



EXPLORING THE FACTOR STRUCTURE OF SENSE OF BELONGINGNESS AMONG PSYCHOLOGY STUDENTS

Damajanti Kusuma Dewi^{1AD*}, Rizky Putra Santosa^{2CDE*}, Fitrania Maghfiroh^{3AB*}, Lely Nur Azizah^{4AD*}, Rita Puvitasari^{5AD*}

*1 2 3 4 Department of Psychology, State University of Surabaya, Indonesia
 5 Department of Digital Marketing, School of Management, Walailak University, Thailand*

*Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

ABSTRACT

Background: Sense of belonging is an important component of students' academic and social experiences in higher education. Although belonging is considered multidimensional, its factorial structure may vary across student populations and educational contexts. **Objective:** This study aimed to explore the factor structure of sense of belongingness among Indonesian psychology students and evaluate the internal consistency of the identified dimensions. **Method:** A quantitative cross-sectional study involved 450 first- and second-year psychology students recruited through convenience sampling. Participants completed a 26-item Sense of Belongingness Scale. Exploratory factor analysis was conducted using principal axis factoring with oblimin rotation, with factor retention guided by parallel analysis. **Results:** Four related but distinguishable factors were identified: Support and Comfort with Lecturers, Active Classroom Participation, Academic Peer Support, and Social Isolation. The four factors explained 49.0% of the cumulative variance and demonstrated acceptable to excellent internal consistency ($\alpha = .785-.901$). The overall scale showed good reliability ($\alpha = .863$; $\omega = .881$). **Conclusion:** Sense of belongingness among psychology students appears to be multidimensional, encompassing lecturer relationships, classroom participation, peer support, and social isolation. The findings provide exploratory evidence of partial replication with contextual differentiation of established belonging dimensions in an Indonesian psychology student population. Confirmatory factor analysis using an independent sample is recommended.

Keywords: Academic peer support; Exploratory factor analysis; Psychology students; Sense of belongingness; Social isolation

Corresponding Author: Dewi, Damajanti
 E-mail: damajantikusuma@unesa.ac.id
 Submitted: 2026-08-24
 Accepted: 2026-09-4



*This is an open access article under
 The [CC-BY](#) license
 Copyright © 2024 by Author
 Published by ASEAN Journal of Self &
 Psychological Measurement*

Introduction

Sense of belonging is an important component of students' academic and social experiences in higher education. University students must not only manage academic demands but also establish relationships, participate in academic communities, and develop a perception that they are accepted and valued within their educational environment. The importance of belonging is rooted in the fundamental human motivation to establish and maintain meaningful interpersonal relationships (Baumeister & Leary, 1995). In educational contexts, belonging refers to students' perceptions of being accepted, respected, included, and supported (Goodenow, 1993; Strayhorn, 2019), including their relationships with peers, faculty members, classrooms, and the broader university community (Hoffman et al., 2002).

A growing body of evidence demonstrates that belonging is associated with important student outcomes. Stronger university belonging has been linked to greater motivation, enjoyment, engagement, and persistence (Gopalan & Brady, 2020; Kelly et al., 2022), and longitudinal evidence suggests that its relevance extends beyond students' initial transition into higher education (Crawford et al., 2024). A recent systematic review similarly identified belonging as an important component of student engagement, persistence, academic functioning, and overall university experience (Allen et al., 2024). Belonging is also associated with psychological functioning. Lower belonging has been related to depressive symptoms and poorer mental health (Dutcher et al., 2022; Gopalan et al., 2022), whereas interventions that strengthen interpersonal connection can increase belonging and reduce loneliness and psychological distress (Costello et al., 2022).

Despite its importance, belonging is not necessarily a homogeneous experience. Students interact with multiple components of university life, including classmates, lecturers, classroom activities, and broader academic communities. Consequently, students may experience strong belonging in one domain but weaker belonging in another. Ahn and Davis (2020), for example, identified academic engagement, social engagement, surroundings, and personal space as domains of university belonging. Recent reviews likewise indicate that belonging encompasses connectedness with peers and staff, feeling valued and accepted, community membership, and inclusion (Allen et al., 2024; Dias-Broens et al., 2024).

Peer relationships constitute one important component of this multidimensional experience. Peers can provide interpersonal connection as well as academic support through studying together, exchanging information, discussing academic difficulties, and providing assistance. Friendship and social factors have been associated with students' sense of belonging (Anistranski & Brown, 2023), while social resources influence academic help-seeking and outcomes (Schlusche et al., 2021). However, having supportive peers does not necessarily eliminate social isolation. Students may maintain several dependable relationships while still perceiving themselves as peripheral to the broader classroom community. Thus, peer support and social isolation may represent related but distinguishable aspects of belonging.

