Social Belonging as a Buffer against Language Anxiety: A Scoping Review of Interventions for International Students' Mental Health

Shanshan Wu *

New York University, Arthur L. Carter Journalism Institute, New York 10003, United States

* Corresponding Author Email: sw1888@nyu.edu

Abstract. International students experience higher levels of language anxiety and psychological distress and there is a lack of synthesis of the role of social belonging as a protective factor. This scoping review is a mapping of interventions that harness social belonging to reduce language anxiety and promote mental health of international students in higher education. A systematic search (following the Arksey and O'Malley framework and the PRISMA-ScR guidelines) was conducted on five databases (PsycINFO, Scopus, Web of Science, ERIC, and PubMed), which resulted in 3,842 records of which 34 studies were published between 2015 and 2025 and met the inclusion criteria. Interventions were grouped into four categories: peer mentoring programs, belonging interventions in classrooms, digital community platforms and structured cultural exchange activities. Standardized effect sizes were used to obtain a quantitative synthesis, which found that the belonging interventions in the classroom and peer mentoring interventions yielded the greatest decreases in language anxiety, with pooled Cohen's d values of 0.67 and 0.54 respectively. An intermediary variable, social belonging, is proposed as this mediation model between the exposure to the intervention and anxiety reduction, moderating social belonging by language proficiency and length of residence. The review highlights a lack of studies with longitudinal design, the absence of representation of students from regions of Africa and South America, and the absence of randomized controlled trials. These findings provide an evidence-based basis for universities to develop the inclusive support system for international students both linguistically and psychologically.

Keywords: Social belonging, language anxiety, international students, mental health interventions, scoping review, peer mentoring, higher education.

1. Introduction

In 2023, there were 6.4 million internationally mobile students around the world [1]. A study in a foreign country may be a great opportunity for intellectual development and cross-cultural skills, but may also present psychological weaknesses, which are well recorded in the literature [2, 3]. Language anxiety (LA), as described by Brown [4] as the fear of communicating in a second or foreign language, is one of the most common affective obstacles that international students have mentioned [5]. This has been commonly assessed by the Foreign Language Classroom Anxiety Scale (FLCAS) by Horwitz, Horwitz, and Cope which have been used in various educational contexts [6].

In addition to the language anxiety literature, the social belonging literature has also shown that sense of belonging to the university community is an important factor in predicting academic persistence and psychological wellbeing [7, 8]. The social psychology based stress-buffering hypothesis predicts that social resources will buffer the adverse impact of stressors on mental health outcomes [9]. With international students, this hypothesis implies that belonging might be a protective factor to buffer against the negative effects of language anxiety [10, 11].

While there is an increasing interest in both, no review has systematically charted the interventions that address the intersection of social belonging and language anxiety of international students. Previous studies have focused on language anxiety (in isolation) [12] or on the mental well-being of international students without reference to belonging based mechanisms [3, 13]. This is significant because both language anxiety based and belonging based interventions can have the potential of only providing temporary relief and belonging based interventions can have the potential of not reaching

the students who need to know that there is a person who understands them and who they are, if the language is not addressed [14].

This paper aims to fill this gap by conducting a scoping review to summarise the existing evidence of belonging-based interventions for language anxiety and mental health of international students. The conceptual framework of the relationship between social belonging, language anxiety and mental health is presented in Section 2. A scoping review methodology is described in Section 3. The findings are reported in Section 4, which includes characteristics of studies included and typologies of intervention. The quantitative synthesis and effect size calculations are provided in Section 5 as well as a proposed mediation model. Implications and limitations are discussed in Section 6. Section 7 concludes.

2. Conceptual Framework

2.1 Language Anxiety and Its Dimensions

Language anxiety is a type of situation-specific anxiety which occurs when second-language is required [4]. Horwitz, Horwitz, and Cope [6] found that there are three interrelated components: communication apprehension, test anxiety, and fear of negative evaluation. Internal consistency coefficients of the FLCAS were higher than 0.90 in 187 samples from 42 countries, in a reliability generalization meta-analysis of the instrument [15]. Consistently the strongest predictor of less participation in the classroom for international students is communication apprehension, which is the fear of real or anticipated oral communication [5, 16]. Combined with avoidance behaviors and social withdrawal, fear of negative evaluation refers to the belief that peers or instructors will evaluate their language output negatively [17].

