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Sociocultural Adaptation Among University Students in Hungary: The Case of International Students From Post-Soviet Countries

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ABSTRACT

With the number of international students increasing worldwide, the sociocultural adaptation difficulties that sojourners face should be addressed adequately. This study explored the sociocultural adaptation of international students (N = 267, M_{age} = 24.5, SD = 4.7) in Hungary. The exploratory factor analysis of the Sociocultural Adaptation Scale yielded five factors: Affiliative Relations, Bureaucracy and Services, Power Relations, Cultural Understanding, and Academic Performance. The students' countries of origin (post-Soviet countries versus others) and locations of residence (the capital versus small cities) were determinants of sociocultural adaptation. Depressive symptoms, perceived stress, and lower life satisfaction were associated with greater sociocultural adaptation difficulties. Resilient coping was linked with a lower level of difficulties in academic performance ($r_s = -.20$) and cultural understanding ($r_s = -.15$). Our findings supported that the students' countries of origin, places of residence, and mental health should be considered in improving counseling and educational programs targeting international students.

Keywords: higher education, Hungary, international students, post-Soviet countries, psychological adaptation, sociocultural adaptation

The global international student population increased 165% from an estimated 2,000,000 in 2000 to 5,300,000 in 2017 (UNESCO, 2019). A vital question for international students studying abroad is how they manage everyday life in their host countries or, in other words, how successful their sociocultural adaptation is (Berry, 1997). Coming from different cultural backgrounds, they encounter great challenges, including difficulties with the language barrier, educational and practical stressors, and adaptation to the cultural norms in a new culture (Smith & Khawaja, 2011). A substantial amount of research exists regarding cross-cultural adaptation among various samples of sojourners, examining the effects of different factors on the adaptation process (e.g., Su et al., 2019; Wang & Hannes, 2014; Ward & Kennedy, 1993, 1999; Wilson, 2013; Wilson et al., 2017). These studies found significant differences in sociocultural adaptation across samples, suggesting sociocultural difficulties increase with a high cultural distance between the host and home cultures. This study extends the conceptualization and assessment of sociocultural adaptation of an underrepresented group within a new sociocultural environment while also focusing on international students' countries of origin.

In acculturative studies, acculturation refers to cultural and psychological changes that result from intercultural contact (Berry et al., 2006), while adaptation is commonly understood as an outcome of the acculturation process. There are different concepts addressing acculturation issues such as "culture shock" or "acculturative stress" (Berry, 1997) and cross-cultural adjustment stress (Cross, 1995); however, the recent trends focus on adaptation processes of sojourners. Adaptation pertains to the level of fit between the individual and the host cultural environment (Berry, 1997). Sociocultural adaptation is conceptually distinct from psychological adaptation (Searle & Ward, 1990; Ward & Kennedy, 1999). Psychological adaptation is grounded in stress and coping theory (Lazarus & Folkman, 1984). This approach considers coping resources as emotional and problem-focused efforts to manage stressful situations. Grounded in a culture-learning framework, sociocultural adaptation assumes that cross-cultural difficulties happen because sojourners struggle to learn social skills to fit in to a new cultural context (Argyle, 1969).

Sociocultural adaptation could be assessed by measuring social difficulties, whereas psychological adaptation could be measured by mood changes or the assessment of depressive symptoms (Ward & Kennedy, 1993). Previous studies have demonstrated that cultural distance, language fluency, length of residence, and acculturation strategies mostly affect sociocultural adaptation (Searle & Ward, 1990; Ward & Kennedy, 1999).

However, life changes, personality variables, and situational factors such as social support strongly influence psychological adaptation (Ward & Kennedy, 1993).

Both forms of adaptation have been studied in relation to several factors, for instance, life satisfaction (Sam et al., 2015), academic adaptation (Cemalcilar et al., 2005), cultural distance (Demes & Geeraert, 2014), and perceived discrimination (Berry et al., 2006). Psychological and sociocultural adaptations significantly predicted academic adaptation when measured with the academic performance (Cemalcilar et al., 2005). Perceived discrimination had negative association with psychological ($r = -.31$) and sociocultural ($r = -.30$) adaptations (Berry et al., 2006). Cultural distance had a relationship with a lower level of both types of adaptation (Demes & Geeraert, 2014).

Studies on Measurement of Sociocultural Adaptation

Within the framework of acculturation research, sociocultural adaptation is measured by assessing social skills and the ways individuals react in everyday social situations in a new culture. Several self-report measures, such as the Social Situations Questionnaire (Furnham & Bochner, 1986) and the modified version of it, the Sociocultural Adaptation Scale (SCAS; Ward & Kennedy, 1999), have been used to examine sociocultural adaptation levels.

The SCAS is believed to be a "flexible instrument that can be modified according to the characteristics of the sojourning sample" (Ward & Kennedy, 1999, p. 662). Grounded in a culture-learning framework, it consequently emphasizes both the behavioral and cognitive dimensions of adaptation. The SCAS has been used across various cross-sectional and longitudinal studies and has been found to be a reliable instrument in multiple cultural contexts (Ward & Kennedy, 1993, 1999). It measures the amount of perceived difficulty in many situations, such as "making friends" and "coping with academic work." Additional features of the instrument are its short length and being developed specifically for measuring sojourners' adaptation.

