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Unveiling Psychological and Sociocultural Adaptation Patterns of International Students in Hungary

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ABSTRACT

The increasing global mobility of students has heightened the need for deeper insights into the psychological and sociocultural adaptation processes in host environments. This study examines the adaptation experiences of 447 international students in Hungary, focusing on the interplay between psychological and sociocultural dimensions of adaptation. Using a cross-sectional design, the study explores how sociodemographic variables, such as gender, age, education level, local friendships, and financial sources, influence adaptation levels. Hierarchical multiple regression analysis reveals that sociocultural adaptation significantly predicts psychological adaptation, underscoring the importance of social integration in fostering overall well-being. The findings suggest that targeted institutional support addressing sociocultural challenges can enhance students' psychological resilience, contributing to their academic and personal success. This research advances the understanding of intercultural adaptation and provides actionable recommendations for policymakers and educational institutions hosting diverse student population.

Keywords: sociocultural adaptation, sociodemographics, international students, psychological adaptation

The globalization of education in general and tertiary education in particular has significantly increased the flow of international students in recent decades. According to Gutema et al. (2024), the United Nations Educational, Scientific and Cultural Organization report, global student mobility increased from 2 million to 6.36 million between 2000 and 2020. In line with this global trend, since the Hungaricum stipendium scholarship was established by the Hungarian

government in 2013, the influx of international students has been rapidly growing in Hungary. As cited in Wu and Rudnák (2021), the Tempus Public Foundation (2020) reported that the number of overseas students studying in Hungary has drastically increased from 11,783 students in 2011 to 38,422 students in the 2019–2020 academic year. Among the many higher education institutions in Hungary, the University of Debrecen hosts the largest number of international students (Vincze & Bács, 2020). Therefore, those students appeared to constitute a particular group of individuals who sojourn abroad to attain their educational goals, commonly called ‘study abroad students’, ‘international students’, or ‘student sojourners’ (Bochner, 2006; Safdar & Berno, 2016). Studying abroad offers various advantages for international students, such as personal development and independence, greater cultural awareness, and the chance to develop increasingly valuable professional skills in the globalized job market (Grebe, 2024). Moreover, international students significantly contribute to the economic development of these countries through their tuition fees and living expenses (Hong et al., 2025; Levent, 2016).

Despite the benefits of international education, international students often face adjustment challenges related to language barriers, intercultural interactions, financial issues, unfamiliar cultural norms, and varying educational expectations (Cetindere & Shin, 2025; Gebregergis, 2018; Oduwaye et al., 2023; Umennadi et al., 2025). These challenges can create feelings of isolation and contribute to heightened levels of stress, anxiety, and depression (e.g., Gao & Wesely, 2024; Smith & Khawaja, 2011; Tajvar et al., 2024). The transition to a new educational system may also introduce academic pressures that exacerbate these feelings. This complex interplay of stressors can lead to a phenomenon known as acculturative stress, characterized by the psychological burden experienced by individuals as they attempt to adjust to a foreign cultural environment (Berry, 2005). While experiencing a certain level of stress during the adjustment period is a common and expected aspect of the acculturation process, persistent and unaddressed acculturative stress can lead to severe psychological issues, including anxiety, depression, and other mental health challenges (Lazarus & Folkman, 1984). The importance of effectively addressing these issues cannot be overstated, as they can significantly impact students’ overall acculturative process and outcomes. Numerous studies have sought to explore the influence of various situational and individual factors on the psychological and sociocultural adaptation of international students. Factors such as cultural distance, self-efficacy, cultural intelligence, self-esteem, resilience, coping styles, personality traits, and social support have been identified as critical components in shaping the process and outcomes of intercultural adaptation (Araujo, 2011; Gebregergis et al., 2020; Mesidor & Sly, 2016; Yusoff, 2011). Intercultural adaptation can be understood as the psychological state of health and how well individuals adjust to their new sociocultural environments (Sam & Berry, 2010). The intercultural adaptation process is often conceptualized into two separate but interconnected domains: psychological adaptation and sociocultural adaptation (Searle & Ward, 1990). Psychological adaptation encompasses emotional well-being, self-esteem, life satisfaction, and mental health outcomes. In contrast,

sociocultural adaptation focuses on the behavioral aspects of navigating and integrating into the new sociocultural landscape (Ward & Kennedy, 1994; Ward & Rana-Deuba, 1999). Although there are various indicators of psychological adaptation, the present study used depression-happiness and life satisfaction as indices of psychological adaptation.