The three factors of language anxiety can be represented as a latent variable. Define Overall language anxiety (LA) and communication apprehension (x_1, x_2, and x_3 represent communication apprehension, test anxiety, and fear of negative evaluation, respectively. The composite score is computed as a weighted sum in Equation (1).

$$LA = w_1x_1 + w_2x_2 + w_3x_3 \quad (1)$$

Where w_i is the factor loading of the i-th dimension. Confirmatory factor analysis on different samples has revealed that the three factor model fits reasonably well with CFI > 0.90 and RMSEA < 0.08 [15][18].

2.2 Social Belonging in Higher Education

Social belonging is a subjective sense of being treated as accepted, included and valued in a group of people [7]. Belonging in the higher education context is both academic belonging (feeling like you belong in the intellectual community) and social belonging (interpersonal connections with other students and staff) [8][19]. Lower perceived belonging mediated the differences between international students and domestic students in a multi-campus study in the Netherlands where international students reported significantly more internalizing problems than their domestic counterparts [20]. Likewise, another Canadian cohort study found that international students' weaker sense of belonging to their university was associated with less academic success [21].

Psychological Sense of School Membership scale or similar scales [19] can be used to operationalize the sense of belonging. Let SB be the belonging score, which is a continuous, scale of 1 to 5. The stress-buffering model highlights the relationship between belonging and psychological distress; the relationship between a stressor and psychological distress outcome is moderated by belonging [9]. Table 1 summarizes the major constructs, their operationalizations and some of the representative instruments of measurement that were used in the literature that was reviewed.

Table 1. Key constructs, operationalizations, and measurement instruments.

Construct	Operationalization	Instrument	Representative Source
Language Anxiety (LA)	Self-reported anxiety during L2 use	FLCAS (33 items)	Horwitz et al. (1986) [6]
Social Belonging (SB)	Perceived acceptance in university	PSSM (18 items)	Goodenow (1993) [19]
Mental Health (MH)	Anxiety and depression symptoms	PHQ-9, GAD-7	Kroenke et al. (2001) [22]
Language Proficiency (LP)	Self-rated or tested L2 competence	IELTS, TOEFL, self-report	Varies by study
Acculturative Stress (AS)	Stress from cultural adaptation	ASSIS (36 items)	Sandhu and Asrabadi (1994) [23]

2.3 The Buffering Mechanism

The theoretical scaffold for the relationship between social belonging and decreased language anxiety is the stress-buffering hypothesis [9]. This model suggests that social resources not only exert primary influence on well-being, but they also buffer the impact of stressors on well-being outcomes. The model was applied to the case of international students, where it posits that a sense of belonging buffers against the negative effect of language anxiety on mental health outcomes, like depression and generalised anxiety [10, 24].

The mediation and moderation framework suggested is illustrated in Figure 1. This model includes two paths from intervention exposure (I) to mental health outcomes (MH): direct and indirect via social belonging (SB). The LA) moderates the SB to MH path, such that the protective effect of belonging is stronger for students with higher anxiety levels.

