. Rather, the present result is specific to the leisure-anxiety dimension measured in this study. International

students may experience anxiety in other contexts, including academic or performance-related situations (Chu et al., 2026). Therefore, findings regarding the anxiety dimension should be interpreted with caution.

When examining the direct effects of leisure experiences on life satisfaction, the subdimensions of awareness (H6) and challenge (H7) positively and significantly predicted life satisfaction. In contrast, the effects of boredom (H8) and anxiety (H9) on life satisfaction were not statistically significant. This pattern suggests that, in the present sample, life satisfaction was more closely associated with the positive and developmental dimensions of leisure experience than with boredom or anxiety. In other words, the fact that students occasionally experience boredom or anxiety during their leisure time may not, by itself, be a decisive factor in reducing their life satisfaction. Conversely, the significant associations of awareness and challenge with life satisfaction indicate that more purposeful and development-oriented leisure experiences may be particularly relevant to how students evaluate their lives.

In particular, the positive effect of the awareness dimension on life satisfaction suggests that an individual's awareness of the restorative and developmental value of leisure time can serve as an important source of subjective well-being (Akgül & Ayyıldız Durhan, 2024). Similarly, the meaningful impact of the challenge subdimension indicates that experiencing leisure activities not merely as a passive relaxation process but also as a space for skill development, pushing one's limits, and gaining new experiences can support life satisfaction (Csikszentmihalyi, 1990). From this perspective, challenge can be interpreted not merely as difficulty but as an opportunity to engage with manageable demands, develop competence, and experience personal progress.

One of the most notable findings of the study is that, among the subdimensions of leisure experience, only the challenge dimension plays a significant mediating role in the relationship between sociocultural adaptation and life satisfaction (H11 is supported). In contrast, the mediating effects of the awareness (H10), boredom (H12), and anxiety (H13) dimensions were not statistically significant. This result indicates that the effect of sociocultural adaptation on life satisfaction is not limited to the student's adjustment to the new cultural environment; it is also related to the extent to which the student can transform this adaptation into active and developmental experiences during their leisure time. Accordingly, the findings point to the experiential quality of leisure, particularly experiences involving challenge and development, as a potentially important element in the relationship between sociocultural adaptation and life satisfaction.

The mediating role of the challenge dimension becomes more meaningful when evaluated within the context of flow theory (Csikszentmihalyi, 1990). It can be argued that students who are more socioculturally adapted may be better positioned to enter new social environments, participate in student communities, and engage in athletic or social activities. Within flow theory, experiences in which perceived challenges are balanced with opportunities to use and develop skills are particularly relevant to optimal experience.

The challenge finding can also be interpreted through Dweck and Leggett's (1988) social-cognitive framework. Their model distinguishes between beliefs that personal attributes are relatively fixed and beliefs that they can be developed, and links these orientations to different motivational responses to difficult tasks. In mastery-oriented patterns, challenging situations are more likely to be approached as opportunities for learning and competence development rather than solely as threats to performance (Dweck & Leggett, 1988). Applied cautiously to the present findings, this framework offers a useful perspective for understanding the challenge dimension as a potential growth-oriented leisure experience. Importantly, mindset itself was not measured in the present study; therefore, the framework is used only to interpret the developmental meaning of challenge rather than to infer participants' mindset orientations.

This interpretation is also compatible with the prominence of physical activity in the present sample. Physical activity may provide opportunities for repeated practice, skill development, goal pursuit, and interpersonal interaction. Evidence from international student research further indicates that physical activity can serve as a social setting in which peer interaction and multicultural friendship development occur (Li & Zizzi, 2018). Thus, rather than concluding that physical activity explains the mediation effect,

the present findings suggest that challenge-oriented leisure may represent one experiential pathway through which sociocultural adaptation is associated with life satisfaction.

This finding also offers an important insight into the relative cultural proximity of Azerbaijani students within the Turkish context. While cultural and linguistic proximity may facilitate students' basic adaptation processes, it does not appear sufficient on its own to elevate life satisfaction. The findings suggest that it may be more decisive for students to seek out experiences during their free time that require active participation and offer opportunities for social and personal development, rather than remaining solely within their cultural comfort zones. In this regard, the study indicates that free time should be evaluated not only as a stress-reducing factor but also as a developmental resource in the adaptation processes of international students. For students whose leisure preferences are oriented toward physical activity, leisure may also provide an active form of time away from academic and everyday demands while simultaneously offering opportunities for engagement, skill development, and social interaction. Because restoration or active rest was not directly measured in this study, however, this interpretation should remain contextual rather than be treated as an empirical finding.