LITERATURE REVIEW

Levels of Psychological and Sociocultural Adaptation and their Links to Demographics

While research on the psychological and sociocultural adaptation of international students is limited, few studies have explored this area. For example, Sam (2001) conducted an exploratory study among 304 international students in Norway aimed at examining their levels of life satisfaction (psychological adaptation). The results indicated that, overall, the students reported being generally satisfied with their lives. As satisfaction with life is one of the indicators of psychological adaptation, the results of the study suggest that international students experience a high level of satisfaction with their lives. The study also reveals that international students' ethnicity or continent of origin is linked to their level of life satisfaction, with students from the U.S. and Europe reporting higher satisfaction than those from Africa and Asia. Moreover, factors such as financial satisfaction and the number of friends were found to significantly influence students' life satisfaction Sam (2001). Another study from Turkey revealed that a significant proportion of international students demonstrated relatively high levels of sociocultural and psychological adaptation, particularly sociocultural adaptation (Arslan & Polat, 2023). The study further reported that sociodemographic factors, such as gender, scholarship status, host language proficiency, and country of origin, were associated with students' intercultural adaptation (Arslan & Polat, 2023). For example, compared with their female counterparts, male students exhibited better sociocultural and daily life adaptations. Additionally, students with scholarships demonstrated better overall intercultural adaptation than those without scholarships (Arslan & Polat, 2023). Although several studies report positive intercultural adaptation among international students, some research reveals contrasting findings. For example, one study indicated that international students face significant sociocultural difficulties and increased psychological distress (Oreilly et al., 2010). These conflicting results may be due to differences in research methods, individual student characteristics, and the sociocultural context of the host country. These mixed findings underscore the need for further research to better understand the full extent of international students' psychological and sociocultural adaptation to their host environments.

Relationship between Sociocultural Adaptation and Psychological Adaptation

Although the literature on the relationship between sociocultural and psychological adaptation is limited, few studies have explored how sociocultural adaptation influences various aspects of students' psychological well-being, such as mental health, depression, happiness, and life satisfaction. For example, a recent study among international students in China revealed that sociocultural factors, including language proficiency, interpersonal interactions, length of stay in the host country, and cultural distance, significantly impact their cross-cultural adaptation (Hou & Abu, 2024). The study also revealed that international students with greater sociocultural adaptability tend to experience greater life satisfaction in the host country (Hou & Abu, 2024). Likewise, social and cultural adjustment has been identified as a strong predictor of various aspects of psychological adaptation, such as depression, psychosomatic symptoms, anxiety, and subjective well-being (Lu et al., 2024; Razgulin et al., 2023). However, despite the valuable insights these studies provide, the relatively small sample sizes may limit the generalizability of their findings. Similarly, aspects of sociocultural adaptation, such as language proficiency and academic adaptation or performance, have been recognized as important factors in psychopathology, which is a key measure of the psychological adaptation of international students (Zeng et al., 2022). Similarly, Sheng et al. (2022) provided evidence that international students' academic adaptation significantly predicts their psychological adaptation. In a recent systematic review, Yin et al. (2024) reported that various sociocultural factors, including length of stay in the host country, cultural intelligence, acculturation strategies, ethnic identity, language skills, social support, and acculturative adjustment, contribute to the mental health of international students. According to cultural learning theory, individuals equipped with sufficient cultural knowledge and skills tend to achieve more successful psychological adaptation. This theory emphasizes the importance of acquiring the social and cultural competencies necessary to function effectively in a new environment, which in turn promotes emotional well-being and satisfaction (Ward et al., 2005; Wilson et al., 2013).

Although some studies have explored the levels of psychological and sociocultural adaptation and their relationships, most prior research has focused primarily on identifying the factors that influence these adaptations among international students. However, there remains a significant gap in the literature in terms of examining the levels of intercultural adaptation, such as the psychological and sociocultural adaptation of international students (Arslan & Polat, 2023), and the extent to which sociocultural adaptation predicts indicators of psychological adaptation. Zeng et al. (2022) also emphasized that to gain a clear understanding of the depression of international students, a key indicator of psychological adaptation, it is crucial to consider a wide range of potential factors. In the Hungarian context, although few studies have focused on international students, these investigations have focused primarily on specific cohorts from particular regions, such as Turkish (Erturk & Nguyen Luu, 2022) and post-Soviet

students (Yerken & Nguyen Luu, 2022; Yerken et al., 2022). Given the importance of the topic and the limited research in this area, the present study aims to investigate the levels of international students' psychological and sociocultural adaptation processes and the links between them. Understanding the levels of these domains of adaptation and their interaction is crucial for developing tailored support systems and intervention strategies that can effectively enhance international students' intercultural experiences.

