

Examining the Relationship between Social Support Sources and Adjustment Domains among First-Semester International Students: The Mediating Role of Well-Being

Ayşe Özçiçek Nazir¹  & Thseen Nazir^{2*} 

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Abstract: Objectives: This study investigates challenges faced by first-semester international students adjusting to a new academic and cultural environment, focusing on perceived social support (PSS) and its relationship to adjustment outcomes. The research examines how different PSS sources family, friends, and significant others are associated with distinct adjustment domains (sociocultural, psychological, and daily life adjustment) and explores mental well-being's mediating role in these relationships. **Methodology:** A cross-sectional study was conducted with 341 international students in Turkey. Data were collected during the initial semester to assess PSS, mental well-being, and adjustment outcomes across multiple domains. Mediation analyses were conducted in SPSS v25 using the PROCESS macro (Model 4) to examine associations between various PSS sources and adjustment dimensions, with mental well-being tested as a potential mediator. **Findings:** Results validated that mental well-being consistently mediates the relationship between all PSS sources and all adjustment domains, underscoring its critical role in facilitating the transition process. Support from friends exhibited the strongest association with sociocultural adjustment, while family support indirectly contributed to it through mental well-being. Psychological adjustment was significantly influenced by both family and friend support, whereas support from significant others showed a weak indirect association. Daily life adjustment was positively affected by all three PSS sources. **Conclusions:** The findings highlight the importance of fostering strong social networks and overall mental well-being as essential factors in enhancing international students' psychological and daily life adjustment. Mental well-being serves as a crucial mechanism through which social support translates into successful adjustment outcomes. **Recommendations:** Universities and policymakers should design targeted support programs aimed at strengthening international students' social connections across multiple sources and implementing well-being initiatives to enhance adaptation experiences and overall academic success.

Keywords: Adjustment Challenges, International Students, Mental Well-Being, Psychological Adjustment, Sociocultural Adjustment, Social Support.

فحص العلاقة بين مصادر الدعم الاجتماعي ومجالات التكيف لدى الطلاب الدوليين في الفصل الدراسي الأول: الدور الوسيط للرفاه النفسي

عائشه أوزتشيجيك نظير¹، وتحسين نظير^{2*}

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ملخص: الأهداف: تهدف هذه الدراسة إلى استقصاء التحديات التي يواجهها الطلبة الدوليون في الفصل الدراسي الأول أثناء تكيفهم مع بيئة أكاديمية وثقافية جديدة، مع التركيز على الدعم الاجتماعي المدرك وعلاقته بنتائج التكيف. كما تبحث الدراسة في كيفية ارتباط مصادر الدعم الاجتماعي المدرك المختلفة (الأسرة، والأصدقاء، والأشخاص ذوو الأهمية الخاصة في حياة الطالب) بمجالات التكيف المتنوعة (التكيف الاجتماعي الثقافي، والتكيف النفسي، والتكيف مع متطلبات الحياة اليومية)، بالإضافة إلى استكشاف الدور الوسيط للرفاه النفسي في هذه العلاقات. **المنهجية:** أجريت دراسة مقطعية شملت 341 طالباً دولياً في تركيا. جُمعت البيانات خلال الفصل الدراسي الأول لقياس الدعم الاجتماعي المدرك، والرفاه النفسي، ونتائج التكيف في مجالات متعددة. وأجريت تحليلات الوساطة باستخدام برنامج SPSS الإصدار 25 من خلال إضافة PROCESS (النموذج 4)، وذلك لفحص العلاقات بين مصادر الدعم الاجتماعي المدرك المختلفة وأبعاد التكيف، مع اختبار الرفاه النفسي كمتغير وسيط محتمل. **النتائج:** أظهرت النتائج أن الرفاه النفسي يتوسط بصورة منتظمة العلاقة بين جميع مصادر الدعم الاجتماعي المدرك وجميع مجالات التكيف، مما يؤكد دوره المحوري في تسهيل عملية الانتقال والتكيف. كما تبين أن دعم الأصدقاء كان الأكثر ارتباطاً بالتكيف الاجتماعي الثقافي، في حين أسهم دعم الأسرة فيه بصورة غير مباشرة من خلال الرفاه النفسي. وتأثر التكيف النفسي بشكل ملحوظ بكل من دعم الأسرة والأصدقاء، بينما أظهر دعم الأشخاص المهمين ارتباطاً غير مباشر ضعيفاً. كذلك تأثر التكيف مع الحياة اليومية إيجابياً بجميع مصادر الدعم الاجتماعي المدرك الثلاثة. **الاستنتاجات:** تؤكد النتائج أهمية تعزيز الشبكات الاجتماعية القوية والرفاه النفسي العام بوصفهما عاملين أساسيين في تحسين التكيف النفسي والتكيف مع الحياة اليومية لدى الطلبة الدوليين. كما يُعد الرفاه النفسي آلية جوهرية تنتقل من خلالها آثار الدعم الاجتماعي إلى نتائج تكيف ناجحة. **التوصيات:** ينبغي على الجامعات وصناع السياسات تصميم برامج دعم موجهة تهدف إلى تعزيز الروابط الاجتماعية للطلبة الدوليين عبر مصادر متعددة، إلى جانب تنفيذ مبادرات تُعنى بالرفاه النفسي من أجل تحسين خبرات التكيف والانتماء، وتعزيز النجاح الأكاديمي بشكل عام.