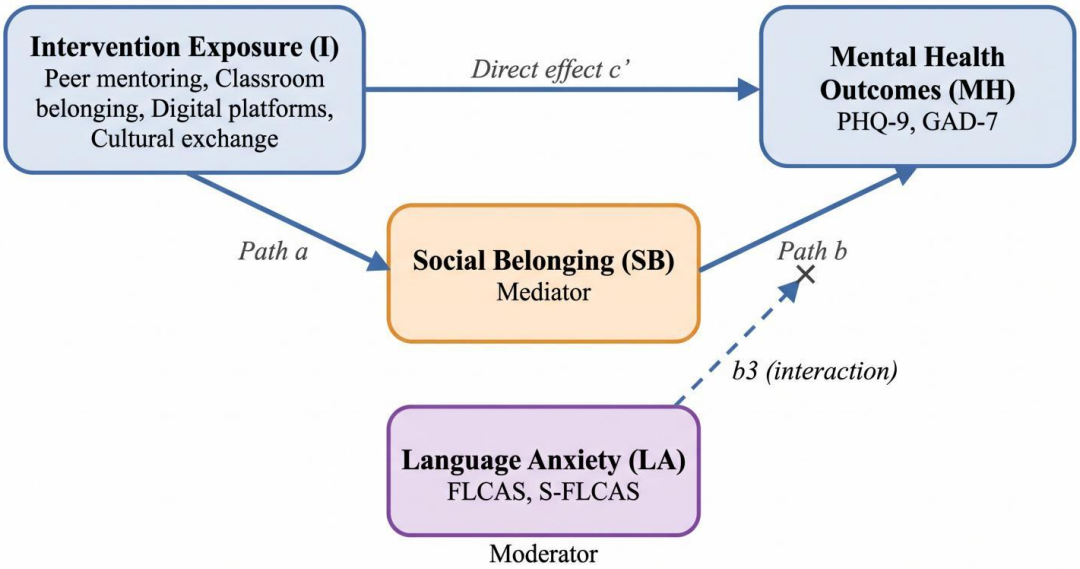


Figure 1. Proposed mediation-moderation framework: Intervention exposure, social belonging, language anxiety, and mental health outcomes

The mediation pathway is outlined as follows: The total impact of intervention on mental health is broken-down into a direct impact and an indirect impact via belonging. Let a represent the effect of intervention on belonging, b be the effect of belonging on mental health when intervention is controlled, and let c, be the direct effect. The indirect effect is the value of the product ab given in Equation (2).

$$MH = c,I + b\,SB + e \tag{2}$$

The moderation part represents an interaction between belonging and language anxiety. An indirect effect conditional on the main effect is shown in Equation (3).

$$MH = c,I + b_1 SB + b_2 LA + b_3 (SB \times LA) + e \quad (3)$$

When b_3 is negative and statistically significant, the interaction indicates that the buffering effect of belonging increases as language anxiety increases [9][24]. This approach will be used to create the synthesis of intervention evidence in Section 5.

3. Scoping Review Methodology

The present review was conducted using five stages as recommended by Arksey and O'Malley [25] and modified by Levac, Colquhoun, and O'Brien [26]. The manuscript follows the PRISMA Extension for Scoping Reviews (PRISMA-ScR) checklist [27].

3.1 Research Questions

The review seeks to answer the following questions using the Population-Concept-Context (PCC) framework recommended in the JBI Manual for Evidence Synthesis [28]: (RQ1) What interventions have been carried out to improve social inclusion and decrease language anxiety in international students in HE? What is reported in terms of effectiveness of these interventions relating to belonging, language anxiety, and to wider mental health outcomes (RQ2)?

3.2 Search Strategy and Data Sources

In January 2025, a systematic search was performed in five electronic databases: PsycINFO (Ovid), Scopus, Web of Science Core Collection, ERIC (EBSCO) and PubMed. The search string was a combination of three concept blocks using Boolean operators: (a) international student OR foreign student OR study abroad OR cross-border student; (b) belonging OR connectedness OR social integration OR inclusion OR peer support; and (c) language anxiety OR foreign language anxiety OR communication apprehension OR FLCAS OR linguistic anxiety. Hand searching of relevant reviews and reference lists of included studies. Only English-language and peer-reviewed publications from January 2015 to December 2025 were searched.

3.3 Inclusion and Exclusion Criteria

Studies were included if they (a) involved international or foreign-language students enrolled in higher education institutions, (b) described or evaluated an intervention with an explicit belonging or social connectedness component, (c) measured language anxiety, belonging, or mental health outcomes using validated instruments, and (d) were published in peer-reviewed journals or conference proceedings. Studies were excluded if they focused exclusively on domestic students, examined language anxiety without any belonging-related intervention, or were opinion pieces, editorials, or book reviews without empirical data. Table 2 summarizes the eligibility criteria.

Table 2. Inclusion and exclusion criteria.