Research Objectives

The main objectives of the study were as follows:

- To investigate the degree of psychological and sociocultural adaptation of international students.
- To explore whether the sociodemographic characteristics of international students significantly affect their levels of sociocultural and psychological adaptation.
- To examine whether there is a statistically significant relationship between the sociocultural adaptation and psychological adaptation of international students.

METHODS

Participants of the Study

The sample for this study comprised international students ($N = 447$) enrolled in undergraduate and postgraduate programs at the University of Debrecen, Hungary. Participants were recruited via a convenience sampling strategy. The required sample size was statistically determined, and the calculated sample size was 379. However, the included sample size was 447, which exceeded the required sample size. The sample included 215 male and 232 female students, with a mean age of 23.17 years. On average, the students had been at the university for 24 months. The study included participants across various educational levels: bachelor's ($n = 248$; 50.70%), master's ($n = 154$; 34.50%), and doctorate ($n = 44$; 9.80%). With respect to financial support, 224 participants (50.90%) were scholarship recipients, whereas 223 (49.10%) were self-funded. The majority of the students were from Asia ($n = 231$; 52.40%) or Africa ($n = 180$; 40.80%), with fewer from Europe ($n = 19$; 4.30%). A few students came from North America ($n = 3$; 0.70%) or South America ($n = 7$; 1.60%). Most participants reported having poor and fair Hungarian language skills, with a few indicating good and very good proficiency.

Instrumentations

Sociodemographic Variables

Data on the sociodemographic background of the students were collected via self-developed questions. These variables included gender, age, country of origin, marital status, language proficiency in the host country's language, length of stay in the host country, educational qualifications, friendship with Hungarians, and cultural similarity between students' home culture and Hungarian culture.

Sociocultural Adaptation

The revised version of the sociocultural adaptation scale, developed by Wilson (2013), was used to assess the sociocultural adaptation or competence of students. The scale is a 21-item self-report questionnaire utilizing a Likert-type scale, with responses ranging from 1 (not at all competent) to 5 (extremely competent). The total score ranges from 21 to 105, with higher scores indicating greater behavioral competence or sociocultural adaptation. Scores can also be calculated separately for each domain or subscale (Wilson, 2013). The measure has demonstrated excellent reliability, with a Cronbach's alpha of .92 Wilson (2013).

Psychological Adaptation

Psychological adaptation in the present study was measured by two key indicators: depression-happiness and life satisfaction. The Depression-Happiness Scale (DHS), developed by Joseph and Lewis (1998), was used to assess both depression and happiness among international students. The DHS is a 25-item bipolar self-report scale that measures both positive and negative thoughts, feelings, and physical experiences. Twelve items assess positive experiences, whereas thirteen items assess negative experiences. The participants were asked to reflect on the past seven days and rate the frequency of these experiences on a four-point scale: 0 (never), 1 (rarely), 2 (sometimes), and 3 (often). The negative items were reverse-coded, resulting in a total score ranging from 0 to 75. Higher scores indicate happiness, whereas lower scores indicate depression. In the current study, the reliability coefficient for the scale was high ($\alpha = .83$). The Satisfaction With Life Scale (SWLS), developed by Diener et al. (1985), was used to measure the overall life satisfaction of international students. The SWLS consists of 5 items rated on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). Total scores range from 5--35, with higher scores indicating greater life satisfaction. The SWLS has been widely validated in previous studies (Pavot & Diener, 2008), and in the present study, it demonstrated strong internal consistency ($\alpha = .81$).

Data collection procedure and data analysis

The study received approval from the United Ethical Review Committee for Research in Psychology at the University of Debrecen. A printed version of the self-report questionnaires was distributed to the participants in their dormitories and libraries. In accordance with the American Psychological Association's guidelines, participation was voluntary and based on informed consent. The participants were assured that their data would be kept confidential and used solely for research purposes. For data analysis, the collected data were first entered into SPSS Version 26. To examine the levels of psychological and sociocultural adaptation among the students, the total continuous scores for each variable were categorized into three groups. The lower one-third of the scores were classified as indicating a lower level, whereas the middle scores represented a moderate level. The upper one-third of the scores were considered to reflect a higher level of adaptation. Pearson product-moment correlation analyses were conducted to explore the bivariate relationships between the study variables. Additionally, hierarchical multiple regression analyses were performed to assess the predictive effect of sociocultural adaptation on psychological adaptation.