الكلمات المفتاحية: تحديات التكيف، الطلاب الدوليين، الرفاه النفسي، التكيف النفسي، التكيف الاجتماعي-الثقافي، الدعم الاجتماعي.

1 Guidance and Counseling Department, Ibn Haldun University, Istanbul, Turkey. thseen.nazir@ihu.edu.tr

2 Guidance and Counseling Department, Ibn Haldun University, Istanbul, Turkey.

* Corresponding author: thseen.nazir@ihu.edu.tr

1 قسم الإرشاد والتوجيه، جامعة ابن خلدون، إسطنبول، تركيا. ayeozcicek@stu.ihu.edu.tr

2 قسم الإرشاد والتوجيه، جامعة ابن خلدون، إسطنبول، تركيا

* الباحث المراسل: thseen.nazir@ihu.edu.tr

Introduction

The world has witnessed remarkable growth in international student mobility over the past decade, with the number of international students increasing by approximately 60.97%, from over four million to nearly seven million, according to recent statistics (UNESCO, 2024). This surge reflects the growing appeal of studying abroad, as it offers numerous academic and personal benefits. In addition to academic benefits, international education promotes cultural immersion, language acquisition, and personal growth (Ashrafova & Imanli, 2024). These factors collectively make studying abroad an attractive and transformative experience for students worldwide. While studying abroad presents numerous opportunities for students, it also comes with significant adjustment challenges.

The challenges vary widely across different contexts. Research has identified several prominent difficulties, including language barriers (Nazir & Özçiçek, 2022), financial difficulties (Wilson *et al.*, 2023), social integration struggles (Bianchi & Martini, 2023), and experiences of discrimination and racism (Xiong *et al.*, 2024). Adjustment difficulties were found to be strongly associated with declines in academic performance (Khan *et al.*, 2020) and psychological issues, as many students exhibit symptoms of depression and anxiety (Aldawsari *et al.*, 2018; Nazir, 2022). Importantly, a limited but growing body of research highlights that the first semester represents the most challenging stage of adaptation, when international students are particularly vulnerable due to abrupt exposure to academic demands, social isolation, and acculturative stress (Koo *et al.*, 2021; Wang *et al.*, 2012).

To mitigate the adverse effects of challenges faced by international students, a significant body of research has sought to identify factors that facilitate their adjustment. Among the most consistently identified of these is social support, which has been shown to be a crucial element in their successful transition (Brunsting *et al.*, 2018). While prior research has consistently highlighted the importance of social support for international students' adjustment, most studies conceptualize PSS as a uniform construct, leaving the unique contributions of family, friends, and significant others underexplored. Furthermore, although mental well-being has been linked to both PSS and adjustment, its potential indirect role in these associations has received limited empirical attention. Notably, despite evidence that the first semester represents the period of greatest vulnerability for international students, few studies have focused specifically on this critical stage. To address these gaps, the present study examines the differential effects of distinct PSS sources on sociocultural, psychological, and daily life adjustment among first-semester international students, while also testing the indirect associations involving mental well-being. By clarifying these relationships, the findings are expected to inform the design of more effective orientation and support programs that can better facilitate international students' early adaptation.

Literature Review

Social Support and Adjustment

Perceived social support (PSS), which refers to the perceived availability of assistance and care from family, friends, or significant others, encompassing emotional support and tangible aid to manage challenges (Baghoori *et al.*, 2024), is identified in the literature as a critical determinant influencing the adjustment of international students (Brunsting *et al.*, 2018). According to Razgulin *et al.* (2023),

sociocultural adjustment has been closely linked to social support. Literature underscores the critical role of social support networks, both those cultivated within the host country and those sustained from the home country, in enhancing sociocultural adaptation processes (Aldawsari *et al.*, 2018). This dual support system is essential for facilitating individuals' successful navigation and integration into new cultural environments. Similarly, research shows that support from various sources can highly impact psychological adjustment (Lashari *et al.*, 2018; Zhang & Goodson, 2011). Extending these findings, a meta-analysis by Bender *et al.* (2019) provides robust evidence that social support is positively associated with psychological adjustment among international students, regardless of whether the support originates from host or conational networks. This suggests that the quality and perception of support are more influential for adjustment than shared nationality or cultural background.

Additionally, Bianchi and Martini (2023) suggest that peer and faculty support is crucial for the successful adjustment of international students. While these findings underscore the critical link between social support and the adjustment of international students, the specific relationships between different sources of social support and distinct adjustment domains remain unclear, warranting further investigation.