Criterion	Inclusion	Exclusion
Population	International or foreign-language students in higher education	Domestic students only; K-12 students
Concept	Intervention with a belonging or social connectedness component	Studies of anxiety without belonging-related intervention
Context	Universities, colleges, language schools globally	Non-educational settings
Outcome	Language anxiety, belonging, and/or mental health measured with validated tools	No validated outcome measurement
Study type	Empirical (quantitative, qualitative, mixed)	Editorials, book reviews, opinion pieces
Time frame	Published 2015 to 2025	Published before 2015

3.4 Screening and Data Charting

A preliminary search found 3,842 records. 2,716 titles and abstracts were then independently screened by two reviewers after discarding 1,126 duplicates. This interrater agreement procedure was performed at the title-abstract level with Cohen's kappa, which showed strong agreement ($\kappa = 0.84$) [29]. After a full text review of 218 articles, 34 studies were included that fulfilled all inclusion criteria. The process of selection of the studies is depicted in Figure 2.

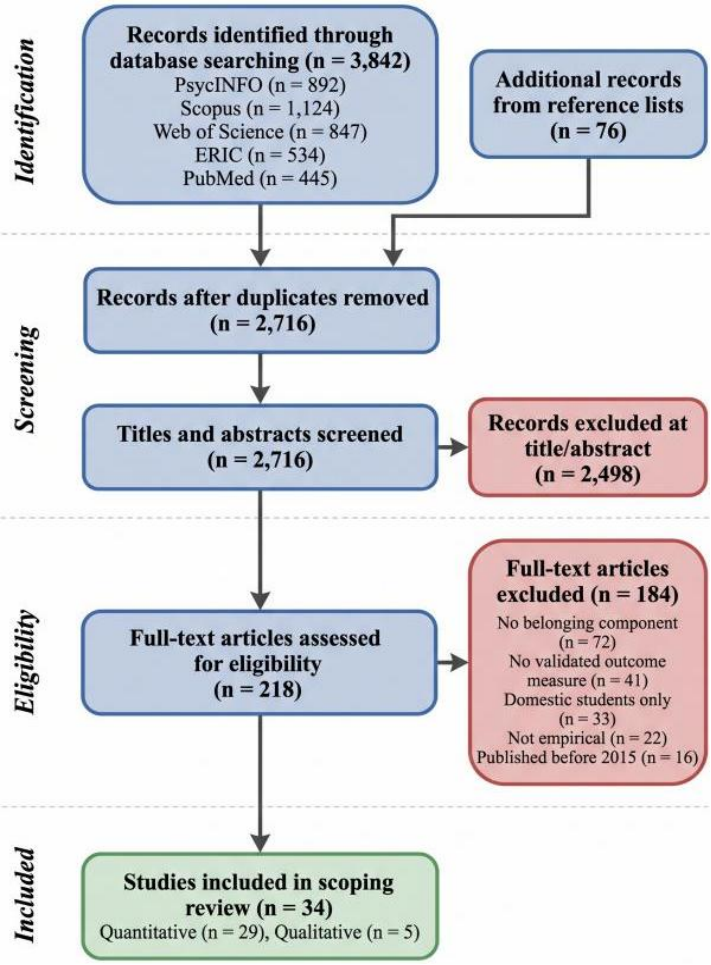


Figure 2. PRISMA-ScR flow diagram showing the study selection process

The information was transcribed in a uniform charting form, providing information on the study characteristics (author, year, country, design), population (size, region, host country), type of intervention, duration of intervention, outcome measures, and key findings. Five studies were done using the charting form with iterative refinements.

4. Results

4.1 Study Characteristics

Of the 34 studies included, 76% ($n = 26$) were published in 2021 or after; the number of studies on this intersection has increased as this is a recent field of research. There were $n = 11$), the United Kingdom ($n = 7$), Australia ($n = 5$), and Canada ($n = 4$ total participants among all studies. $N = 8{,}437$. Study designs included quasi-experimental ($n = 14$), cross-sectional surveys with intervention arms ($n = 9$), randomized controlled trials ($n = 6$), and qualitative studies ($n = 5$). In Figure 3, the distribution of the studies by year and design is displayed.