RESULTS

Univariate Statistics of the Variables of the Study

Table 1 presents a summary of descriptive statistics, including the minimum, maximum, mean, standard deviation, Cronbach's alpha, and measures of distribution shape (i.e., skewness and kurtosis). The Cronbach's alpha values for all the study variables indicate strong internal consistency. Furthermore, the skewness and kurtosis values fall within the acceptable range of +2--2, suggesting that the data sets are normally distributed.

Table 1
Summary of Descriptive Statistics of the Study Variables

Variables	<i>M</i>	<i>SD</i>	Item	α	<i>Sk</i>	<i>Ku</i>
Depression-happiness	46.95	10.56	25	.83	-.38	-.16
Life satisfaction	22.15	6.38	5	.81	-.21	-.23
Sociocultural adaptation	68.21	12.89	21	.88	-.01	.24

Note. *Sk* = Skewness; *Ku* = Kurtosis

Levels of Psychological and Sociocultural Adaptation

To assess the extent of international students' psychological sociocultural adaptation, a frequency distribution was calculated (see Figure 1). The majority of the students reported moderate ($n = 248$; 55.50%) to high ($n = 185$; 41.40%) levels of happiness. Conversely, only 14 students presented symptoms of depression (3.10%). Similarly, most of the students reported moderate levels of satisfaction ($n = 247$; 55.30%), whereas some experienced

high levels ($n = 165$; 36.90). Moreover, 35 students (7.80%) reported lower levels of life satisfaction. Regarding the levels of sociocultural adaptation, the results revealed that most participants reported moderate sociocultural adaptation ($n = 256$; 57.30%), whereas 188 (42.10%) reported high levels, and only a small number reported low levels ($n = 3$; 0.70%).

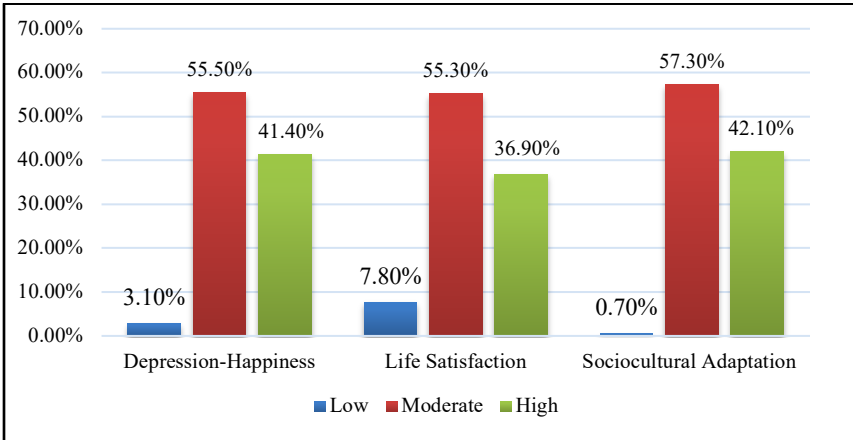


Figure 1. Levels of Psychological and Sociocultural Adaptation

Bivariate Relationships between the Study Variables

The Pearson product–moment correlation was used to examine the relationships between the study variables, with the correlation coefficients presented in Table 2. Students’ sociocultural adaptation was found to be significantly associated with both depression-happiness ($r = .38, p < .001$) and life satisfaction ($r = .41, p < .001$). Similarly, depression-happiness and life satisfaction were significantly correlated ($r = .58, p < .001$). A significant sex difference was observed in both sociocultural adaptation and one psychological adaptation indicator, depression-happiness. Male students reported better sociocultural adaptation ($r = .10, p < .05$), lower depression, and greater feelings of happiness ($r = .10, p < .001$). However, there was no significant sex difference in life satisfaction. Age was also significantly related to sociocultural adaptation ($r = .15, p < .001$), depression-happiness ($r = .20, p < .001$), and life satisfaction ($r = .15, p < .001$), with older students showing better intercultural adaptation. Furthermore, students’ source of financial support was significantly associated with their depression-happiness scores. Scholarship recipients reported fewer depressive symptoms and higher happiness levels ($r = .15, p < .001$) than self-supporting students did. Furthermore, a significant relationship was found between students’ educational level and both sociocultural adaptation ($r = -.13, p < .001$) and depression-happiness ($r = -.14, p < .001$), with postgraduate students demonstrating better intercultural adaptation. Finally, international students who form friendships with local students tend to demonstrate better sociocultural adaptation ($r = -.10, p < .05$).