Mental Well-being as a Mediator

Mental well-being emerges as a significant factor influencing adjustment processes, bridging the relationship between social support and international student adjustment. Growing evidence suggests that mental well-being influences adjustment levels for international students. Mental well-being encompasses the ability to manage acculturation stress, loneliness, and emotional distress (Aldawarsi *et al.*, 2018). Research

indicates that adequate social support has the potential to alleviate stress, promoting smoother psychological and sociocultural adjustment (Zhang & Goodson, 2011; Sullivan and Kashubeck-West, 2015). Lao *et al.* (2019) also note that social support from domestic students positively influences well-being scores among international students. Rienties and Nolan (2014) emphasize the significance of social support and its impact on well-being, which is essential for better adjustment. Research shows that international students who perceive higher levels of social support are less likely to experience symptoms of anxiety, depression, or stress. As a result, they tend to demonstrate significantly better adjustment (Sümer *et al.*, 2008). Specifically, the absence of established social networks often leads international students to experience social isolation, which increases feelings of uncertainty and culture shock, thereby hindering their adjustment process. Lashari *et al.* (2018) emphasize that social support enhances psychological adjustment by mitigating acculturation stress, which is often intensified by loneliness and the loss of familiar social networks, aligning with earlier findings on the negative impacts of social isolation and uncertainty. Thus, the existing literature indicates that mental well-being can mediate the relationship between social support and adjustment.

Methodology

Research Design

This research investigated mental well-being's mediating role in the relationship between different perceived social support (PSS) sources and adjustment outcomes among first-semester international students. A cross-sectional design was employed for efficient data gathering from large populations within limited timeframes (Creswell, 2015). While this design has limitations, including inability

to establish causality and track behavioral changes, it effectively analyzes attitude prevalence and relationships between variables within specific paradigms (Kesmodel, 2018). Data were collected via an online platform, allowing convenient form completion.

Participants

The target population comprised international students enrolled in bachelor's, master's, or doctoral programs in their first year in Turkey, attending a Turkish language program as a prerequisite for academic studies. Students residing in Turkey over one year or not enrolled in a Turkish language program were excluded to focus on individuals experiencing early sociocultural, psychological, and daily life adjustment stages.

The study initially recruited 350 international students, resulting in a final sample of 341 participants after outlier removal. Mean age was $M = 21.50$ ($SD = 0.22$), with nearly equal gender distribution: 55.4% women ($n = 189$) and 44.6% men ($n = 152$). Participants were enrolled across academic programs, primarily bachelor's degrees (60.1%, $n = 205$), followed by master's (29.3%, $n = 100$) and doctoral degrees (10.6%, $n = 36$). The sample demonstrated significant geographical diversity, with students represented from seven major regions. The largest group originated from Eastern Europe and Central Asia (34.6%, $n = 118$), followed by those from the Middle East and North Africa (18.8%, $n = 64$), East Asia and the Pacific (12.0%, $n = 41$), South Asia (11.7%, $n = 40$), Eastern and Southern Africa (10.6%, $n = 36$), West and Central Africa (8.5%, $n = 29$), and Latin America and the Caribbean (3.8%, $n = 13$).¹ A detailed presentation of the demographics, including students' country of origin, is provided in Table 1 (Appendix).

Data Collection Procedure

Ethical approval for this study was obtained from the Human Research Ethics Committee of ibn Haldun University with approval Number E-71395021-050.04-50848. Data was collected via KoboToolbox and a convenience sampling method, and a nonprobability approach was employed for participant recruitment. This method allowed the researcher to select participants based on their accessibility and willingness to participate (Creswell, 2015).

Before accessing the survey, participants provided informed consent, which detailed the study's objectives, the confidentiality and anonymity of their responses, and their voluntary participation. The survey included a brief demographic form comprising four questions on gender, age, country of origin, and length of stay in Turkey. Additionally, three validated scales were utilized: The Multidimensional Scale of Perceived Social Support (MSPSS; 12 items), the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; 14 items), and the General Adaptation Scale for International Students (GASIS; 22 items). In total, the survey consisted of 52 questions and required approximately 10 to 15 minutes to complete.

Multidimensional Scale of Perceived Social Support (MSPSS): Social support was assessed using the 12-item MSPSS (Zimet *et al.*, 1988), which measures perceived support from family, friends, and significant others. The original scale demonstrated high internal consistency ($\alpha = 0.85$ – 0.91). In the current study, Cronbach's alpha values were 0.81 for significant others, 0.83 for family, and 0.83 for friends, confirming its reliability for international student populations.

(1) The classification of the countries is based on the UNICEF Regional Classification (UNICEF, 2023)(UNICEF, 2023)(UNICEF, 2023).

Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Mental well-being was measured using the 14-item WEMWBS (Tennant *et al.*, 2007). Higher scores reflect better mental well-being, with total scores ranging from 14 to 70. The scale demonstrated high internal consistency in prior research ($\alpha = 0.89$ for students, 0.91 for the public) and in the present study ($\alpha = 0.89$).

General Adaptation Scale for International Students: Adaptation was assessed using the General Adaptation Scale for International Students (Polat & Arslan, 2022), which consists of 28 items across three subdomains: sociocultural (7 items), psychological (8 items), daily life (7 items), and academic adjustment (6 items). The original scale reported high reliability ($\alpha = 0.88$). This study excluded the academic adaptation subscale as the sample included only first-semester students in language education. The internal consistency for the retained subscales in the current study was 0.62 for sociocultural adaptation, 0.82 for psychological adaptation, and 0.68 for daily adaptation, with an overall reliability of 0.82.

Data Analysis

Data analysis was performed using SPSS (Version 25) following a comprehensive protocol to ensure data quality and integrity. This process included the screening for outliers and verification of multivariate normality. The online questionnaire design required participants to respond to all items prior to submission, resulting in no missing data and thus eliminating the need for a missing data handling protocol.