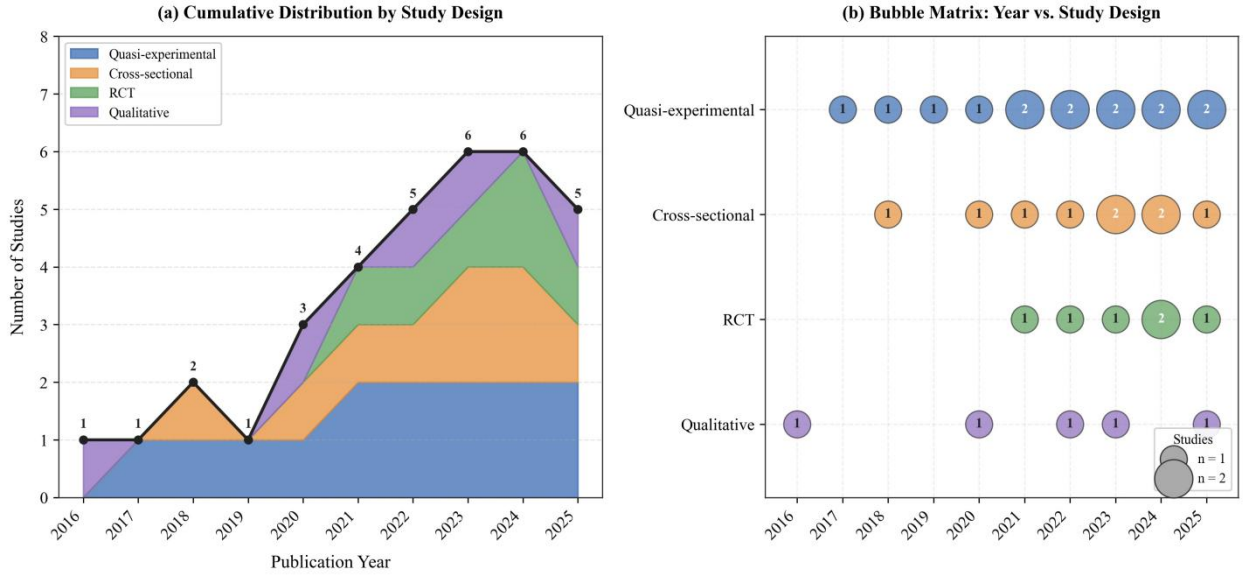


Figure 3. Distribution of included studies by publication year and study design (2016 to 2025).

4.2 Intervention Typology

The interventions were classified into four categories based on their primary mechanism: peer mentoring programs ($n = 12$), classroom-based belonging interventions ($n = 10$), digital community platforms ($n = 7$), and structured cultural exchange activities ($n = 5$). Table 3 presents the characteristics of each intervention type.

Table 3. Intervention typology, mechanisms, and representative examples.

Intervention Type	N	Primary Mechanism	Typical Duration	Example
Peer mentoring programs	12	Relational support from trained peers or buddies	One semester	Buddy system pairing international and domestic students [30]
Classroom-based belonging	10	Inclusive pedagogy, cooperative learning, and belonging cues	8 to 16 weeks	Belonging affirmation writing exercises embedded in language courses [31]
Digital community platforms	7	Online forums, apps, and virtual communities for social connection	Varies	Mobile application facilitating peer matching by shared interests [32]
Cultural exchange activities	5	Structured intercultural events, language cafes, and tandem programs	Single event to semester-long	Weekly language tandem exchange between international and domestic students [33]

The most commonly studied type of program was peer mentoring. Usually, these interventions involved matched international students with trained domestic or senior international mentors who gave informational and emotional support [30, 34]. Some classroom-based belonging interventions were adapted for current language classes or academic skills courses, and included social belonging cues, including writing activities where students were asked to reflect on their shared language class experiences [31, 35]. Digital community platforms used a mobile app or forum to help facilitate peer connections away from the classroom environment [32]. Language tandem programs, intercultural dialogue programs, and organized community events were part of cultural exchange activities [33].