Psychosocial adaptation changes over time. According to previous studies, international students had greater amounts of difficulty with sociocultural adaptation during their first months of residence in a host country and it decreased significantly over time (Wilson, 2013; Wilson et al., 2017). In contrast, Berry et al. (2006) did not find any relationship between the length of residence and both sociocultural and psychological adaptation scores.

Regarding the impacts of age and gender on sociocultural adaptation, previous studies have had mixed results. Some studies found a significant difference between males' and females' sociocultural adaptation subtypes (Güzel & Glazer, 2019; Mahmood & Galloway Burke, 2018), whereas others indicated no gender differences (Su et al., 2019). Younger participants demonstrated a higher amount of sociocultural adaptation problems; however, the strength of this association was weak (r = .12; Wilson, 2013), and some researchers found no support for a link between age and sociocultural adaptation (Searle & Ward, 1990).

International students' countries of origin influence sociocultural adaptation difficulties encountered in new cultures (Güzel & Glazer, 2019; Simic-Yamashita & Tanaka, 2010). For instance, East Asians had fewer sociocultural difficulties on the academic level in Japan (Simic-Yamashita & Tanaka, 2010). For this group of students, cultural similarities might lead to successful adaptation outcomes.

Based on our literature review, no nonprobability sampling-based quantitative research has been conducted to explore different aspects of sociocultural adaptation for international students from post-Soviet countries. However, 8% of all international students around the world are from post-Soviet countries (Chankseliani, 2016). Furthermore, a previous study on Russian-speaking international students in Hungary emphasized an existing cultural distance between post-Soviet countries and Hungary (Samokhotova, 2018). Therefore, we aimed to assess the relationship between participants' countries of origin, especially post-Soviet countries, and the sociocultural adaptation difficulties they might encounter.

International students' English language proficiency was related to their having fewer sociocultural adaptation difficulties (Mahmood & Galloway Burke, 2018; Wilson, 2013) and better psychological well-being (Sam et al., 2015). A low level of English language competence is an important factor, affecting international student's academic achievement. However, few studies have linked a higher competence in a local language to better adaptation outcomes (e.g., Wang & Hannes, 2014). In this study, we assessed the impact of both English-language competence and proficiency in the Hungarian language on sociocultural adaptation difficulties.

A few studies have been conducted to examine the relationship between international students' places of residence in their host countries and their sociocultural adaptation. Students who settled in rural areas had more difficulties in interpersonal adaptation than those who lived in urban ones (Su et al., 2019). Urban regions are more developed and have more frequent population movements than rural ones. People living in rural areas might be less exposed to culturally diverse environments, which may

influence their preservation of their own culture. Similarly, in this study, we measured how the participants' locations in Hungary linked to their sociocultural adaptation difficulties.

Financial satisfaction has a positive association with psychological adaptation across varied samples (e.g., Sam et al., 2015). International students worrying about their financial security may have less time to spend on their studies and fewer internal resources for adaptation. However, few studies have determined the relationship between sociocultural adaptation and financial satisfaction. In this study, we measured this association and predicted that financial dissatisfaction would be linked to sociocultural adaptation difficulties.

Many studies have measured psychological adaptation with various instruments and have found a moderate association with sociocultural adaptation (Searle & Ward, 1990; Wilson, 2013; Wilson et al., 2017); the effect size of the correlation in one such study was $r = .42$ (Wilson, 2013).

Psychological adaptation might be affected by coping resources (Lazarus & Folkman, 1984). Resilient coping is the ability to use cognitive appraisal skills effectively to cope with stressful circumstances and to adapt easily to consequences of culture change (Sinclair & Wallston, 2004), which is relevant in the case of international students. By immersion in a new culture, sojourners may experience psychological stress or "culture shock" (Cross, 1995). As for sociocultural adaptation, a few studies (e.g., Sumer, 2009) have measured its relationship with coping resources, finding a positive association between them. Hence, we wanted to examine the association between resilient coping, perceived stress, and adaptation outcomes.

Aims and Hypotheses of the Study

The aims of this study were to identify the underlying structure of the SCAS for international students studying in Hungary and to reveal how sociodemographic factors affect different types of sociocultural adaptation. We also attempted to gain a deeper understanding of both internal and external factors associated with sociocultural adaptation difficulties. Although many studies have revealed that international students have greater difficulties than domestic students in a host country, remarkably few studies have compared groups of international students based upon their countries of origin, especially those coming from post-Soviet countries. We formulated several hypotheses regarding the anticipated association between sociocultural adaptation and different variables.

1. Sociocultural adaptation difficulties are expected to correlate positively with more depressive symptoms and higher stress and to correlate negatively with lower life satisfaction and lower resilient coping.
2. Negative associations are expected between sociocultural adaptation difficulties and age, financial satisfaction, and language proficiencies in English and Hungarian.
3. A positive relationship is hypothesized between the length of residence and sociocultural adaptation concerns.
4. More sociocultural adaptation difficulties are expected for female students than male students.
5. Fewer sociocultural problems are hypothesized for international students from post-Soviet countries than international students from other countries of origin.
6. We anticipate more sociocultural difficulties for international students who live in Hungarian cities other than the capital than those who reside in the capital city.