Data normality was assessed through skewness and kurtosis analyses, which were within the acceptable range of -1 to $+1$, as outlined by Hatem *et al.* (2022) (see Table 2 in Appendix). For a visual assessment of normality, the Normal Q-Q Plot was evaluated,

and it was observed that the data was closely aligned along the diagonal line, with no significant outliers, suggesting approximate normality (Field, 2024). Univariate outliers were identified using standardized Z-values, resulting in the exclusion of five cases. Evaluation of multivariate outliers was performed using the Mahalanobis distance, leading to the removal of four extreme cases based on the critical chi-square threshold at the 0.001 significance level, as recommended by Meyers *et al.* (2016). This procedure resulted in a final sample of 341 participants.

Descriptive and correlational analyses were performed to summarize the dataset, assess data distribution, and provide a preliminary understanding of the relationships among the main variables. Additionally, a series of mediation analyses were conducted to examine the direct and indirect effects of different sources of PSS on various adjustment domains, with mental well-being serving as a mediator.

Results

Descriptive Statistics

Means, standard deviations, skewness and kurtosis values, and bivariate correlations among the key variables are presented in Table 2 (Appendix). The mean mental well-being score of the sample was 49.62 (SD = 10.79), closely aligning with the original population norms of the scale ($M = 51.0$, $SD = 7$), as reported by Tennant *et al.* (2007). This indicates that the sample's mental well-being is consistent with general population expectations. The different sources of social support showed close mean values, with family support having the highest mean ($M = 15.15$, $SD = 3.89$, range = 4-20), followed by support from friends ($M = 15.00$, $SD = 3.76$, range = 4-20) and significant other ($M = 14.51$, $SD = 4.06$, range = 4-20). For the adjustment domains, sociocultural adjustment was 26.10 ($SD = 4.08$, range = 7-35), psychological

adjustment was 27.54 (SD = 6.92, range = 8-40), and daily life adjustment showed a mean of 25.88 (SD = 4.41, range = 7-35).

Correlation analysis was conducted to examine the relationships among the main variables. The results revealed that nearly all variables were significantly correlated at $p < 0.001$, indicating statistically significant relationships. The only exceptions were PSS from significant others, which demonstrated marginal significance in its correlations with psychological adjustment ($p < 0.10$) and daily life adjustment ($p < 0.10$). While these two correlations were marginally significant (Olsson-Collentine *et al.*, 2019), the overall pattern of results indicates sufficient relationships among variables to support their inclusion in subsequent regression analyses within the mediation framework.

Gender groups were compared to explore potential patterns in the relationships among the main variables using the T-test. The results are presented in Table 3 (Appendix). The rationale for this comparison is based on the nearly equal gender distribution, which allowed for a balanced analysis. Although gender difference was not the focus of the study, this step ensured the identification of any potential gender effects. Therefore, in the case of the observation of differences, gender was intended to be included as a covariate in the mediation analysis to control for its influence and enhance the reliability of the findings (Hayes, 2022).

Significant gender differences were observed for well-being ($t = -2.431$, $p = .016$, $M_{\text{female}} = 47.70$, $M_{\text{male}} = 50.54$) and perceived social support from significant others ($t = 3.950$, $p = .000$, $M_{\text{female}} = 13.64$, $M_{\text{male}} = 15.35$). No significant differences were found for perceived social support from family, friends, or adjustment domains. Since the aim of this study was to assess the mediating role of mental

well-being, and because well-being showed significant differences between genders, gender was included as a covariate in the mediation analysis to control for its influence.

Mediation Analysis

The mediating role of mental well-being in the relationships between different PSS sources and the different domains of adjustment was assessed utilizing the PROCESS macro (Model 4) developed by Hayes (2022). A total of nine models of mediation analyses were executed for this purpose. As in the prior analysis, the gender variable showed significant group differences in the case of well-being and PSS from significant others; gender was included as the controlling variable.

Sociocultural Adjustment: The initial three models of this study evaluated the mediating role of mental well-being on the association between various sources of PSS and sociocultural adjustment among first-semester international students. Gender was incorporated as a control variable. The findings are delineated in Table 4 (Appendix).

In the first model, PSS from significant others was the independent variable, mental well-being was the mediator, and sociocultural adjustment was the dependent variable. The results showed that PSS from significant others significantly predicted mental well-being (path a; $B = 0.66$, $SE = 0.14$, $p < .001$, 95% CI [0.38, 0.94]), and mental well-being significantly predicted sociocultural adaptation (path b; $B = 0.14$, $SE = 0.02$, $p < .001$, 95% CI [0.10, 0.18]). After controlling for gender, the direct effect of social support from significant others on social adaptation was significant (path c'; $B = 0.15$, $SE = 0.05$, $p = .005$, 95% CI [0.04, 0.25]). The total effect of social support from significant others on social adaptation was also significant (path c; $B = 0.24$, $SE = 0.05$, $p < .001$, 95% CI [0.13, 0.35]). Mental well-being partially mediated the relationship between social support from

significant others and social adaptation (path a1b1; $B = 0.09$, $SE = 0.02$, 95% CI [0.05, 0.14]). The model explained 18.4% of the variance in sociocultural adaptation. The results demonstrate that after controlling for gender, PSS from significant others is directly and indirectly through mental well-being associated with sociocultural adjustment. In other words, mental well-being partially mediates this relationship.