Table 2
Bivariate Relationships between the Study Variables

Variables	1	2	3	4	5	6	7	8	9	10
1. Gen										
2. Age	.09									
3. EL	-.04	-.51**								
4. SF	.10*	.32**	-.21**							
5. FWL	.09*	.13**	-.03	.06						
6. HLS	.01	-.10*	.05	-.15**	.15**					
7. LS	-.04	.05	-.05	-.28**	.11*	.24**				
8. CD	.06	.05	-.07	.12*	.06	.08	-.09			
9. DH	.19**	.20**	-.14**	.15**	.00	.07	.01	.06		
10. LS	-.01	.15**	-.08	.06	.00	.08	.05	.10*	.58**	
11. SA	.10*	.15**	-.13**	.06	.21**	.16**	.07	.19**	.38**	.41**

Note. * $p < .05$, ** $p < .001$. Gen = Gender; EL = Educational Level; SF = Source of Fund; FWL = Friendship with locals; HLS= Hungarian Language Skills; LS = Length of Stay; CD = Cultural Distance; DH = Depression-Happiness; LS = Life Satisfaction; SA = Sociocultural Adaptation

Hierarchical Multiple Regression Analysis

Effect of Sociocultural Adaptation on Depression-Happiness

Hierarchical regression analyses were conducted to examine the predictive relationship between international students' sociocultural adaptation and their psychological adaptation, as indicated by levels of depression, happiness, and life satisfaction while controlling for sociodemographic variables. The analyses involved the development of a two-block regression model. In the first block, sociodemographic variables were entered, followed by the addition of sociocultural adaptation in the second block (see Table 3). The variables in Block One collectively accounted for 9% of the variance in the outcome variables, and the regression model was statistically significant ($R^2 = .06$, $F_{(8, 438)} = 5.56$, $p < .001$). Among the demographic factors, gender ($\beta = .17$, $p < .001$), age ($\beta = .15$, $p < .05$) and source of financial support ($\beta = .10$, $p < .05$) were found to be significantly associated with the depression-happiness continuum. Specifically, male, older, and scholarship students reported higher levels of happiness than did their female, younger, and self-funded counterparts, respectively. The incorporation of sociocultural adaptation in the second block resulted in a substantial enhancement of the regression model, increasing the explained variance in depression-happiness to 21%. The regression model remained significantly different from zero ($R^2 = .21$, $F_{(9, 437)} = 12.78$, $p < .001$). After controlling for the effects of the variables in Block One, sociocultural adaptation contributed an additional 12% of the variance to the overall model ($\Delta R^2 = .12$, $F_{(1, 440)} = 64.15$, $p < .001$). Notably, international students who demonstrated high levels of sociocultural adaptation presented lower levels of depression and greater feelings of happiness ($\beta = .36$, $p < .001$).

Table 3
Summary of Regression Results for Predictors of Depression-Happiness

Predictors	B	SEB	β	Model			
				R	R ²	ΔR^2	F
<i>Block 1</i>				.30	.09		5.56***
Gender	3.60	.97	.17***				
Age	.36	.13	.15*				
Educaional level	-.70	1.13	-.03				
Source of fund	2.08	1.08	.10*				
Friendship with Hungarians	-1.72	.99	.08				
Host language skills	1.63	.78	.10*				
Length of stay	.01	.03	.022				
Cultural distance	.28	.48	.027				
<i>Block 2</i>				.46	.21	.12	12.78***
Gender	3.13	.91	.15*				
Age	.29	.12	.12*				
Educaional level	-.17	1.06	-.01				
Source of fund	1.97	1.01	.09				
Friendship with locals	2.96	.94	.14*				
Host language skills	.89	.74	.06				
Length of stay	.01	.02	.01				
Cultural distance	.31	.45	.03				
Sociocultural adaptation	.30	.04	.36***				

Note. The dummy variables were coded as follows: *Gender*: Male = 1, Females = 0; *Educational Level*: Undergraduate = 1, Postgraduate = 0; *Source of financial support*: Friendship with Hungarians: Yes = 1, No = 0; *Scholarship holder* = 1, *Self-support* = 0. * $p < .05$, *** $p < .001$