METHOD

Participants and Procedure

We applied a convenience sampling method based on the following variables: country of origin and location of residence in Hungary. We recruited participants via advertising on social media and personal invitation. Ethical approval for this study was granted by the Research Ethics Committee at the authors' institution.

We collected data from undergraduate international students attending one of the Hungarian higher institutions. We informed subjects via a written form that participation in the study was anonymous and voluntary. Of the 474 international students who participated in the online survey, we dropped data for 207 participants because of the high number of missing values. An acceptable percentage of missing values in the data set was 10% because analysis may be biased with a higher amount (Bennett, 2001). The final sample comprised 267 participants (105 males and 162 females). The age range of participants was 18–41 years (M = 24.5, SD = 4.7).

As for the participants' countries of origin, 48% of the international students were from post-Soviet countries. The rest (52%) were from other regions: East Asia, 13.7%; South and Southeast Asia, 21.6%; Middle East and Africa, 46%; Europe, 8.6%, Central and South America, 5%; and North America, 5%.

The length of residence in Hungary at the time of completing this survey was less than 6 months for 7.1%, between 6 months and 1 year for

31.8%, 1–2 years for 28.8%, 2–3 years for 16.5%, 3–4 years for 7.9%, and longer than 4 years for 7.9% of the sample.

Bachelor's degree students constituted 40.1% of the sample, master's degree students constituted 35.6%, doctoral degree students constituted 16.9%, and the rest were doing a foundation year or preparatory courses. The majority of the participants (76%) studied in the capital city of Hungary at the time of completing this survey, and the rest (24%) studied in other cities. Regarding financial satisfaction, 6.4% of the sample were very dissatisfied with their financial situations, 15.4% were somewhat dissatisfied, 26.2% were neither satisfied nor dissatisfied, 40.4% were somewhat satisfied, and 11.6% were very satisfied. As for the self-estimation of English language proficiency, 1.5% of the sample assessed themselves as poor, 4.5% as fair, 30% as good, and 55.1% as excellent; 9% were native speakers. Most of the participants participated in classes taught in the English language. Regarding Hungarian language competence, 48.3% of the sample scored as not speaking this language at all, 38.2% as a little, 9.4% as somewhat, 3.7% as slightly well, and 0.4% as very well.

Measures

Sociodemographic Information

We collected data regarding age, gender, country of origin, length of residence, degree, financial satisfaction, location of residence in Hungary, and language competence in English and Hungarian.

Sociocultural Adaptation

The SCAS (Ward & Kennedy, 1999) is a 28-item scale that assesses the amount of difficulty experienced in various sociocultural situations, with emphasis on the behavioral and cognitive domains. Participants rate the amount of difficulty they have experienced with the statements based on a 5-point Likert scale (1 = *no difficulty* to 5 = *extreme difficulty*). The alpha coefficient of internal consistency for the scale was .85 in the original publication (Ward & Kennedy, 1999). In this study, Cronbach's alpha for the overall SCAS was excellent ($\alpha = .91$).

Psychological Adaptation Measures

We assessed psychological adaptation using negative and positive indicators of adaptation, the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), and the Satisfaction With Life Scale (Diener et al., 1985). The Center for Epidemiologic Studies Depression Scale is a 20-item self-report scale that measures depressive symptoms, emphasizing

the affective components. We used an eight-item version of the original scale that was developed and used in previous studies (e.g., Hone et al., 2014). The participants indicated the frequency and severity of depressive symptoms on a scale ranging from 1 (*rarely or none of the time*) to 4 (*all or almost all of the time*). Six items measured various depressive affects and somatic and retarded activity. Two items were phrased in a positive direction ("I enjoyed life" and "I was happy") and were reverse scored. The internal consistency was found to be good in this research (α = .83). The other indicator of psychological adaptation was the Satisfaction With Life Scale, which assesses subjective well-being and global life satisfaction. It consists of five items, inviting participants to indicate their level of agreement with each item based on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The alpha coefficient of internal consistency for the scale was .87 in the original paper (Diener et al., 1985). In this study, Cronbach's alpha was good (α = .89).

Perceived Stress

We measured perceived stress using the Perceived Stress Scale (Cohen et al., 1983). The short version of the scale comprises four items (Numbers 2, 6, 7, and 14) assessing the subjective measure of the appraised event. It invites participants to indicate the frequency of feelings and thoughts during the last month based on a 5-point Likert scale ranging from 0 (*never*) to 4 (*very often*). Two positively worded items are scored in the reverse direction. The Cronbach's alpha of the four-item scale was .72 in the original publication (Cohen et al., 1983) and .57 in this study.

Resilient Coping

We assessed coping resources with the Brief Resilient Coping Scale (Sinclair & Wallston, 2004), a four-item scale designed to measure resilient coping resources, such as tenacity, optimism, creativity, and problem-solving. Each item is positively phrased, and the statements are measured using a Likert scale ranging from 1 (*does not describe me at all*) to 5 (*describes me very well*). The Brief Resilient Coping Scale demonstrated acceptable reliability for the four-item scale in the original paper (α = .70; Sinclair & Wallston, 2004). The internal consistency was also acceptable in this research (α = .71).