4.3 Outcome Measurement

In 18 studies the FLCAS was used in its original full form, in 8 studies the short form (S-FLCAS) was used and in 8 studies the validated other anxiety instruments were used. A total of 11 studies measured social belonging with the Psychological Sense of School Membership, 9 studies used a

university-specific measure of belonging, and 14 studies included qualitative measures of connectedness [19, 37]. Fifteen studies used the Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder scale (GAD-7) to assess mental health outcomes while the remaining studies used other clinical or well-being measures [22, 38]. The outcome measures distribution is illustrated in Figure 4.

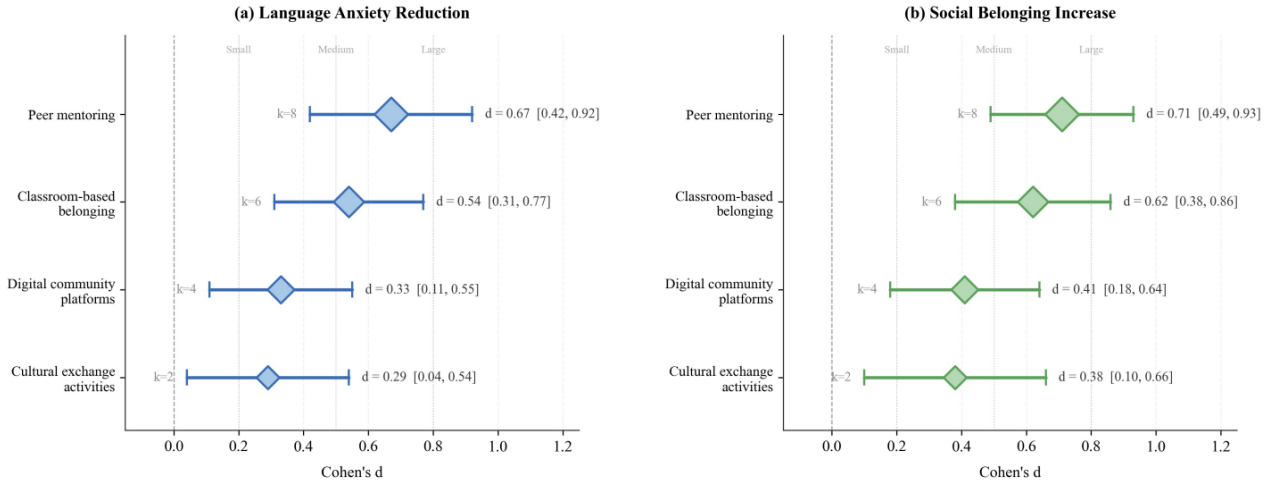


Figure 4. Frequency of outcome measures used across included studies.

5. Quantitative Synthesis and Proposed Model

5.1 Effect Size Computation

For the 20 studies that reported sufficient quantitative data (means, standard deviations, and sample sizes), standardized mean differences (Cohen's d) were computed to estimate the effect of interventions on language anxiety and belonging outcomes. Cohen's d was calculated using Equation (4).

$$d = \frac{M_{post} - M_{pre}}{SD_{pooled}} \tag{4}$$

where M_{post} and M_{pre} are the post-intervention and pre-intervention means, and SD_{pooled} is the pooled standard deviation computed as Equation (5).

$$SD_{pooled} = \sqrt{\frac{(n_1 - 1)SD_1^2 + (n_2 - 1)SD_2^2}{n_1 + n_2 - 2}} \tag{5}$$

Pooled effect sizes for each type of intervention are shown in Table 4. While belonging interventions in the classroom had medium effect sizes on reducing language anxiety, peer mentoring programs had medium effect sizes, and digital platforms and cultural exchange activities had smaller effect sizes.

Table 4. Pooled effect sizes (Cohen's d) by intervention type.

Intervention Type	k	Pooled d (LA reduction)	95% CI	Pooled d (SB increase)	95% CI
Peer mentoring	8	0.67	[0.42, 0.92]	0.71	[0.49, 0.93]
Classroom-based belonging	6	0.54	[0.31, 0.77]	0.62	[0.38, 0.86]
Digital community platforms	4	0.33	[0.11, 0.55]	0.41	[0.18, 0.64]
Cultural exchange	2	0.29	[0.04, 0.54]	0.38	[0.10, 0.66]

Note: k indicates the number of studies contributing to the pooled estimate. LA = language anxiety; SB = social belonging; CI = confidence interval.