Effect of Sociocultural Adaptation on Life Satisfaction

The same procedure of hierarchical multiple regression analyses was employed to investigate the impact of sociocultural adaptation on life satisfaction as a measure of psychological adaptation. In this analysis, demographic variables were entered into the first block of the regression model, whereas sociocultural adaptation was incorporated into the second and final blocks. The joint explained variance of the sociodemographic variables concerning life satisfaction was relatively small (see Table 4), although the model was statistically significant ($R^2 = .04$, $F_{(8, 438)} = 2.50$, $p < .05$). Among the demographic factors, age emerged as a statistically significant predictor of life satisfaction, with older students reporting higher levels of satisfaction than their younger counterparts did ($\beta = -.16$, $p < .05$). The inclusion of sociocultural adaptation in the second block significantly enhanced the model's explanatory power, increasing the total variance explained in life satisfaction to 20% ($R^2 = .20$, $F_{(9, 437)} = 11.81$, $p < .001$). After controlling for the effects of demographic variables, sociocultural adaptation accounted for an additional 16% of the variance in life satisfaction ($\Delta R^2 = .15$, $F_{(1, 437)} = 82.55$, $p < .001$). Notably, international students exhibiting high levels of sociocultural competence reported greater satisfaction with their overall life in the host society ($\beta = .41$, $p < .001$).

Table 4
Summary of the Regression Results for Predictors of Life Satisfaction

Predictors	B	SEB	β	Model			
				R	R ²	ΔR^2	F
<i>Block 1</i>				21	.04		2.50*
Gender	-.41	.60	-.03				
Age	.22	.08	.16*				
Educaional level	.16	.70	.01				
Source of fund	.40	.67	.03				
Friendship with locals	-.52	.62	-.04				
Host language skills	.91	.49	.09				
Length of stay	.01	.02	.05				
Cultural distance	.55	.30	.09				
<i>Block 2</i>				.44	.20	.15	11.81***
Gender	-.73	.56	-.06				
Age	.17	.07	.12*				
Educaional level	.52	.65	.04				
Source of fund	.33	.61	.03				
Friendship with locals	1.37	.57	.11*				
Host language skills	.40	.45	.04				
Length of stay	.01	.02	.03				
Cultural distance	.14	.28	.02				
Sociocultural adaptation	.21	.02	.41***				

Note. The dummy variables were coded as follows: *Gender*: Male = 1, Females = 0; *Educational Level*: Undergraduate = 1, Postgraduate = 0; *Source of financial support*: Friendship with Hungarians: Yes = 1, No = 0; Scholarship holder = 1, Self-support = 0. * $p < .05$, *** $p < .001$

DISCUSSION

The primary aim of this study was to examine the psychological and sociocultural adaptation processes of international students at the University of Debrecen, Hungary. More specifically, the study focused on three key objectives, which are addressed in the discussion section: 1) assessing the extent of students' psychological and sociocultural adaptation within the host society, 2) exploring the associations between students' demographic variables and their adaptation scores, and 3) investigating the relationship between sociocultural adaptation and psychological adaptation.

Our first research objective was to explore the levels of psychological and sociocultural adaptation among international students. The findings indicate that the majority of international students demonstrate moderate to high levels of both psychological and sociocultural adaptation. This outcome is consistent with a range of previous studies that reported similar positive intercultural adaptation experiences among international students. These studies suggest that despite the challenges of adjusting to a new cultural and academic environment, many

students can develop the necessary skills and resilience to adapt effectively (Arslan & Polat, 2023; Sam, 2001). Factors such as social support, institutional resources, and personal traits such as psychological capital likely contribute to their better adaptation. Another factor for the moderate to high levels of intercultural adaptation of international students at the University could be the wide range of vibrant programs and enriching opportunities offered by the University, such as exhibitions, concerts, student excursions, and other cultural events. These activities likely play crucial roles in helping students relax and form meaningful social connections with both local and international peers. These social bonds are vital for navigating the challenges of intercultural adaptation. In support of this argument, cultural learning theory suggests that individuals with a strong understanding of the host society's culture and who engage in positive intercultural interactions are more likely to succeed in their cross-cultural encounters (Ward & Masgoret, 2006). Moreover, such events provide students with valuable cultural knowledge and intercultural skills, both of which are essential for successful and effective adaptation to a new environment. Another potential explanation for the current findings might be related to the fact that the University of Debrecen, as the institution hosting the largest number of international students in Hungary (Vincze & Bács, 2020), offers a unique environment for fostering multicultural interactions. This multicultural academic setting enables international students to engage with diverse peers from various cultural backgrounds, thereby enhancing their intercultural competencies and facilitating their intercultural adaptation. Furthermore, it has been posited that intercultural difficulties or culture shock are perceived as stimuli that encourage individuals to acquire and develop specific sociocultural skills necessary for effectively engaging in new intercultural interactions (Zhou et al., 2008). Therefore, international students can leverage intercultural adjustment difficulties as opportunities to learn and develop sociocultural skills, which can significantly enhance their psychological and sociocultural adaptation success. When universities organize extracurricular activities such as festivals, welcome orientations, group excursions, language exchange programs, and sports competitions, international students gain opportunities to develop skills and build networks with local and international peers, enhancing their psychological and sociocultural adaptation (Erturk & Nguyen Luu, 2022; Hendrickson, 2018).