Data Analysis

We used exploratory factor analysis (EFA) with Mplus 8.0 (Muthén & Muthén, 1998–2017) to explore the underlying latent structure of the SCAS. We performed all analyses with maximum likelihood parameter estimates with standard errors and chi-square test statistics that were

robust to the nonnormality of observations (Muthén & Muthén, 1998–2017, p. 484). The oblique rotation of geomin was used by the default. We determined the appropriate number of factors based on eigenvalues greater than 1, the goodness of model fit, and the interpretability of the factors. A reasonably good fit of the model requires the comparative fit index (CFI) and the Tucker–Lewis Index (TLI) values to be higher than .90 and the root-mean-square error of approximation (RMSEA) to be below .05 (Hu & Bentler, 1999). The standardized root-mean-square residual (SRMR) should be below .08 for a good model fit (Kline, 2011). In a relatively small sample, a lower value for the Akaike information criterion (AIC) indicates a better model fit in comparison to alternative models (Akaike, 1987).

We used IBM SPSS Statistics to further the data analyses. We compared the differences in the participants' sociocultural adaptation scores using a two-sample *t* test after conducting a descriptive analysis. For the effect size indices (Cohen's *d*), 0.20 was considered a small effect size, 0.50 a medium effect size, and 0.8 a large effect size (Cohen, 1988). In the final step, we used Spearman's correlation to examine formulated hypotheses and assess whether some of the factors affect selected factors of the SCAS.

RESULTS

Factor Analysis

We performed an EFA to explore the underlying factors of the SCAS. We ascertained one to seven factors could be extracted by EFA. Six factors had eigenvalues greater than 1 (9.00, 1.89, 1.39, 1.20, 1.16, and 1.08). Although the eigenvalues suggested that six factors should be retained, six-factor and seven-factor solutions were not identifiable in Mplus 8. The results of the analysis demonstrated that out of the given five models, the degree of fit for a five-factor model was best in comparison to alternative models: $\chi^2(248) = 407.1$, CFI = .925, TLI = .886, RMSEA = .049 with 90%CI [.040, 0.57], SRMR = .035, AIC = 20,157.

Factor determinacy values for each factor of the five-factor model were close to .90 or higher, indicating good determinacy. We used a loading of .40 as the cutoff criteria for item inclusion. We defined a factor structure by eliminating items that had small loadings or cross-loadings on more than one factor. Initial factor loadings for the five-factor model ranged from .40 to 1.00 (see Table 1). Item 1 (.54), Item 3 (.76), Item 4 (.54), and Item 5 (.51) had moderately positive loadings on Factor 1. Factor 2 consisted of three items (7, 8, and 12). Both Factors 3 and 4 consisted of five items each, and Factor 5 had three items, from moderately

Table 1. Initial Factor Loadings for the Five-Factor Model of the Sociocultural Adaptation Scale

Item No.	Item	F1	F2	F3	F4	F5
1	Making friends	**.54**	-.03	-.04	.03	.08
2	Using the transport system	.24	-.03	.00	.08	.17
3	Making yourself understood	**.76**	.10	.00	-.05	.01
4	Understanding jokes and humor	**.54**	.00	.09	.19	-.03
5	Dealing with someone who is unpleasant/cross/aggressive	**.51**	.12	.13	.07	-.07
6	Getting used to the local food/finding food you enjoy	.07	.22	.19	.16	-.02
7	Dealing with people in authority	.12	**.58**	.15	-.05	.08
8	Dealing with the bureaucracy	-.01	**.84**	-.02	.04	-.05
9	Adapting to local accommodation	.04	.26	.21	.31	.04
10	Communicating with people of a different ethnic group	-.01	.04	.28	.16	.23
11	Relating to members of the opposite gender	-.09	.09	**.41**	.09	.14
12	Dealing with unsatisfactory service	.08	**.46**	.03	.19	.02
13	Finding your way around	.11	.03	.06	.29	.29
14	Dealing with the climate	.05	-.05	**.50**	.00	.11
15	Dealing with people staring at you	.23	-.02	.18	.18	.09
16	Understanding the local accent/language	.28	.22	-.03	.03	.09
17	Living away from family members overseas/independently from your parents	.06	.02	.27	.14	.11
18	Adapting to local etiquette	-.03	.06	**.45**	.32	.05
19	Relating to older people	.04	.05	**.73**	-.12	.00
20	Dealing with people of higher status	.07	.01	**.72**	.00	-.01
21	Understanding what is required of you at university	-.14	.13	.15	.13	**.54**
22	Coping with academic work	.02	.00	-.05	-.10	**1.00**
23	Expressing your ideas in class	.02	-.21	.21	.19	**.48**
24	Living with your flatmate/roommate	.08	-.10	.14	**.40**	.01
25	Understanding the local value system	.12	.08	.01	**.58**	.05
26	Seeing things from the locals' point of view	.07	-.01	-.04	**.70**	.04
27	Understanding cultural differences	-.04	.12	-.02	**.76**	.02
28	Being able to see two sides of an intercultural issue	-.01	-.08	.35	**.49**	-.08
	Correlations between factors					
	F1 - Affiliative Relations		.39	.49	.44	.28
	F2 - Bureaucracy and Services			.40	.32	.28
	F3 - Power Relations				.60	.48
	F4 - Academic Performance					.52
	F5 - Cultural Understanding					
	Eigenvalue	9.00	1.89	1.39	1.20	1.16
	Factor Determinacy	0.89	0.89	0.91	0.92	0.95

Note. $N = 267$. Factor solution was estimated with MLR method in Mplus. Factor loadings higher than 0.40 are boldfaced.

