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Separation Anxiety and Depressive Symptoms in Latin-American University Students: the role of Interpersonal Problem Areas

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Abstract

Background: Research on depressive symptoms and interpersonal issues in foreign university students (FS) remains limited. This study assessed interpersonal problem areas, depressive symptoms, and adult separation anxiety (ASA) in Latin-American FS enrolled at an Italian university. We aimed to explore the relationship between these psychological dimensions and how interpersonal stressors - common in the acculturation process - may impact emotional wellbeing.

Methods: Participants (N=31; 15 males, 16 females; mean age: 26.9±3.3) completed an online survey including the Zung Self-Rating Depression Scale (ZSDS), the Work and Social Adjustment Scale (WSAS), the Separation Anxiety Disorder Severity Scale (SAD-A), and the Interpersonal Problem Areas Rating Scale (IPARS).

Results: The most described interpersonal problem areas were role transition (74.2%) and interpersonal deficits (51.6%). Clinically significant adult separation anxiety (ASA) was present in 54.8% of participants, and was associated with significantly higher scores in depression (ZSDS: 50.0±6.3 vs. 36.9±6.1; p=0.0001), functional impairment (WSAS: 17.4±8.4 vs. 7.5±8.6; p=0.003), and number of interpersonal issues (IPARS: 2.0±0.8 vs. 1.0±0.7; p=0.002).

Conclusions: ASA and interpersonal problem areas may contribute to depressive symptoms in FS, underscoring the clinical relevance of interpersonal dimensions in this population. These findings are preliminary, given the small sample size and reliance on self-report measures.

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1. Introduction

Sadness represents a normative and adaptive emotional reaction to stressful life events (SLEs), such as interpersonal distrust or separation and loss (Klerman et al., 1984). In contrast, depressive spectrum conditions involve more persistent, pervasive, and impairing patterns of affective, cognitive, and behavioral symptoms, which may reach the diagnostic threshold for mood disorder. In some individuals, exposure to SLEs may be associated with an increased frequency and intensity of depressive symptoms, which may reach the diagnostic threshold for a mood disorder (APA 2013). According to the World Health Organization (WHO, 2023), people aged between 15 and 29 years, such as high school and university students, are at high risk of having depressive disorders with suicide as the leading cause of death (Eisenberg et al., 2007). University students may experience SLEs related to interpersonal role transitions and new social responsibilities that may favorite the onset of depressive spectrum disorders (Asif et al., 2020; Bohórquez, 2007; Cardona-Arias et al., 2015). Depressive episodes might be triggered or enhanced by the physical distance from significant-ones, or by the perceived lack of interpersonal, emotional, and economic support (Asif et al., 2020; Bohórquez, 2007; Cardona-Arias et al., 2015). Students may experience doubts on their career choices, challenges in interpersonal relationships with peers and teachers, academic performances anxiety (Riveros et al., 2007; Torales et al., 2013), and excessive commitments due to academic performances, especially when carried on with concomitant work or family roles (Agudelo Vélez et al., 2008; Cardona-Arias et al., 2015; Galindo, 2009).

Foreign students (FS) who move to other countries seem to face an additional burden, deriving from adaptation processes to new cultural paradigms. This process has been labelled as 'acculturation'. Acculturation is defined as 'the process of cultural change due to contact with different cultures and the process of adaptation to new cultural environments, at individual and at collective level' (Bourhis et al., 1997). Foreign students might experience homesickness, difficulties due to language barriers, financial difficulties, and cultural discrimination (Berry et al., 2003; Jung et al., 2007; Minutillo et al., 2020). Perceived discrimination is the predominant stressor in the acculturation process, amplifying psychological distress and slowing the learning process of new cultural paradigms (Jung et al., 2007; Noh & Kaspar, 2003). For example, an Australian comparative study on depression and loneliness in FS showed that they were more likely to show moderate/severe depressive symptoms, intense feelings of loneliness, and a higher level of difficulty in learning than local students (Oei & Notowidjojo, 1990). A more recent study on FS emigrated in U.S.A. from several countries found that they were twenty-three times more likely to develop psychiatric disorders than subjects who emigrated for work, maybe because of their younger age and separation from family (Quigley et al., 2015). A British study found a 34% prevalence of depression among FS, mainly due to isolation, language barriers, financial constraints, and lack of emotional and practical support (Hosseinpur et al.,

2023). Protective factors from depression in FS included satisfaction with the experience abroad, being the first in the family to study out of the home country, a strong motivation to learn new languages and skills (Minutillo et al., 2020), and a valid number of interactions with the local population (Amason et al., 1999) that may reduce the risk of adjustment difficulties (Jung et al., 2007).