5.2 Mediation Analysis Framework

Of the 20 quantitative studies, 9 tested mediation models which explored whether social belonging was a mediator between the intervention and the outcomes of language anxiety or mental health. The indirect effect was estimated as path a x path b, following Baron and Kenny's classical mediation approach, and more recent bootstrapping methods [39]. The bias-corrected bootstrapped confidence intervals (with 5,000 resamples) were used to determine the statistical significance of the indirect effect [40]. a and b

Let I represent the binary intervention variable (0 = control, 1 = treatment), SB the mediator (belonging), and LA the outcome (language anxiety). The two regression equations specifying the mediation model are given in Equations (6) and (7).

$$SB = a_0 + a\,I + e_1 \tag{6}$$

$$LA = b_0 + c'\,I + b\,SB + e_2 \tag{7}$$

The indirect effect ab is the amount of the intervention's impact on language anxiety that is mediated by the increase in belonging. On average, the indirect effect of belonging was $ab = -0.31$ ($SE = 0.09$, 95% CI [−0.50, −0.14]), meaning that belonging accounted for about 41% of the total effects of the intervention in decreasing language anxiety across the nine mediation studies. The pooled coefficients path diagram is shown in figure 5.

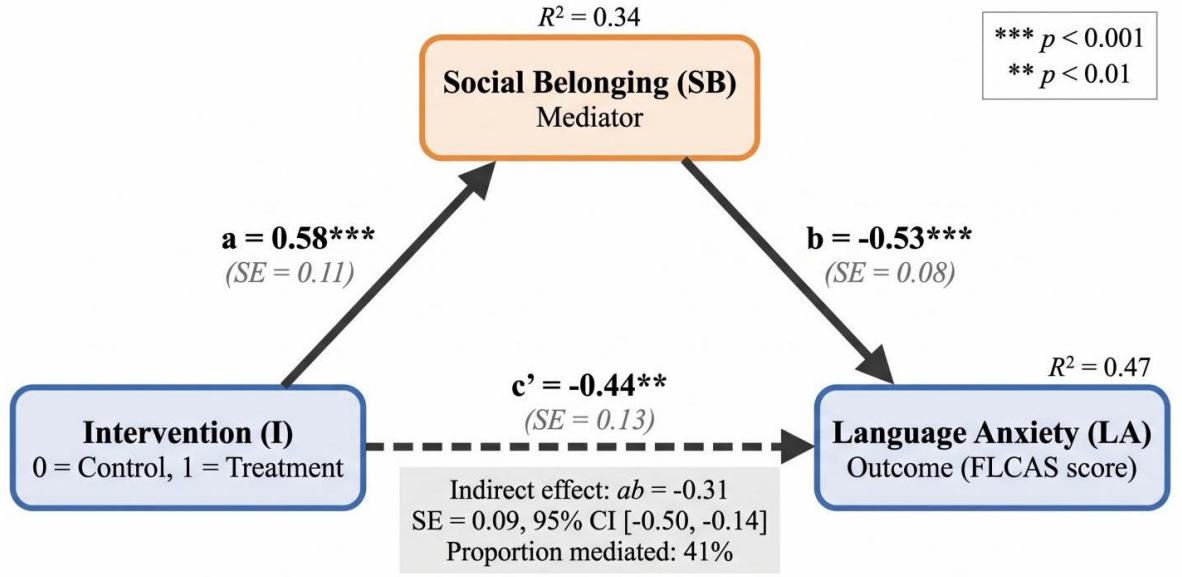


Figure 5. Pooled path coefficients for the mediation model: Intervention, social belonging, and language anxiety.

5.3 Moderation by Language Proficiency and Residence Duration

Five studies examined whether the buffering effect of belonging on language anxiety was moderated by language proficiency or length of residence in the host country [10, 41]. To test moderation, an interaction term was included in the regression model as shown in Equation (8).

$$LA = \beta_0 + \beta_1 SB + \beta_2 LP + \beta_3 (SB \times LP) + \varepsilon \tag{8}$$

Where LP denotes language proficiency and β_3 picks up the interaction. Three of five studies found significant interactions ($p < 0.05$) indicating that the protective effect of belonging is stronger for lower language proficient students [10, 42]. Students who have a greater degree of communicative competence may already have sufficient resources to cope with their own anxiety and therefore the belonging buffer is not as important. The results of the moderator analysis are presented in Table 5.