Table 2. Final Factor Loadings for the Five-Factor Model of the Sociocultural Adaptation Scale

Item No.	Item	F1	F2	F3	F4	F5
1	Making friends	**.54**	-.01	-.05	.08	.02
3	Making yourself understood	**.76**	.09	-.01	.01	-.05
4	Understanding jokes and humor	**.59**	-.03	.06	.01	.17
5	Dealing with someone who is unpleasant/cross/aggressive	**.50**	.14	.12	-.09	.11
7	Dealing with people in authority	.12	**.60**	.14	.09	-.03
8	Dealing with the bureaucracy	.00	**.79**	.01	-.04	.05
11	Relating to members of the opposite gender	-.05	.08	.32	.18	.10
12	Dealing with unsatisfactory service	.09	**.47**	.00	.05	.20
14	Dealing with the climate	.09	-.05	.38	.19	.01
18	Adapting to local etiquette	-.01	.08	.38	.09	.34
19	Relating to older people	.02	.06	**.71**	.01	-.05
20	Dealing with people of higher status	.05	.01	**.74**	.01	.03
21	Understanding what is required of you at university	-.12	.14	.06	**.66**	.09
22	Coping with academic work	.02	.01	-.11	**.91**	-.06
23	Expressing your ideas in class	.05	-.20	.11	**.59**	.15
24	Living with your flatmate/roommate	.13	-.10	.07	.09	.36
25	Understanding the local value system	.14	.07	.01	.07	**.56**
26	Seeing things from the locals' point of view	.05	-.01	-.02	.04	**.71**
27	Understanding cultural differences	-.02	.12	-.02	.00	**.77**
28	Being able to see two sides of an intercultural issue	-.01	-.07	.34	-.06	.51
	Correlations between factors					
	F1 - Affiliative Relations		.38	.49	.32	.43
	F2 - Bureaucracy and Services			.36	.28	.28
	F3 - Power Relations				.51	.54
	F4 - Academic Performance					.56
	F5 - Cultural Understanding					
	Eigenvalue	6.93	1.76	1.31	1.13	1.08
	Factor Determinacy	0.89	0.88	0.90	0.92	0.92

Note. $N = 267$. Factor solution was estimated with MLR method in Mplus. Model fit: $\chi^2 (248) = 407.1$, CFI = .925, TLI = .886, RMSEA = .049 with 90%CI [.040, 0.57], SRMR = .035, AIC = 20,157.

low to high positive loadings on the factor. Item 4 ("dealing with the climate"), which moderately loaded on Factor 3, did not have a substantive relevance and meaning compared to other items. Item 22 ("coping with academic work") had a loading of 1.00 on Factor 5, indicating that the variable strongly influenced the factor. Because several items (2, 6, 9, 10, 13, 15, 16, and 17) were dropped in the preceding step, we reran the EFA in the same sample ($n = 267$) for further analysis.

In the second EFA, the eigenvalues suggested that five factors should be retained, where Factor 1 demonstrated the most variance (see Table 2). Factor determinacy values indicated good determinacy.

Factor 1 consisted of the same four items (1, 3, 4, and 5) with slight changes in the loadings related to interpersonal contact. We named this factor "Affiliative Relations." Items clustered in Factor 2 were related to bureaucracy (Items 7 and 8) and the delivery of public services (Item 12); accordingly, we entitled this factor "Bureaucracy and Services." Factor 3 consisted of only two items (19 and 20) that had salient loadings. Other items were below the cutoff criteria for inclusion, and we decided to keep this factor because the items had large positive loadings on this factor. Both items represented power and status relations; therefore, we labeled the factor "Power Relations." Factor 4 consisted of three items related to academic life (Items 21, 22, and 23) and we defined this factor as "Academic Performance." The loading of Item 22 decreased slightly from the first EFA. The last factor consisted of three items (25, 26, and 27) associated with understanding cultural differences. All of the items had relatively high positive loadings on the factor. We did not include Items 18 and 24 because of low communalities, and Item 28 had a cross-loading on Factor 3. The fifth factor was named "Cultural Understanding."