The prevalence of depressive symptoms in Latin America aligns with global trends. A review found that in Latin-American university students, the incidence of anxiety ranged from 22% to 28%, while depression varies between 16% and 38% (García et al., 2019). Despite the increasing mobility of students worldwide, research on depression in Latin-American students outside their home country is limited (Fernández et al., 1997; Gazzola & Didriksson, 2008), even if Latin-American students seem to experience higher levels of psychological distress than other FS (Constantine et al., 2004; Kemp et al., 1999; Santangelo et al., 2018; Siegel et al., 1998; Zivin et al., 2009). Latin-American students are in limited number in Italy, and, as far as we know, no studies have been conducted in this country. According to the Organization for Economic Co-operation and Development (OECD), the FS population in Italy is less than 6% of the total number of registered students, representing the lowest ratio of international to domestic students compared to other European Union countries (OECD, 2023). In the 2021/2022 academic year, 128.479 FS were enrolled in Italian universities, with 9851 from Latin America (MIUR, 2022).

The present study aimed at investigating the presence of interpersonal problematic areas, as outlined in the original Interpersonal Psychotherapy (IPT) model (Klerman et al., 1984), and to assess their correlation with the presence of depressive spectrum phenomena, on a sample of the Latin-American FS attending the University of Pisa, Italy. The main aim of our study was to evaluate the potential role of specific interpersonal problematic areas in influencing or triggering the occurrence of depressive spectrum manifestations in this population. Additionally, we assessed whether separation anxiety could contribute to the development of depressive symptoms. We hypothesized that Latin-American students might experience depressive symptoms linked to specific interpersonal problem areas more frequently when separation anxiety is present. We believed that the IPT model might be well adaptable to the socio-cultural characteristics of Latin-American students, considering the relevance of interpersonal relationships with family and friends in their original culture (De Rios, 2001; Rojas, 2008). Accordingly, the study was guided by the following hypotheses:

H1. Latin-American foreign students will report a high frequency of interpersonal problematic areas, particularly role transitions and interpersonal deficits.

H2. Higher levels of adult separation anxiety will be associated with greater severity of depressive symptoms and higher functional impairment.

H3. The presence of adult separation anxiety will be associated with a greater number of interpersonal problematic areas.

2. Material and Methods

2.1 Participants

The sample consisted of Latin-American students enrolled at the University of Pisa (Italy) who voluntarily agreed to participate after reviewing the online description of the study and expressing written online consent (Microsoft Forms). Subjects eligible for inclusion met the following criteria:

- Latin American foreign students registered at the University of Pisa;
- Students who resided in Italy for a minimum of six months to a maximum of five years;
- Age between 18 and 35 years;
- No current psychiatric disorders;
- Consent to participate in the study.

The following exclusion criteria were applied:

- Students who resided in Italy for less than 6 months or for more than 5 years;
- Latin-American students participating in temporary educational programs, such as Erasmus, Free Mover, or any other program that does not include a full course of training in Italy;
- Students currently receiving treatment for a psychiatric disorder;
- Inability to fulfill the online written informed consent.

The absence of current psychiatric disorders was assessed via self-report, given the survey's anonymous online format.

2.2 Study Design

A single cross-sectional baseline assessment was conducted using the instruments listed below, along with a brief questionnaire on sociodemographic variables. All questionnaires were administered in Italian. Data collection was carried out online through Microsoft Forms with participants providing written informed consent for both participation in the study and data processing, as approved by the Bioethics Committee of the University of Pisa, Italy (Study Protocol: #0042201, approved on March, 22th, 2024).

The recruitment process involved posting the study link and a brief description of the study aims and procedures on the University of Pisa's official online bulletin board, following authorization from the Bioethics Committee and coordination with the University Communication Office. Because recruitment relied on an open online announcement rather than direct individual invitations, it was not possible to determine the number of individuals initially reached or to calculate a response rate. This study was conceived as an exploratory,

preliminary investigation. Given the small sample size, it was not powered for complex statistical modeling.