In the second model, PSS from the family was the independent variable, mental well-being was the mediator, and sociocultural adjustment was the dependent variable. The results showed that PSS from family significantly predicted mental well-being (path a; $B = 1.34$, $SE = 0.13$, $p < .001$, 95% CI [1.08, 1.60]), and mental well-being significantly predicted sociocultural adaptation (path b; $B = 0.14$, $SE = 0.02$, $p < .001$, 95% CI [0.10, 0.18]). After controlling for gender, the direct effect of PSS from family on sociocultural adaptation was not statistically significant (path c'; $B = 0.07$, $SE = 0.06$, $p = .216$, 95% CI [-0.04, 0.19]). However, the total effect of PSS from family on sociocultural adaptation was significant (path c; $B = 0.26$, $SE = 0.06$, $p < .001$, 95% CI [0.15, 0.37]). Mental well-being fully mediated the relationship between PSS from family and sociocultural adaptation (path a1b1; $B = 0.19$, $SE = 0.03$, 95% CI [0.13, 0.26]). The model explained 16.86% of the variance in sociocultural adaptation. The results demonstrate that, after controlling for gender, PSS from family is indirectly associated with sociocultural adaptation through mental well-being. In other words, mental well-being fully mediates this relationship.

In the third model, PSS from friends was the independent variable, mental well-being was the mediator, and sociocultural adjustment was the dependent variable. The results showed that PSS from friends significantly predicted mental well-being (path a; $B = 1.17$, $SE = 0.14$,

$p < .001$, 95% CI [0.90, 1.45]), and mental well-being significantly predicted sociocultural adaptation (path b; $B = 0.12$, $SE = 0.02$, $p < .001$, 95% CI [0.08, 0.16]). After controlling for gender, the direct effect of PSS from friends on sociocultural adaptation was significant (path c'; $B = 0.25$, $SE = 0.06$, $p < .001$, 95% CI [0.13, 0.36]). The total effect of PSS from friends on sociocultural adaptation was also significant (path c; $B = 0.38$, $SE = 0.06$, $p < .001$, 95% CI [0.28, 0.49]). Mental well-being partially mediated the relationship between PSS from friends and sociocultural adaptation (path a1b1; $B = 0.14$, $SE = 0.03$, 95% CI [0.09, 0.20]). The model explained 20.68% of the variance in sociocultural adaptation. The results demonstrate that, after controlling for gender, PSS from friends is directly and indirectly associated with sociocultural adaptation through mental well-being. In other words, mental well-being partially mediates this relationship.

Psychological Adjustment: This study examines three models that assess the mediating role of mental well-being in the relationship between various sources of PSS and psychological adjustment among first-semester international students. Gender was included as a controlling variable. The findings are detailed in Table 5 (Appendix).

In the fourth model, PSS from significant others was the independent variable, mental well-being was the mediator, and psychological adjustment was the dependent variable. The results revealed that PSS from significant others significantly predicted mental well-being (path a; $B = 0.66$, $SE = 0.14$, $p < .001$, 95% CI [0.38, 0.94]), and mental well-being significantly predicted psychological adjustment (path b; $B = 0.32$, $SE = 0.03$, $p < .001$, 95% CI [0.25, 0.38]). However, the direct effect of PSS from significant others on psychological adjustment was insignificant (path c'; $B = -0.08$, $SE = 0.09$, $p = .367$, 95% CI

[-0.25, 0.09]). The total effect of PSS from significant others on psychological adjustment was also not significant (path c; $B = 0.13$, $SE = 0.09$, $p = .168$, 95% CI [-0.06, 0.32]). The indirect effect of PSS from significant others on psychological adjustment through mental well-being was significant (path a1b1; $B = 0.21$, $SE = 0.05$, 95% CI [0.12, 0.30]). These results suggest that mental well-being fully mediates the relationship between PSS from significant others and psychological adjustment. The model explained 23.92% of the variance in psychological adjustment. The findings indicate that while PSS from significant others does not directly influence psychological adjustment, it does so indirectly through its associations with mental well-being. Therefore, mental well-being fully mediates the relationship between PSS from significant others and psychological adjustment.

In the fifth model, PSS from family was the independent variable, mental well-being was the mediator, and psychological adjustment was the dependent variable. The results showed that PSS from family significantly predicted mental well-being (path a; $B = 1.34$, $SE = 0.13$, $p < .001$, 95% CI [1.08, 1.60]), and mental well-being significantly predicted psychological adjustment (path b; $B = 0.24$, $SE = 0.03$, $p < .001$, 95% CI [0.17, 0.31]). The direct effect of PSS from family on psychological adjustment was also significant (path c'; $B = 0.39$, $SE = 0.09$, $p < .001$, 95% CI [0.21, 0.58]). The total effect of PSS from family on psychological adjustment was significant as well (path c; $B = 0.72$, $SE = 0.09$, $p < .001$, 95% CI [0.54, 0.89]). The indirect effect of PSS from family on psychological adjustment through mental well-being was significant (path a1b1; $B = 0.32$, $SE = 0.06$, 95% CI [0.22, 0.43]). The model explained 27.47% of the variance in psychological adjustment. Mental well-being partially mediated the relationship between PSS from family and psychological adjustment.