Limitations

While this study provides important findings regarding the relationships among sociocultural adaptation, leisure experience, and life satisfaction among Azerbaijani international students, it has certain methodological and contextual limitations. First, the research used a cross-sectional design. Therefore, it is not possible to make definitive inferences regarding the direction and causality of the relationships between variables. Although the parallel multiple mediation model allowed testing the theoretical relationships among variables, longitudinal studies are needed to examine patterns of change over time in sociocultural adaptation, leisure experiences, and life satisfaction.

Second, the study was conducted exclusively with Azerbaijani students enrolled at Yozgat Bozok University. The cultural and linguistic proximity that Azerbaijani students share with Türkiye may distinguish their sociocultural adaptation processes from those of other international student groups. Therefore, the direct generalization of the findings to student groups culturally more distant from Türkiye should be evaluated with caution. Additionally, the social and recreational opportunities offered by the cities where students live, as well as the institutional structures of universities, may have exerted different influences on adaptation and leisure experiences.

Third, all measurement tools used in the study are based on self-reports. Participants' assessments of life satisfaction, sociocultural adaptation, or leisure experiences may have been influenced by social desirability tendencies or their momentary emotional states. Therefore, in future studies, supplementing self-report data with observations, diary entries, or qualitative data collection techniques could yield more comprehensive evaluations.

A significant methodological limitation of the study is the low internal consistency coefficients obtained in some subscales of the Leisure Experience Scale. In particular, the relatively low Cronbach's alpha coefficients for the boredom (.60), anxiety (.64), and awareness (.66) subdimensions, as well as for the LSS (.67), necessitate careful interpretation of the results for these measures. Although it is noted that alpha coefficients may be relatively low in subdimensions with only two items, future studies may benefit from supporting these dimensions with alternative reliability indicators or retesting them with different measurement tools.

Finally, while leisure experience was evaluated within a general psychological framework in this study, data regarding the types of recreational activities students prefer during their leisure time were addressed only at a descriptive level. Although information was collected on the leisure activities most frequently preferred by participants in Türkiye and their countries of origin, the frequency, intensity, duration, and experiential nature of participation in these activities were not examined in detail. However, the effects of sports, artistic, digital, social, or community-based recreational activities on an individual's sociocultural adaptation and life satisfaction may vary. Therefore, it is recommended that future studies

examine the types of leisure activities not only at the level of preference but also in terms of participation patterns and experiential characteristics in greater detail.

Recommendations for Future Research

The study's findings indicate that the leisure experience, particularly its challenge dimension, may play a significant role in international students' adaptation processes. In this regard, future research should prioritize longitudinal designs. Tracking changes in students' sociocultural adaptation, leisure experiences, and life satisfaction from their initial arrival in Türkiye through to graduation could more clearly reveal the temporal dynamics of these relationships.

Second, planning mixed-methods studies may help deepen understanding of quantitative findings. In particular, examining through qualitative interviews why international students prefer certain types of activities during their leisure time, how they interpret their experiences of challenge or anxiety, and how they relate their leisure processes to life satisfaction could enhance the explanatory power of the current findings (Chu et al., 2026; Oz Cetindere & Shin, 2025).

Third, it is recommended that the current model be tested comparatively across different cultural groups. In particular, comparing the sociocultural adaptation and leisure experiences of international students from countries culturally and linguistically distant from Türkiye with those of Azerbaijani students could clarify the role of cultural proximity in adaptation and life satisfaction (Abu Khadra et al., 2025).

Finally, because leisure time should be viewed not merely as a space for rest but also as a developmental experience, future research could more fully examine the relationship between students' challenge-based recreational experiences and variables such as psychological well-being and university belonging.

IMPLICATIONS

The findings suggest that international student offices and campus recreation services could complement practical adjustment support with accessible leisure opportunities that involve manageable challenges and opportunities for skill development. Activities such as progressive sports sessions, outdoor recreation, and collaborative recreational projects may provide settings in which international students can engage with unfamiliar tasks, develop competence, and interact with peers. Offering activities at different difficulty levels and providing clear participation information could help students select experiences suited to their interests and abilities. Because awareness was also positively associated with life satisfaction, brief leisure education components that encourage students to plan their leisure time purposefully may further support these efforts. Given the modest but significant indirect association through the challenge dimension, evaluating the quality of students' leisure experiences alongside participation rates may be particularly useful. These recommendations should be treated as directions for program development and evaluation, as the cross-sectional findings do not establish that challenge-oriented leisure activities improve adaptation or life satisfaction.

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