2.3 Instruments

The following online questionnaires were administered:

1. A socio-demographic questionnaire.

2. The Zung Self-Depression Rating Scale (ZSDS) (Innamorati et al., 2006; Zung, 1965): it is a self-report scale for depression, encompassing 20 items. Each question is scored on a 4-point Likert scale ranging from 1 to 4, assessing physical symptoms and associated psychological dimensions of the depressive spectrum with response options corresponding to "never or rarely," "sometimes," "often," and "always or almost always". Item scores are summed to obtain a total raw score ranging from 20 to 80, with higher scores indicating greater depressive symptom severity. According to standard scoring procedures, total scores below 50 indicate a normal mood range, scores between 50 and 59 indicate mild depression, scores between 60 and 69 indicate moderate depression, and scores of 70 or higher indicate severe depression.

3. The Interpersonal Problem Areas Rating Scale (IPARS) (Markowitz et al., 2014; Scocco et al., 2007): is a rating scale originally developed for in-person administration, adapted for the online self-administration. It allows identification of one or more interpersonal problem areas subjectively associated by the study participant with an ongoing state of distress and possible presence of depressive spectrum phenomenology. The IPARS includes the assessment of the bereavement, deficit, role transition, and role conflict problem areas, as well as the fifth area of 'lost healthy self'.

4. The Separation Anxiety Disorder Severity Scale (SAD-A) (APA, 2013) consists of 10 items, on a Likert scale from 0 ("never") to 4 ("always"), and refers to the last week. The raw scores for the 10 items are then summed to obtain a total raw score, from which an average score can be calculated by dividing the total raw score by the number of items. The average total score converts the total score to a 5-point scale that allows the rater to assess the intensity of the phenomenon. According to the DSM-5 assessment guidelines, this average score directly corresponds to predefined severity categories (None, Mild, Moderate, Severe, Very Severe).

5. The Work and Social Adjustment Scale (WSAS) (Mundt et al., 2002) is a self-report instrument with five dimensions related to the functional impairment related to psychological or psychiatric phenomenology. The scale explores work, functioning at home, social leisure, personal leisure, and interpersonal relationships, with a 9-point Likert scale from 0 ("not at all") to 8 ("very severe"). Item scores are summed to obtain a total score ranging from 0 to 40, with higher scores indicating greater functional impairment.

The IPARS identifies categorical interpersonal problem areas rather than measuring a unidimensional latent construct; therefore, indices of internal consistency (e.g., Cronbach's

alpha) do not apply to this instrument. An Italian validation of the IPARS is available (Scocco et al., 2007). In the present study, the instrument was administered in an online self-report format rather than through the original clinician-rated or interview-based procedure. While this adaptation was designed to preserve the original structure and content of the scale, it has not undergone a specific psychometric validation and is therefore acknowledged as a methodological limitation. The Zung Self-Depression Rating Scale (ZSDS) demonstrated acceptable internal consistency in the original validated Italian study (Cronbach's $\alpha = 0.75$) (Innamorati et al., 2006). In the present sample, internal consistency was good (Cronbach's $\alpha = 0.81$). Regarding the Separation Anxiety Disorder Severity Scale (SAD-A) and the Work and Social Adjustment Scale (WSAS), no formally validated Italian versions are currently available; therefore, items were translated into Italian by bilingual researchers with expertise in clinical psychology. Although good reliability has been documented in other language versions (e.g., Cronbach's $\alpha = 0.93$ for the SAD-A; Coldur et al., 2020) and across international studies for the WSAS (Cronbach's $\alpha = 0.70–0.94$; Mundt et al., 2002), these translated versions have not undergone formal psychometric validation.

In the present sample, internal consistency was satisfactory for both instruments (Cronbach's $\alpha = 0.88$ for the SAD-A and $\alpha = 0.87$ for the WSAS). However, given the small sample size ($N = 31$), these estimates should be interpreted with caution and are reported for descriptive purposes only.