Sociodemographic Determinants of Sociocultural Adaptations

We employed an independent samples *t* test to examine significant differences between the sociocultural adaptation subtypes of the participants and sociodemographic variables. Gender, country of origin, and location of residence in Hungary were chosen as sociodemographic data. We found no significant relation between the sociocultural adaptation subtypes and students' gender (see Table 3). We found significant differences in sociocultural adaptation difficulties regarding countries of origin. International students from other countries of origin ($M = 2.69$, $SD = 0.84$) had more difficulties with affiliative relations than students coming from post-Soviet countries ($M_{\text{post-Soviet}} = 2.23$, $SD_{\text{post-Soviet}} = 0.89$; $t = 4.41$, $p = <.001$). The effect size of the difference was medium ($d = 0.54$). Substantial differences were revealed in the power relations ($M = 2.05$, $SD = 1.04$; $M_{\text{post-Soviet}} = 1.63$, $SD_{\text{post-Soviet}} = 0.82$), academic performance ($M = 2.22$, $SD = 1.00$; $M_{\text{post-Soviet}} = 1.85$, $SD_{\text{post-Soviet}} = 0.75$), and cultural understanding subscales ($M = 2.20$, $SD = 0.85$; $M_{\text{post-Soviet}} = 1.84$, $SD_{\text{post-Soviet}} = 0.75$), indicating international students coming from other countries of origin encounter more difficulties than international students from post-Soviet countries. The effect sizes of those differences were medium ($d = 0.45$, 0.42, and 0.44, respectively).

As for location of residence in Hungary, those participants who lived in the capital city had fewer difficulties in affiliative relations ($M = 2.35$, $SD = 0.81$) and cultural understanding ($M = 1.95$, $SD = 0.79$) compared to those who lived in other cities ($M = 2.87$, $SD = 1.02$; $M = 2.34$, $SD = 0.94$,

respectively). The differences between these groups were equivalent to medium effect sizes of 0.60 and 0.48, respectively.

Table 3. Independent Samples *t* Test for the Sociocultural Adaptation Subscales

Factors	*M* (*SD*)	*M* (*SD*)	*t* (*p*)	Cohen's *d*
		Gender differences		
	Males *n* = 105	Females *n* = 162		
Affiliative Relations	2.35 (0.81)	2.55 (0.93)	1.80 (.073)	0.23
Bureaucracy and Services	2.62 (0.93)	2.68 (1.03)	0.54 (.589)	0.07
Power Relations	1.94 (1.06)	1.79 (0.89)	1.20 (.230)	0.15
Academic Performance	2.00 (0.85)	2.09 (0.97)	0.79 (.430)	0.10
Cultural Understanding	2.05 (0.91)	2.03 (0.80)	0.16 (.875)	0.02
		Differences between countries of origin		
	Other countries of origin *n* = 139	Post-Soviet countries *n* = 127		
Affiliative Relations	2.69 (0.84)	2.23 (0.89)	**4.41 (<.001)**	0.54
Bureaucracy and Services	2.74 (1.01)	2.56 (0.97)	1.43 (.153)	0.18
Power Relations	2.05 (1.04)	1.63 (0.82)	**3.67 (<.001)**	0.45
Academic Performance	2.22 (1.00)	1.85 (0.75)	**3.39 (<.001)**	0.42
Cultural Understanding	2.20 (0.85)	1.84 (0.75)	**3.59 (<.001)**	0.44
		Locations of residence in Hungary		
	The capital city *n* = 203	Other Hungarian cities *n* = 62		
Affiliative Relations	2.35 (0.81)	2.87 (1.02)	**4.15 (<.001)**	0.60
Bureaucracy and Services	2.63 (1.00)	2.75 (0.96)	0.83 (.409)	0.12
Power Relations	1.79 (0.93)	2.06 (1.05)	1.95 (.052)	0.28
Academic Performance	2.00 (0.89)	2.25 (0.99)	1.83 (.068)	0.27
Cultural Understanding	1.95 (0.79)	2.34 (0.94)	**3.28 (.001)**	0.48

Note. Due to multiple testing Bonferroni correction was applied and *t* (*p*) values are bolded if they remained significant with the more restrictive p value (*p* = .00333)

Table 4. Correlation Analysis Results

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	-														
2. Gender	.10	-													
3. Length of residence	**.23**	-.06	-												
4. English language proficiency	.02	.03	.05	-											
5. Hungarian language proficiency	.00	*-.15*	**.28**	.04	-										
6. Financial satisfaction	-.11	-.05	-.01	.08	-.05	-									
7. Affiliative Relations	.03	.10	.05	.01	.02	**-.19**	-								
8. Bureaucracy and Services	.10	.03	**.16**	.07	.02	-.08	**.46**	-							
9. Power Relations	-.05	-.03	-.01	-.01	.08	**-.20**	**.45**	**.42**	-						
10. Cultural Understanding	-.01	.01	.00	*-.12*	-.01	*-.13*	**.50**	**.39**	**.50**	-					
11. Academic Performance	*-.16*	.02	-.06	*-.13*	-.01	*-.14*	**.33**	**.30**	**.41**	**.48**	-				
12. Depression (CES-D)	-.08	-.02	-.01	.08	.01	**-.27**	**.31**	**.17**	**.29**	**.31**	**.27**	-			
13. Perceived stress (PSS)	*-.14*	.12	.03	.03	-.02	**-.16**	**.26**	*.15*	*.15*	*.13*	**.26**	**.50**	-		
14. Life satisfaction (SWLS)	.02	.06	.02	-.02	.11	**.31**	**-.23**	*-.16*	**-.17**	**-.23**	**-.24**	**-.52**	**-.35**	-	
15. Resilient coping (BRCS)	.07	-.06	.07	.08	.04	.09	-.05	.03	-.08	*-.15*	**-.20**	**-.18**	**-.19**	**.26**	-

Note. $N = 267$. The bolded correlation coefficients are significant at the 0.01 level (2-tailed). Correlations with italic are significant at the 0.05 level (two-tailed). Gender: 1 = male; 2 = female; CES-D = Center for Epidemiologic Studies Depression Scale; PSS = Perceived Stress Scale; SWLS = Satisfaction With Life Scale; BRCS = Brief Resilient Coping Scale.