The second objective of the study was to examine the associations between students' sociodemographic variables and their intercultural adaptation levels. The findings suggest that male, older, and scholarship students, as well as those who have Hungarian friends, demonstrate better intercultural adaptation, and these results align with several prior studies (e.g., Arslan & Polat, 2023; Gebregergis et al., 2019; Sam, 2001; Sheng et al., 2022; Yerken et al., 2022). Various explanations can be proposed for these findings. For example, scholars may experience less financial pressure than self-supporting students do, and several studies suggest that financial pressure is one of the significant factors contributing to intercultural difficulties (Larbi et al., 2022; Wilson et al., 2022). Our results also indicate that male students exhibit greater psychological and sociocultural adaptation than their female counterparts do. This disparity may be

associated with cultural factors, particularly considering that most participants in this study originated from Asia and Africa. In these regions, there is often a collective cultural orientation where females are traditionally expected to be more conservative and emotionally less expressive (Davis & Williamson, 2019; Onwuatuegwu & Nwagu, 2023). These sociocultural expectations may have contributed to the lower intercultural adaptation scores observed among the female participants. Additionally, the conservative and less emotionally expressive behaviors of these female students may have increased their risk of perceived discrimination, which in turn negatively impacted their intercultural adaptation. Similarly, Zhang et al. (2024) reported that perceived discrimination among international students was linked to reduced social support and positive emotions, which subsequently devastated their mental health. The stronger intercultural adaptation of older and postgraduate students may be linked to their ability to use more effective problem-focused coping strategies, coupled with their prior travel experience before arriving in the host country (Baghoori, 2021; Nair et al., 2024). In contrast, younger and undergraduate students tend to rely on avoidant coping strategies, which may not effectively address their intercultural adjustment challenges (Nair et al., 2024). Moreover, establishing friendships with local students is crucial for international students, as it provides opportunities to gain cultural knowledge and develop interpersonal skills. There is strong evidence that international students' social connections with domestic students play a vital role in their intercultural adaptation by offering social support (Bethel et al., 2020; Nair et al., 2024; Sheng et al., 2022). Conversely, the formation of conational friendships in the host country is often seen as a barrier to the psychological and sociocultural adaptation of international students (Sheng et al., 2022).

The final objective of this study was to explore the extent to which international sociocultural adaptation predicts psychological adaptation in the host society. Consistent with the literature (e.g., Ng et al., 2017; Sheng et al., 2022; Yerken et al., 2022), our findings indicate that sociocultural adaptation significantly influences indicators of psychological adaptation, including depression-happiness and life satisfaction. Specifically, international students with higher levels of sociocultural competencies, such as interpersonal communication skills, personal interests, community involvement, ecological adaptation, and academic excellence, present lower levels of adjustment difficulties, such as culture shock and acculturative stress. As a result, they experience better psychological adaptation, reflected in greater happiness and life satisfaction. Conversely, students with poor sociocultural adaptation tend to face a range of adjustment difficulties, leading to higher levels of depression and dissatisfaction with their overall lives (Yerken et al., 2022). It seems conceivable that international students who demonstrate stronger academic adaptation, higher proficiency in the host country's language, and greater involvement within the local community, alongside effective interpersonal communication and cultural awareness, are more likely to experience reduced levels of depression and increased happiness and life satisfaction during their time abroad. Cultural learning theory provides a framework for understanding these dynamics, indicating that individuals with sufficient cultural knowledge and skills are better

positioned to adapt psychologically to their new environment (Ward et al., 2005). As international students become more culturally adept, they are likely to experience improved emotional well-being, lower levels of anxiety and depression, and a greater sense of happiness and life satisfaction. Therefore, cultural learning theory highlights the critical role of social and cultural competencies in promoting positive psychological outcomes for international students, enhancing their overall adaptation experience (Ward et al., 2005; Wilson et al., 2013).