2.4 Statistical Analyses

Quantitative variables were described with means and/or medians and standard deviations and/or interquartile ranges, while qualitative variables were expressed with frequencies and percentages. No missing data were present in the dataset, as the online administration required participants to complete all items before submission. The Kolmogorov-Smirnov test was applied to assess the normal distribution of continuous variables, with mean, median, distribution, and kurtosis also evaluated for this purpose. Between-group comparisons of normally distributed quantitative variables were conducted using independent-samples t-tests. The chi-square test or Fisher's exact test, as appropriate, was employed to assess differences or associations between nominal variables, contingent on observed frequency data. Conversely, when the variables exhibited non-Gaussian distributions, the Wilcoxon test was used. Correlation analyses were conducted and interpreted using Pearson's r or Spearman's rs coefficients, where appropriate.

3. Results

2.1 Socio-demographic characteristics

The sample consisted of 31 FS, 15 males (48.3%) and 16 females (51.7%). The mean age/SD of the sample was 26.9±3.3 years (range: 20-34 years), with a normal distribution (Kolmogorov-

Smirnov test for single sample, p=0.179). No statistically significant differences were observed between genders for mean age (27.4±3.5 vs. 26.4±3.2; p=0.437). Subjects were all unmarried; five subjects were also employed (16.1%) (3 males, and 2 females). The educational attainment of the Latin-American students enrolled was notably high, as 17/31 (54.8%) FS already had a previous University degree, 11/31 FS (35.4%) had a postgraduate degree, and only 3/31 (9.6%) did not yet obtain an academic degree. The majority of FS lived independently (22/31; 70.9%), whereas 9/31 FS (29.1%) lived with other family members, a gender difference emerged in educational attainment (p = 0.044; see Table 1).

Table 1

Socio-Demographic Variables in the Overall Sample (n=31) and by Gender

Sociodemographic variables		Total (N = 31)	M (N = 15)	F (N = 16)	*p*-value
Age (mean ±SD)		26.9±3.3	27.4±3.5	26.4±3.2	0.437
Marital Status	Unmarried	31/31 (100%)	15/15 (100%)	16/16 (100%)	0.346
Employment	Student	26/31 (83.8%)	12/15 (80.0%)	14/16 (87.5%)	
	Employed	4/31 (12.9%)	3/15 (20.0%)	1/16 (6.2%)	
	Self-employed	1/31 (3.2%)	-	1/16 (6.2%)	
Education	High school	3/31 (9.6%)	2/15 (13.3%)	1/16 (6.2%)	0.044
	University degree	17/31 (54.8%)	11/15 (73.3%)	6/16 (37.5%)	
	Postgraduate degree	11/31 (35.4%)	2/15 (13.3%)	9/16 (56.2%)	
Family Type	Living alone	22/31 (70.9%)	12/15 (80.0%)	10/16 (62.5%)	0.283
	Living with relatives	9/31 (29.0%)	3/15 (20.0%)	6/16 (37.5%)	
Living area	Urban area	30/31 (96.7%)	14/15 (93.3%)	16/16 (100%)	0.294
	Suburban area	1/31 (3.2%)	1/15 (6.6%)	-	

2.2 Scores of self-administered rating scales

The mean/SD scores in the total sample were as follows: ZSDS (range: 28-60): 44.1±9.0; WSAS (range: 0-34): 12.9±9.7; SAD-A (range: 10-37): 19.3±8.2. Scales' scores had normal distributions in the overall sample (Kolmoronov-Smirnov test for one sample: ZSDS: p=.927; W-SAS: p=.616; SAD-A: p=.196). Moreover, no statistically significant differences were found in the scores of the administered scales between genders, even if they all had slightly higher scores in female gender (ZSDS: 46.6±8.0 vs. 41.4±9.4; p=0.105; WSAS: 13.8±8.6 vs. 12.0±11.1; p=0.628; SAD-A: 20.8±8.0 vs. 17.7±8.4; p=0.297). The mean index (total score/10) was calculated for

the SAD-A separation anxiety scale, with 2.0±0.8 in females, and 1.7±0.8 in males, again with no statistically significant differences (p=0.297).

The ZSDS provided a diagnostic threshold for the absence vs. presence of depressive phenomena with levels of severity (<50: 'normal mood'; 50-59: 'mild depression'; 60-69: 'moderate depression'; ≥70 'severe depression'). The majority of the sample (22/31; 71.0%) scored within the normal mood range; 7/31 (22.6%) FS met the ZSDS threshold for 'mild' depression, and 2/31 FS (6.5%) for 'moderate' depression. There were no statistically significant differences in gender distribution (χ^2=0.946). No comparisons were made between the 9 subjects who met the diagnostic threshold for ZSDS and the 22 subjects who reported a score <50, due to the small sample size.