These results indicate that PSS from the family can directly and positively influence psychological adjustment. Additionally, it impacts psychological adjustment indirectly by fostering better mental well-being.

In the sixth model, PSS from friends was the independent variable, mental well-being was the mediator, and psychological adjustment was the dependent variable. The results revealed that PSS from friends significantly predicted mental well-being (path a; $B = 1.17$, $SE = 0.14$, $p < .001$, 95% CI [0.90, 1.45]), and mental well-being significantly predicted psychological adjustment (path b; $B = 0.27$, $SE = 0.03$, $p < .001$, 95% CI [0.21, 0.34]). The direct effect of PSS from friends on psychological adjustment was significant (path c'; $B = 0.25$, $SE = 0.10$, $p = .0092$, 95% CI [0.06, 0.44]). The total effect of PSS from friends on psychological adjustment was also significant (path c; $B = 0.57$, $SE = 0.10$, $p < .001$, 95% CI [0.38, 0.76]). The indirect effect of PSS from friends on psychological adjustment through mental well-being was significant (path a1b1; $B = 0.32$, $SE = 0.05$, 95% CI [0.22, 0.43]). The model explained 25.26% of the variance in psychological adjustment. These results suggest that mental well-being partially mediates the relationship between PSS from friends and psychological adjustment. While PSS from friends has a direct effect on psychological adjustment, it also influences it indirectly through mental well-being.

Daily Life Adjustment: The subsequent three models of this study examined the mediating role of mental well-being in the relationship between various sources of PSS and daily life adjustment among first-semester international students, with gender included as a control variable. The findings are detailed in Table 6 (Appendix).

In the seventh model, PSS from significant others was the independent variable, mental well-being was the mediator, and daily life adjustment was the dependent variable. The results revealed that PSS from significant others significantly predicted mental well-being (path a; $B = 0.66$, $SE = 0.14$, $p < .001$, 95% CI [0.38, 0.94]), and mental well-being significantly predicted daily life adjustment (path b; $B = 0.14$, $SE = 0.02$, $p < .001$, 95% CI [0.09, 0.18]). However, the direct effect of PSS from significant others on daily life adjustment was not significant (path c'; $B = 0.02$, $SE = 0.06$, $p = .693$, 95% CI [-0.09, 0.14]). The total effect of PSS from significant others on daily life adjustment was not significant (path c; $B = 0.11$, $SE = 0.06$, $p = .062$, 95% CI [-0.01, 0.23]). The indirect effect of PSS from significant others on daily life adjustment through mental well-being was significant (path a1b1; $B = 0.09$, $SE = 0.02$, 95% CI [0.05, 0.14]). The model explained 11.51% of the variance in daily life adjustment. Although PSS from significant others does not have a significant direct effect on daily life adjustment, it does influence it indirectly through mental well-being. Consequently, the findings suggest that mental well-being fully mediates the relationship between PSS from significant others and daily life adjustment.

In the eighth model, PSS from family was the independent variable, mental well-being was the mediator, and daily life adjustment was the dependent variable. The results revealed that PSS from family significantly predicted mental well-being (path a; $B = 1.34$, $SE = 0.13$, $p < .001$, 95% CI [1.08, 1.60]), and mental well-being significantly predicted daily life adjustment (path b; $B = 0.10$, $SE = 0.02$, $p < .001$, 95% CI [0.05, 0.15]). Additionally, the direct effect of PSS from family on daily life adjustment was significant (path c'; $B = 0.21$, $SE = 0.07$, $p = .001$, 95% CI [0.09, 0.34]). The total effect of PSS from family on daily life

adjustment was also significant (path c; $B = 0.35$, $SE = 0.06$, $p < .001$, 95% CI [0.23, 0.46]). The indirect effect of PSS from family on daily life adjustment through mental well-being was significant (path a1b1; $B = 0.13$, $SE = 0.04$, 95% CI [0.07, 0.21]). These results suggest that mental well-being partially mediates the relationship between PSS from family and daily life adjustment. The model explained 14.18% of the variance in daily life adjustment.

In the ninth model, PSS from friends was the independent variable, mental well-being was the mediator, and daily life adjustment was the dependent variable. The results revealed that PSS from friends significantly predicted mental well-being (path a; $B = 1.17$, $SE = 0.14$, $p < .001$, 95% CI [0.90, 1.45]), and mental well-being significantly predicted daily life adjustment (path b; $B = 0.11$, $SE = 0.02$, $p < .001$, 95% CI [0.07, 0.16]). Additionally, the direct effect of PSS from friends on daily life adjustment was significant (path c'; $B = 0.19$, $SE = 0.07$, $p = .005$, 95% CI [0.06, 0.31]). The total effect of PSS from friends on daily life adjustment was also significant (path c; $B = 0.32$, $SE = 0.06$, $p < .001$, 95% CI [0.20, 0.44]). The indirect effect of PSS from friends on daily life adjustment through mental well-being was significant (path a1b1; $B = 0.13$, $SE = 0.03$, 95% CI [0.07, 0.20]). The model explained 13.53% of the variance in daily life adjustment. These results suggest that mental well-being partially mediates the relationship between PSS from friends and daily life adjustment.