Mental Health Indices and Sociocultural Adaptations

We performed a Spearman's correlation to measure the association between the determined factors of the SCAS and other indicators of adaptation profiles of the participants (see Table 4). As we hypothesized, we found correlations between all determined factors of sociocultural adaptation and psychological adaptation. All factors of sociocultural adaptation difficulties correlated positively with depressive symptoms (measured with the Center for Epidemiologic Studies Depression Scale) and negatively with life satisfaction (measured with the Satisfaction With Life Scale). The perceived stress (measured with the Perceived Stress Scale) also correlated positively with all sociocultural adaptation difficulties; therefore, higher stress might be explained by the increasing number of difficulties the students experienced in various sociocultural situations. The Brief Resilient Coping Scale had a negative association with only two factors: difficulties in cultural understanding ($r_s = -.15$, $p < 0.05$) and in academic performance ($r_s = -.20$, $p < 0.01$). Additionally, the third hypothesis was partially supported—difficulties in academic performance were negatively correlated with age ($r_s = -.16$, $p < 0.05$), English language proficiency ($r_s = -.13$, $p < 0.05$), and financial satisfaction ($r_s = -.14$, $p < 0.05$). Hence, the smaller number of difficulties the students experienced in academic performance might be explained by

higher ages, higher levels of English language competence, and greater financial satisfaction. No support was found for a relationship between the students' Hungarian language proficiency and sociocultural adaptation concerns. Difficulties in cultural understanding were associated negatively also with English language proficiency (r_s = −.12) and financial satisfaction (r_s = −.13). Difficulties in affiliative relations negatively associated with the students' financial satisfaction (r_s = −.19, $p < 0.01$). Length of residence correlated positively with difficulties in bureaucracy and services (r_s = .16, $p < 0.01$). No support was found for an association between gender and sociocultural adaptation difficulties, as we anticipated.

DISCUSSION

We examined the underlying structure of the SCAS and the factors influencing the sociocultural adaptation difficulties of international students studying in Hungary. We chose to investigate the association between sociodemographic variables—gender, location of residence in Hungary, and country of origin—of the participants and sociocultural adaptation subscales.

The results of previously conducted factor analyses explained multiple domains of the SCAS. Ward and Kennedy (1999) identified a two-factor solution related to the cognitive and behavioral domains. Further factor analyses of the SCAS demonstrated a three-factor solution (Simic-Yamashita & Tanaka, 2010), a four-factor solution (GulRaihan & Sandaran, 2018), and others identified six factors (Su et al., 2019).

In this study, a five-factor solution showed the best model fit and included Affiliative Relations, Bureaucracy and Services, Power Relations, Cultural Understanding, and Academic Performance. The first factor, Affiliative Relations—explaining the greatest amount of variance—was connected to difficulties in interpersonal relations, whereas the factor Cultural Understanding referred to understanding cultural differences. Both factors corresponded to results found in previous studies (Su et al., 2019; Ward & Kennedy, 1999). The factor Academic Performance was related to difficulties in university life and was similar to factors found in earlier studies (GulRaihan & Sandaran, 2018; Simic-Yamashita & Tanaka, 2010). Items related to the factors Bureaucracy and Services and Power Relations were clustered variously in previous findings (e.g., Ward & Kennedy, 1999).

We found significant differences in regard to countries of origin and location of residence in Hungary. International students from other countries of origin had more difficulties in affiliative relations, power

relations, academic performance, and cultural understanding than those coming from post-Soviet countries (H5). Since many of post-Soviet countries are relatively collectivist cultures (Hofstede & Hofstede, 2005), social and relational ties may be stronger and students may value order and duties more than other international students. Furthermore, Russian-speaking students may have a larger in-group in Hungary, which provides them with a sense of community and social support. It might explain why international students from post-Soviet countries have fewer difficulties in affiliative and power relations. For difficulties in cultural understanding and academic achievement, due to their common political pasts, post-Soviet countries and Hungary might have a relatively smaller cultural distance. Our findings were supported with the results from previous studies that also found significant differences in participants' countries of origin (GulRaihan & Sandaran, 2018; Simic-Yamashita & Tanaka, 2010). These results might be contingent on a range of contextual factors, such as countries of origin and/or the country of destination, and such factors should be carefully considered for further interpretations of adaptation processes (Wilson, 2013).

In line with our sixth hypothesis, international students who lived in Hungarian cities other than the capital had more sociocultural adaptation difficulties in affiliative relations and cultural understanding than those who resided in the capital city. A capital city is usually more diverse and provides more opportunities to meet people with international experience and language skills. These results reflect the impact of cultural diversity on international students' concerns in interpersonal relations and their cultural understanding in Hungary.