The Adult Separation Anxiety Scale (SAD-A) allowed a diagnostic threshold converting the total score to a 5-point scale: no separation anxiety (0); mild anxiety (1); moderate anxiety (2); severe anxiety (3); very severe anxiety (4). According to SAD-A, the 45.2% of the sample (n=14) had no separation anxiety, whereas the 54.8% (n=17) of the sample met the SAD-A criteria for mild (n=9; 29.0%), moderate (22.6%; n=7) or severe (3.2%; n=1) separation anxiety (see Table 2). Again, no statistically significant differences between genders were found.

Table 2

Categories of Separation Anxiety in Adulthood, according to the SAD-A Scale thresholds

SAD-A Category	**Total Sample (n=31)**	**M (n=15)**	**F (n=16)**	***p*-value***
No separation anxiety	14/31 (45.2%)	9/15 (60.0%)	5/16 (31.2%)	.106
Mild anxiety	9/31 (29.0%)	3/15 (20.0%)	6/16 (37.5%)	
Moderate anxiety	7/31 (22.6%)	2/15 (13.3%)	5/16 (31.2%)	
Severe anxiety	1/31 (3.2%)	1/15 (6.6%)	-	
Very severe anxiety	-	-	-	

*p-values obtained using Fisher's exact test

The WSAS categorize individual adjustment levels, with increasing scores corresponding to higher levels of impairment (0-9: subclinical/ mild impairment; 10-19: moderate impairment; 20-40: severe impairment). The majority of the sample (38.7%; n=12) reported subclinical/ mild impairment, 29% (n=9) reported 'moderate' impairment, and 32.3% (n=10) reported 'severe' impairment, with no statistically significant differences between genders (χ^2=0.666).

Finally, students completed a self-administered version of the IPARS, to assess the presence of interpersonal problematic areas. The IPARS has an initial question asking about subjective

experiences of sadness and dissatisfaction not necessarily corresponding to a clinically relevant depression. According to the IPARS-M introductory question, the 58.1% of the sample (n=18) did not experienced sadness or dissatisfaction, while the 41.9% (n=13) answered positively, with no statistically significant differences on gender distribution (χ^2=0.294).

The most frequent IPARS-M problematic area was 'role transition', (23/31;74.1%), then 'interpersonal deficit' (n=16/31; 51.6%), 'interpersonal distrust' (10/31; 32.2%), and 'grief' (1/31; 3.2%). Several FS subjects fulfilled more than one problematic interpersonal area (Table 3). Again, there were no statistically significant differences in gender distribution of interpersonal problematic areas. As expected, the 'role transition' focus revealed that 'geographical displacement' was the most frequent issue (18/31; 58.1%).

Table 3

Assessment of interpersonal problem areas with IPARS

IPARS Problem Area ***(Participants could select more than one interpersonal problem area)***	**Totale Sample (n=31)**	**M (n=15)**	**F (n=16)**	***p*-value***
Pre-assessment: "I feel sad"	13/31 (41.9%)	6/15 (40.0%)	7/16 (43.8%)	.561
1) Role Transition	23/31 (74.1%)	11/15 (73.3%)	12/16 (75.0%)	.618
Geographical move	18/31 (58.1%)			
Divorce	2/31 (6.5%)			
Graduation/new job	2/31 (6.5%)			
Health problems	1/31 (3.2%)			
2) Interpersonal Deficit	16/31 (51.6%)			.569
3) Role Conflict	10/31 (25.8%)	4/15 (26.6%)	6/16 (37.5%)	.382
Financial problems	5/31 (16.1%)	1/15 (6.6%)	4/16 (25.0%)	
Lovely relationships	2/31 (6.4%)	1/15 (6.6%)	1 (6.2%)	
Separation	1/31 (3.2%)	1/15 (6.6%)	-	
Revelation of a secret	1/31 (3.2%)	1/15 (6.6%)	-	
Authoritarian attitudes (partner)	1/31 (3.2%)	-	1 (6.2%)	
4) Grief	1/31 (3.2%)	1/15 (6.6%)	-	.484

*p-values obtained using Fisher's exact test

3.3 Correlation Analyses

We performed a Pearson's correlation analysis, given the normal distribution of the scales scores. W-SAS, SAD-A, and ZSDS scores were correlated: higher were the levels of separation

anxiety, higher were ZSDS scores, and greater was the impairment according to W-SAS (see Table 4a-4b-4c).