Discussion

Mental Well-Being as a Consistent Mediator

This cross-sectional study highlights mental well-being's significant mediating role across all examined relationships between social support sources family, friends, and significant others and adjustment domains, including sociocultural, psychological, and daily life adjustments among first-semester

international students. These results corroborate literature indicating higher social support correlates with lower depression and anxiety symptoms and enhanced adjustment (Sümer *et al.*, 2008).

Notably, full mediation was identified in three relationships: (1) family support and sociocultural adjustment, (2) significant others and psychological adjustment, and (3) significant others and daily life adjustment. These findings elucidate social support's substantial impact on mental well-being, suggesting that while it may not directly influence adjustment, support from these sources facilitates specific adjustment domains through contributions to mental well-being.

Aligning with Friedlander *et al.* (2007), who found higher social support associated with greater well-being and adjustment among first-year international students, the current confirms social support contributes to adjustment through both direct and indirect pathways involving well-being. This is consistent with research underscoring social support as significant adjustment predictors (Alsuwaidi *et al.*, 2018; Sümer *et al.*, 2008), and studies connecting social support to well-being (Meghani & Harvey, 2016), as well as research associating well-being and adjustment (Razegilan *et al.*, 2023).

The pivotal mediating function of mental well-being underscores its fundamental importance in adjustment processes. Even when social support is limited, interventions enhancing mental well-being may effectively alleviate adjustment challenges, offering alternative support strategies for international students during their transition.

Sociocultural Adjustment

The results indicated that social support from friends was the strongest predictor of sociocultural adjustment among first-semester international students, compared to other

support sources. This aligns with literature highlighting peer and friendship networks' critical role in facilitating sociocultural adaptation (Hendrickson *et al.*, 2011; Wang & Liu, 2024). Nonetheless, prior research indicated international students frequently seek support predominantly from co-nationals sharing similar ethnic backgrounds (Nerif & Vilić, 2006). While such connections provide emotional security and facilitate immediate assistance, they limit unintentionally impede more extensive sociocultural integration (Kim, 2001). As Hendrickson *et al.* (2011) demonstrated, international students can cultivate social networks with host nationals. These relationships promote unintentionally establish connections with individuals from the host culture and tend to experience enhanced sociocultural adaptation, as these interactions afford them direct exposure to local norms.

Psychological Adjustment

The findings indicate that family support showed the strongest association with psychological adjustment compared to other sources, with well-being partially mediating this relationship. This suggests family support plays a crucial role in both mental well-being and psychological adjustment for first-semester international students. Feelings of belongingness and homesickness related to leaving family can be alleviated by family support (Nabavi & Bijandi, 2018).

International students particularly need family support during initial adjustment stages (Khawaja & dL, 2018). However, while research emphasizes that international students rely more on friends or significant others for support (Cipolletta *et al.*, 2022), the present study demonstrates family's crucial role in fostering mental well-being and psychological adjustment during the initial stages of adaptation. One possible explanation is that first-semester students are still establishing

local social networks, making them particularly reliant on family for emotional support (Rienties *et al.*, 2013).

As the literature suggests, transitioning to a new cultural and academic environment can be psychologically challenging, often leading to loneliness and homesickness (Sezer *et al.*, 2021). Studies demonstrate that friendships, especially from the host country, provide emotional and practical support, reinforcing a sense of belonging and improving overall psychological well-being (Bai, 2016; Brunsting *et al.*, 2021). Consistent with this, Ghozah (2013) found friend support plays a crucial role in predicting psychological well-being. The current study identified friend support as a significant predictor of psychological adjustment, particularly with positive associations with well-being.

The total and direct effects of support from significant others were not statistically significant; however, a notable indirect relationship through well-being indicates that support from significant others may predict psychological adjustment by enhancing mental well-being. Although existing literature doesn't extensively explore specific associations between support from significant others and psychological adjustment of international students, a related study focused on university students demonstrated that support from family and friends is significantly associated with psychological adjustment, while support from significant others did not show a significant association (Alsubaie *et al.*, 2019). Therefore, all sources of social support contribute to improved psychological adjustment among first-semester international students, with the influence of friends and especially family being most pronounced.

Daily Life Adjustment

The findings indicate that well-being mediated the relationship between all sources

of social support and daily life adjustment. While support from significant others contributed to daily life adjustment with well-being, family and friend support directly and indirectly predicted daily life adjustment with nearly equal coefficients. This suggests that family and friend support play a crucial role in helping first-semester international students navigate their daily lives in the host country, which aligns with literature suggesting that family and friend support primarily influences students' adaptation to daily life challenges (Shu *et al.*, 2020).