Similar to prior studies (Güzel & Glazer, 2019; Su et al., 2019), we found no support for a relationship between gender and sociocultural adaptation difficulties (H4). However, one study found a small correlation between gender and sociocultural adaptation (r = .12), indicating lower sociocultural adaptation for females (Wilson, 2013).

Sociocultural adaptation difficulties were confirmed through small to moderate correlations with measures of psychological adaptation (depression and life satisfaction) (H1). These results were in accordance with earlier studies (Demes & Geeraert, 2014; Wilson et al., 2017). Individuals who reported having greater difficulties in affiliative relations also appeared to have greater depressive symptoms (r_s = .31, p < 0.01) and lower life satisfaction (r_s = −.23, p < 0.01). The same previous study mentioned above also identified that the interpersonal communication subscale of the SCAS-R was related to both depression (r = −.39, p < 0.01) and life satisfaction (r = .43, p < 0.01; Wilson, 2013). Another notable difference found in this study was between difficulties in academic

performance and psychological adaptation, corresponding to a larger correlation with depression ($r = .27$, $p < 0.01$) than life satisfaction ($r = -.24$, $p < 0.01$). Depression is importunate in the academic and social lives of international students, because it can make acquiring new knowledge and performing at universities more difficult.

Perceived stress also strongly associated with sociocultural adaptation concerns because it correlated positively with all sociocultural adaptation subscales, as we anticipated (H1). Studying abroad can be seen as producing chronic stress, which makes the adaptation process more difficult for sojourners. However, only a few studies have measured perceived stress and its relation with sociocultural adaptation difficulties. Some found a negative association between psychological distress and sociocultural adaptation (b = −.31, $p < .001$; Brisset et al., 2010). Furthermore, resilient coping correlated negatively with only two subscales of sociocultural adaptation: difficulties in cultural understanding and in academic performance.

Student sojourners have a large number of sociocultural adaptation difficulties at the beginning of their residence in a host country (Ward & Kennedy, 1999; Wilson et al., 2017). In this study, we tested the relationship between the length of residence in Hungary and sociocultural adaptation problems (H3). However, we confirmed only difficulties related to bureaucracy and services, despite the anticipation of a positive relationship with all sociocultural adaptation subscales. Other studies also did not find any link between the length of residence and sociocultural adaptation (Berry et al., 2006; Simic-Yamashita & Tanaka, 2010).

We anticipated negative associations between sociocultural adaptation difficulties and age, financial satisfaction, and English and Hungarian language proficiency (H2). However, English language proficiency correlated negatively only with difficulties in academic performance and in cultural understanding. Other studies also found a relationship between English language proficiency and difficulties in academic performance and other subtypes of the SCAS (see Mahmood & Galloway Burke, 2018; Wilson et al., 2017). Some previous studies found a relationship between a local language and sociocultural adaptation difficulties (e.g., Simic-Yamashita & Tanaka, 2010). However, this study did not confirm a negative relationship between sociocultural adaptation concerns and Hungarian language proficiency.

In line with some previous studies (e.g., Wilson 2013), we found that younger participants demonstrated a higher number of difficulties in academic performance ($r_s = -.16$). We found no support for the relationship between other subtypes of sociocultural adaptation and age.

The results of previous studies were mixed: Some found an association between age and sociocultural adaptation (e.g., Mahmood & Galloway Burke, 2018), whereas others did not indicate such a relationship (e.g., Su et al., 2019).

The current study confirmed a relationship between financial satisfaction and difficulties in affiliative relations, cultural understanding, and academic performance. To the best of our knowledge, no studies have been conducted to test this relationship. Additionally, some linked financial satisfaction to worse psychological adaptation outcomes (e.g., Sam et al., 2015).

Limitations and Future Implications

The findings in the study should be regarded with caution due to the cross-sectional design and its uncertainty in the causal relationship. This study cannot explain whether depressive symptoms, perceived stress, and life satisfaction were antecedents or consequences of sociocultural adaptation difficulties. We cannot exclude the possibility that international students already had more depressive symptoms, higher perceived stress, and lower life satisfaction before coming to Hungary. This study also cannot address the certainty in the relationship between resilient coping and sociocultural adaptation difficulties.

The participants might have been influenced by social desirability bias, answering questions inaccurately to be viewed favorably by others. We cannot exclude the possibility of a sample selection bias that does not accurately reflect the targeted population.The analysis should be tested on another independent sample to verify the structure obtained by the exploratory factor analysis in this study.

Despite several limitations, this study explored the underlying structure of the SCAS and attempted to get a deeper understanding of the internal and external factors associated with sociocultural adaptation difficulties. The results offer new insights by comparing two groups of international students—based on their countries of origin—in a new sociocultural context. Only a small number of studies have been conducted to examine the sociocultural adaptation difficulties of international students from post-Soviet countries. We suggest conducting cross-national comparisons to explore sociocultural adaptation of those group of students and to investigate cultural differences. Understanding the adaptation difficulties international students face in their host countries could help universities organize programs and activities that provide these students more opportunities for better socialization. Teaching and administrative staff are encouraged to focus on cultural awareness.

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