Table 4a

Correlations between ZSDS, WSAS, SAD-A scale scores and total number of IPARS areas in the total sample (n=31)

Variable	***ZSDS***	***WSAS***	***SAD-A***	***IPARS Total***
ZSDS	1	.621**	.754**	.658**
WSAS	.621**	1	.566**	.586**
SAD-A	.754**	.566**	1	.606**
IPARS Total	.658**	.586**	.606**	1

Values represent Pearson's *r* coefficients. Statistical significance is based on *p*-values obtained from two-tailed tests: $p < .05$ (*), $p < .01$ (**). All *p*-values reported in the table are based on two-tailed significance testing.

Table 4b

Correlations between ZSDS, WSAS, SAD-A scale scores and total number of IPARS areas in the male sample (n=15)

Variable	**ZSDS**	**WSAS**	**SAD-A**	**IPARS Total**
ZSDS	1	.664**	.694**	.804**
WSAS	.664**	1	.681**	.562*
SAD-A	.694**	.681**	1	.648**
IPARS Total	.804**	.562*	.648**	1

Values represent Pearson's *r* coefficients. Statistical significance is based on *p*-values obtained from two-tailed tests: $p < .05$ (*), $p < .01$ (**). All *p*-values reported in the table are based on two-tailed significance testing.

Table 4c

Correlations between ZSDS, WSAS, SAD-A scale scores and total number of IPARS areas in the female sample (n=16)

Variable	**ZSDS**	**WSAS**	**SAD-A**	**IPARS Total**
ZSDS	1	.572*	.803**	.582*
WSAS	.572*	1	.416	.637**
SAD-A	.803**	.416	1	.589*
IPARS Total	.582*	.637**	.589*	1

Values represent Pearson's *r* coefficients. Statistical significance is based on *p*-values obtained from two-tailed tests: $p < .05$ (*), $p < .01$ (**). All *p*-values reported in the table are based on two-tailed significance testing.

3.4 Comparison of Latin American university students with vs. without separation anxiety in adulthood

We performed a Student T-Test comparing ZSDS, and W-SAS scores in students who met the SAD-A threshold for separation anxiety in adulthood (mean SAD-A index>1; 17/31; 54.8%) vs. students who did not (mean SAD-A index=1) (14/31; 45.2%). Students with separation anxiety showed significantly higher scores on ZSDS (50.0±6.3 vs. 36.9±6.1; p=0.0001; Cohen's d = 2.11) and WSAS (17.4±8.4 vs. 7.5±8.6; p=0.003; Cohen's d = 1.17). Moreover, they had a significantly higher total number of IPARS-M problematic areas (2.0±0.8 vs. 1.0±0.7; p=0.002; Cohen's d = 1.32).

4. Discussion

The main aim of this study was to explore the presence of depressive spectrum phenomenology, interpersonal problematic areas and separation anxiety in a sample of Latin-American students registered at the University of Pisa, Italy. In line with our first hypothesis, we observed a high prevalence of interpersonal difficulties, particularly related to role transitions and interpersonal deficits, consistent with the Interpersonal Psychotherapy (IPT) model and potentially implicating levels of adjustment.

Consistent with our second hypothesis, the assessment of separation anxiety showed that more than 50% of the sample fulfilled SAD-A questions on separation anxiety symptoms, albeit to varying degrees of intensity. Conversely, ZSDS scores revealed that most FS did not reach the diagnostic threshold for a clinically relevant depression. This pattern is partially consistent with previous studies (Constantine et al., 2004; Kemp et al., 1999; Siegel et al., 1998; Wilton & Constantine, 2003), which reported relatively higher levels of anxiety-related dimensions than depressive symptomatology among Latin-American students. Taken together, these studies suggest that anxiety-related dimensions may be more prominent than depressive symptomatology in foreign students. In support of our second and third hypotheses, students who met the clinical threshold on the SAD-A also reported significantly higher depressive symptom scores on the ZSDS, and greater impairment in social and work functioning. Taken as a whole, this finding suggests that, within this sample, higher levels of depressive symptomatology are particularly evident in the presence of separation anxiety. Literature described separation anxiety as related to temperamental characteristics (Brenneisen Mayer et al., 2016), with a number of early onset sub-threshold phenomena during childhood that might reach the diagnostic threshold later on in adulthood, when specific stressful life events (SLEs) occurred (Seligman & Wuyek, 2007). However, Cohen et al. (2020) hypothesized that FS could have not pre-existing depressive temperamental traits, giving their high level of functioning, their elevated educational background, and the decision to pursue higher education in a cultural