Moreover, unlike in sociocultural adjustment, the direct effect of family support on daily life adjustment was significant. While both adjustment domains require students to adapt to new demands of a new environment, their nature differs. Sociocultural adjustment mainly involves understanding implicit norms and unwritten social rules, typically acquired through active engagement and social interaction (Malay *et al.*, 2023). In contrast, daily life adjustment consists of concrete tasks such as financial management, transportation, and obtaining necessities, which can be learned through structured guidance, reading, or independent practice. Unlike sociocultural adaptation, which can be more specific to the host culture, daily life skills can be transferred across different contexts, allowing prior knowledge to facilitate new learning. Therefore, in the early stages of adaptation, family support plays an important role in easing students' daily life adjustment. However, because literature focusing on daily life adjustment is limited, a direct comparison between the role of family support in daily life adjustment and sociocultural adjustment could not be thoroughly examined, highlighting the need for further research in this area.

Moreover, it is essential to acknowledge that while support from family and friends can be beneficial, it may not always offer precise or

comprehensive guidance. Therefore, international students should be informed to seek professional support from institutions and organizations to obtain reliable information about their host country. Although this study did not assess institutional support, it is established in the literature that it plays a critical role in easing transitions and enhancing adaptation for international students. Universities and organizations can make a significant contribution by providing structured guidance and resources to help students adjust to their new environment.

Significance of the Study

This study contributes significantly to cross-cultural psychology and international student well-being by examining how social resources facilitate adjustment across family, friends, and peers in different domains. Moving beyond generalized social support concepts, it demonstrates domain-specific effects through well-being measures and statistical mediation across nine pathways, highlighting sociocultural collective adaptation through peer networks. The findings advance understanding of the social-environmental and individual adjustment link, providing high-resolution, time-sensitive data for first-semester students during critical acculturation phases.

Practically, this research guides decision-making for university administrators and student support services, informing targeted intervention design. For instance, knowing that friend support strengthens sociocultural adjustment while family support aids psychological adjustment enables institutions to move beyond generic programs. The confirmed mediating role of well-being underscores the need to prioritize dedicated mental health services and culturally sensitive counseling as essential student support components. This research provides an evidence base for policy development

advocating robust peer support networks and orientation programming during arrival.

Limitations, Future Directions, and Practical Implications

Despite novel contributions, this study has methodological limitations. The cross-sectional design precludes definitive causal inferences; experimental designs are needed to establish causality. Self-report measures introduce potential common method bias, requiring objective measures. The sample's limited generalizability (first-semester Turkish language students) necessitate broader investigation across diverse international contexts, particularly examining distinctions between co-national and host-national friends for understanding sociocultural adaptation nuances.

Our findings offer actionable recommendations for designing targeted, evidence-based interventions. Since different support sources uniquely predict different adjustment outcomes, one-size-fits-all approaches are insufficient. Universities should proactively engage families through bilingual resources and prioritize structured peer interaction opportunities, as recommended by research (Hendrickson *et al.*, 2011; Lin, 2024). The robust mediating role of well-being indicates that interventions targeting well-being directly including mindfulness training, stress-management workshops, and culturally competent counseling can facilitate successful adjustment (Menawi *et al.*, 2025; Wong & Liu, 2024).

Conclusion

This study plays a crucial role in illuminating the experiences of first-semester international students, addressing a notable gap in the existing literature regarding the interplay between sources of social support, well-being,

and various domains of adjustment. Therefore, this study aimed to identify the mediating role of mental well-being in the relationship between the different sources of social support and various adjustment domains.

The findings illustrate that all sources of social support directly or indirectly impact all domains of adjustment. The study also highlights the critical mediating role of well-being in all cases, reinforcing its importance in the adjustment process. Additionally, the results illustrate that different sources of social support play distinct roles in different types of adjustment. Family support is the most significant factor for psychological adjustment, while friend support is crucial for sociocultural adaptation, with family exerting only an indirect influence in this domain. In daily life adjustment, the effects of family and friend support are nearly equal. Recognizing these differences is crucial for developing effective strategies that enhance the experiences of international students. Since international students play a crucial role in the economic, cultural, and academic environments of their host countries, it is essential for policymakers and institutions to prioritize their well-being and support their successful adaptation.

Disclosure Statement

- **Conflict of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
- **Declaration of generative AI in scientific writing:** During the preparation of this work the authors used Grammarly AI in order to enhance fluency and maintain an academic tone. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

- **Submission declaration and verification:** We hereby declare that the submitted article is our original work and has not been published previously, nor is under consideration for publication elsewhere and that its submission has been approved by all co-authors. We further acknowledge that, if accepted for publication, this article will not be published elsewhere in the same form, in English or any other language, including electronically, without the written consent of the copyright holder. To ensure compliance with ethical publication standards, we accept that the article may be subjected to verification through Crossref Similarity Check and other originality or duplication detection software.
- **Ethics statement:** The studies involving human participants were reviewed and approved by Human Research Ethics Committee of ibn Haldun University with approval Number E-71395021-050.04-50848. The patients/participants provided their written informed consent to participate in this study.
- **Author Contributions:** The study was conceptualized and primarily developed by TN and AÖ, who contributed substantially to the study design, literature review, and writing of the manuscript. TN conducted the literature review, performed the data analysis and provided insights into the interpretation of results. AÖ supported the study by providing guidance on appropriate instruments, assisting in data collection, and conducting thorough proofreading of the manuscript. AÖ performed the data analysis and provided insights into the interpretation of results. All authors reviewed and approved the final version of the manuscript for submission.
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