Implications of the Study

The findings of this study have both theoretical and practical implications. Theoretically, this study's exploration of the levels of psychological and sociocultural adaptation among international students provides a substantial contribution to the cross-cultural literature. Notably, it offers evidence-based insights into the critical role of sociocultural competence in enhancing psychological well-being, including increased happiness, life satisfaction, and reduced depression. Practically, the results offer valuable guidance for university communities, educators, mental health professionals, and students in addressing challenges related to intercultural adaptation. Higher education institutions are encouraged to apply the study's empirical evidence to develop more targeted support initiatives for their student populations. The findings indicate that a majority of students experienced moderate levels of sociocultural and psychological adaptation, suggesting that universities need to continue efforts to enhance international students' intercultural adaptation. A variety of university-level strategies can be implemented to support this process. These include organizing intercultural festivals, providing seminars and workshops on intercultural adaptation, offering counseling and guidance services, and delivering academic and cultural orientations for new students. Additionally, organizing student trips and tours can further support students' integration. Several studies have also demonstrated that international students' engagement in extracurricular activities plays a significant role in enhancing the success and effectiveness of their intercultural adjustment, such as their satisfaction with life and university belongingness (Thies & Falk, 2023). Given that many students in the study area exhibited low proficiency in the host language, universities are encouraged to introduce the host language and culture-related courses into their curricula. Such initiatives can improve students' cultural knowledge and language proficiency, aiding their overall adaptation process. University communities should organize recreational programs, including music concerts, film screenings, and comedy performances, to foster a supportive and engaging environment for international students. Similarly, Leger et al. (2024) emphasized that events such as stand-up comedy significantly promote international students' psychological well-being by strengthening social connectedness and providing meaningful social interactions.

Moreover, universities should offer lectures, seminars, or short training sessions related to positive psychology. These programs can help students develop a stronger sense of confidence, meaning, and resilience, which can support them

throughout their academic journey. Prasath et al. (2022) highlight that promoting positive mental health and building psychological capital, which are central elements of positive psychology, play crucial roles in reducing negative psychological adjustment outcomes. Lecturers of international students are encouraged to foster an inclusive, positive, and empowering classroom environment that values students' contributions, offers constructive feedback, embraces cultural diversity, and employs culturally sensitive teaching approaches. This not only enhances students' academic performance but also contributes to their psychological and sociocultural adaptation. Hung et al. (2024) also emphasized that strength-based guidance, such as the recognition of students' work, providing constructive feedback, and creating an inclusive learning environment, positively contributes to the well-being of international students. Mental health professionals should also focus on facilitating students' adaptation by providing mental health services, including individual and group counseling. Special attention should be given to certain groups, such as female students, self-financed students, undergraduates, and those lacking friendships with locals, as these groups reported lower levels of adaptation than their peers did. Finally, international students are encouraged to actively participate in social, academic, and cultural activities, as these activities play a crucial role in facilitating their intercultural adaptation processes.

Limitations of the Study

Despite the strengths of this study, several limitations must be considered for future research endeavors. First, while our sample consisted of international students from various countries, the study was conducted at a single university, which may limit the generalizability of the findings. Future studies should aim to consolidate these findings by incorporating participants from different higher education institutions across Hungary. Second, the cross-sectional design of the study restricts our understanding of the psychological and sociocultural adaptation of international students over time. Longitudinal studies should be conducted in the future to examine how international students adapt to their host environments across different stages of their academic journeys. Third, the results of this study are based on self-reported data, which may be influenced by participants' social desirability bias and could affect the accuracy of their responses. Future studies might replicate this research by utilizing mixed methods, such as interviews, participant observations, and semistructured questionnaires, to mitigate the shortcomings associated with self-report instruments. Finally, the associations among the study variables are based on correlational evidence rather than experimental data, which should also be considered in future research.

CONCLUSION

The current study explored the extent of psychological and sociocultural adaptation among international students in Hungary and examined how these levels correlate with various sociodemographic variables. Moreover, we investigated the predictive role of sociocultural adaptation on psychological adaptation. The findings indicated moderate to high levels of psychological and sociocultural adaptation among international students. Importantly, the study revealed significant relationships between intercultural adaptation levels and sociodemographic characteristics, including gender, education level, age, scholarship status, and friendships with local students. Moreover, sociocultural adaptation emerged as a strong predictor of psychological outcomes, such as depression-happiness and life satisfaction. The study also highlights the critical role of sociocultural factors in mitigating negative outcomes such as depression and fostering positive outcomes, including happiness and life satisfaction. In light of these findings, universities and other stakeholders need to consider both sociodemographic and sociocultural factors when addressing the intercultural adjustment challenges faced by international students.

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