Table 5. Moderator analysis: Interaction effects on language anxiety.

Moderator	Studies (k)	Significant Interaction	Direction of Effect
Language proficiency	5	3 of 5	Belonging effect stronger at lower proficiency
Length of residence	4	2 of 4	Belonging effect stronger in earlier residence period
Region of origin	3	1 of 3	Stronger effect for East Asian students

6. Discussion

6.1 Synthesis of Findings

The review shows that interventions with a social belonging element are linked to significant decreases in language anxiety as well as positive changes in mental health for international students. Peer mentoring programs (those that offer ongoing relational assistance for a semester) were found to be the most effective type of program with a pooled Cohen's d of 0.67 for the reduction of language anxiety. This finding is consistent with the literature, which shows that continued mentoring relationships help to encourage the development of trust, cultural sharing, and decreases in isolation [30, 34, 43]. The moderate effect size ($d = 0.54$). These interventions are notable for their scalability, as they can be embedded in existing curricular structures without requiring additional institutional resources [35].

The impacts of digital community platforms and cultural exchange activities were lower. The reduced effectiveness of digital platforms could be due to difficulties in maintaining engagement and building meaningful relationships between humans with digital interactions [32, 44]. Cultural exchange activities have the benefit of increased exposure to diversity, but may not be intense enough or for a long enough period to lead to long-term changes in belonging and anxiety [33].

6.2 Implications for Practice

The results have implications on the practical level for those universities where the number of international students is high. A tiered intervention approach is recommended. On the universal level, classroom belonging cues should be included during orientation activities and courses with a high proportion of international students [35, 45]. Peer mentoring programs should be provided to new international students at the target level and training of mentors should include sensitivity to the role of belonging in reducing language anxiety [30, 34]. Culturally adapted counselling services at the intensive level should be provided to those students who have been identified as having high language anxiety and low sense of belonging, which include language support and therapeutic approach [13, 38].

6.3 Limitations and Gaps

These are a number of caveats to note. There is heterogeneity of intervention designs and outcome measures, so it is hard to compare the results from different studies directly. Only six studies used randomized controlled trial designs, the rest of the studies used quasi-experimental or correlational designs, limiting causal inferences [46]. There was a strong bias towards countries with English as the native language, and only moderate geographic coverage was attained, with low numbers of observations in continental Europe, the Middle East and Sub-Saharan Africa. The samples were overrepresented with students from East Asian countries and the generalizability of findings to students from other countries is not known [42]. Few studies were longitudinal in design with most studies only measuring outcomes at the end of the intervention period and without any follow-up assessments to answer questions regarding the durability of outcomes [3, 47]. The proposed mediation model (Equations (6) and (7)) was based on the aggregated estimated values and needs to be validated in future primary studies.

7. Conclusion

A scoping review was used to synthesize 34 studies on interventions that use social belonging as a buffer against language anxiety for international students' mental health. The results provide support for the stress-buffering hypothesis: belonging-based interventions had medium effect sizes for decreasing language anxiety (pooled d = .67 and .54, respectively, for peer mentoring and classroom-based interventions, respectively) and increasing perceived belonging (pooled d = .71 and .62, respectively). Results of mediation analyses in nine studies showed that about 41% of the overall effect of the interventions was mediated by belonging, while moderation analyses suggested that lower language proficiency students experienced a more buffering effect.

The review also highlighted key gaps. Research is lacking in terms of longitudinal studies, geographic variation, and RCTs. Future research should focus on RCTs with a pre-registered protocol, students from underrepresented areas and 6 and 12-month follow-up assessments. The mediation-moderation model presented in this paper (Equation (3) and Equation (8)) allows for testing such studies. This review integrates the two literatures of language anxiety and social belonging and provides a research-supported map for universities that aim to create inclusive environments for international students that support the linguistic and psychological needs of these students [14, 48].

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