context distant from their families and social networks (Cohen et al., 2020). Exposure to a marked distance from the family, cultural, and relational environment may be associated with the co-occurrence of separation anxiety and sub-threshold or full-blown depressive symptomatology. According to this hypothesis, geographic and symbolic separation from a 'safe place' may be related to a depressive symptomatology, particularly in individuals who have a diathesis for separation anxiety. Conversely, FS without separation anxiety could be more prone to maintain a satisfactory functioning level, despite relocation challenges and interpersonal difficulties (Fritz et al., 2008).

Our study finding was partially consistent with recent research (Salerno et al., 2025) identifying post-migration risk profiles in first-generation immigrant adolescents based on immigration-related stress and psychosocial resources. However, separation anxiety was not examined as a distinct construct in that study.

Our findings suggest that proneness to separation anxiety may be associated with depressive spectrum phenomenology, particularly in the context of role transitions or interpersonal deficits. This observation is in line with other studies that found the co-occurrence of separation anxiety and depressive symptoms in FS who might, otherwise, be considered psychologically resilient to mood disorders (Lau, 2022; Saris et al., 2017). The IPT model, in which interpersonal problematic areas could be crucial for the development/maintenance of depressive symptomatology, could provide a rationale for the identification of specific interpersonal conditions associated with higher levels of distress and depressive symptomatology (Hames et al., 2013).

5. Limitations

This study presents some limitations. The research exploratory nature and the limited sample size constrained statistical power, thereby precluding multivariable analyses. Consequently, potential confounding variables (e.g., length of residence, language proficiency, socio-economic status, and academic workload) could not be controlled. Furthermore, no 'a priori' power analysis was conducted, and no correction for multiple testing was applied, which may increase the risk of both Type I and Type II errors, especially in studies involving small subgroups. It should be acknowledged that gender-stratified analyses should be regarded as exploratory, given their inherent limitations in terms of sample size. The exclusion of students with current psychiatric disorders, while intended to reduce clinical confounding and focus on sub-threshold phenomenology, may have reduced variability in psychological measures and limited ecological validity. Consequently, finding may not be representative of a broader population of foreign

students. The exclusive focus on Latin American students, in conjunction with the cross-sectional design, precludes meaningful between-group comparisons and causal inferences.

6. Concluding Remarks

This study is the preliminary investigation into the psychological and interpersonal challenges faced by Latin-American FS. As far as we know, it is the first conducted in Italy. Notwithstanding its limitations, such as the small sample size and the cross-sectional design, preliminary finding provided information that could be of interest for the International/Foreign Students' offices of the Italian Universities, with an assessment of the difficulties experienced by students enrolled in the 'Inclinados hacia América Latina program'. Future interventions may include the provision of bespoke psychological support services, mentorship programs, or structured peer networks, designed to mitigate feelings of separation anxiety and enhance overall well-being. The spreading of these initiatives could foster a more inclusive and supportive academic environment, thereby enhancing students' adaptation and success in their new educational and social contexts.

Ethical approval

All procedures performed in the study involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The Bioethics Committee of the University of Pisa, Italy, approved the study on March 22th, 2024 (Study Protocol: #0042201).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The datasets generated and analysed during the current study are not available.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

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Authors' Contribution

Conceptualization, M.M. and S.V.A. Methodology, M.M., G.O. A.G., C.C. Formal analysis, M.M., G.O. Investigation, M.M., S.V.A., A.G. Resources, A.G. Data curation, S.V.A., M.M.,

G.O. R.C. Writing-original draft preparation, M.M., S.V.A. Writing-review and editing, C.C., G.O., A.G., L.P., C.C., A.C. Supervision, A.G. All authors have read and agreed to the published version of the manuscript.

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