Relationships with lecturers represent another important dimension. Lecturers provide academic guidance while also serving as interpersonal connections between students and their institution. Perceptions that lecturers are approachable, responsive, empathetic, and willing to provide assistance may strengthen students' sense that they are recognized and valued within their academic environment. Faculty relationships were incorporated into the multidimensional framework proposed by Hoffman et al. (2002), and subsequent studies have continued to demonstrate associations between instructor support, faculty interactions, and student belonging (Burk & Pearson, 2022; Kim et al., 2023; Verbree et al., 2025).

Classroom participation may constitute a further manifestation of belonging. Students' willingness to ask questions, contribute to discussions, express ideas, and speak openly can reflect whether they perceive the classroom as an environment in which participation is socially and psychologically acceptable. Zengilowski et al. (2023) found that students' sense of belonging was associated with their affective, cognitive, and discourse experiences during classroom discussions. Contemporary multidimensional models also distinguish classroom comfort from faculty understanding and peer support (Verbree et al., 2025).

The multidimensional nature of belonging creates an important measurement challenge. Hoffman et al. (2002) developed an influential framework incorporating peer relationships, faculty relationships, and classroom and social experiences. However, subsequent psychometric research demonstrated that the original factor organization should not automatically be assumed to apply across different student populations. Tovar and Simon (2010), for example, re-examined the factorial structure and invariance of the Sense of Belonging Scales. More recent reviews continue to identify substantial heterogeneity in the conceptualization and measurement of belonging and highlight insufficient factorial examination as an important limitation in the literature (Yang et al., 2023; Dias-Broens et al., 2024). Recent psychometric studies similarly distinguish dimensions related to faculty, peers, classroom experiences, and social isolation (Mellinger et al., 2024; Stafford et al., 2025).

These measurement issues become particularly relevant when belonging instruments are applied across educational and cultural contexts. Belonging develops within particular social and institutional environments, and students may interpret faculty accessibility, peer relationships, help-seeking, classroom participation, and social integration according to local educational norms. Cross-national research indicates that students' understandings of community and belonging vary according to institutional and social context (Lee et al., 2024). Studies conducted in Asian higher education also demonstrate the contextual nature of belonging and the importance of interpersonal relationships within specific educational environments (Kim et al., 2023; Gao, 2024).

This contextual issue is particularly relevant because much of the established psychometric literature on university belonging originates from North American and European settings (Dias-Broens et al., 2024). Therefore, previously identified factor structures cannot simply be assumed to operate identically in a Southeast Asian higher-education context. Indonesian psychology students provide a relevant population for such examination because psychology education commonly involves classroom discussion, collaborative academic activities, interpersonal communication, and frequent interaction with peers and lecturers.

Accordingly, the central issue is not whether university belonging is multidimensional, as this has already been established, but whether and how established dimensions are reproduced and contextually organized among Indonesian psychology students. The present study therefore aimed to explore the factor structure of sense of belongingness among psychology students using a 26-item measure. Specifically, it sought to (1) identify the latent dimensions underlying the items, (2) examine relationships among the resulting dimensions, and (3) evaluate their internal consistency. Exploratory factor analysis was used to examine the latent organization of the indicators without requiring the data to conform initially to a predetermined structure. By examining peer support, faculty-related experiences, classroom participation, and social isolation, this study seeks to provide contextual psychometric evidence and an empirical foundation for subsequent confirmatory validation.

Material and Method

Participants

Participants were undergraduate students enrolled in the Faculty of Psychology. Recruitment was conducted using nonprobability convenience sampling. To be eligible for participation, students were required to (a) be actively enrolled in the Faculty of Psychology and (b) voluntarily agree to participate in the study by providing informed consent.

The final sample consisted of 450 psychology students. Participants had a mean age of 19.3 years ($SD = 0.84$). The sample was predominantly female, with 380 women (84.4%) and 70 men (15.6%). Participants represented two student cohorts. A total of 324 students (72.0%) were first-year students from the 2024 cohort, whereas 126 students (28.0%) were second-year students from the 2023 cohort.

Table 1.
Characteristics of the Participants

Characteristic	n	%
Gender		
Female	380	84.4
Male	70	15.6
Cohort		
2024/First year	324	72.0
2023/Second year	126	28.0
Total	450	100.0

Instrument

Sense of belongingness was assessed using a 26-item Sense of Belongingness Scale representing students' experiences across several aspects of university life, including peer relationships, classroom participation, social connectedness or isolation, and interactions with lecturers. Item content included studying and obtaining academic assistance from classmates, participating in classroom discussions, asking questions, establishing friendships, interacting with lecturers, seeking academic assistance, and perceiving lecturers as understanding and supportive.

Responses were recorded on a five-point Likert-type scale ranging from 1 to 5, with higher scores indicating a stronger sense of belonging after appropriate scoring of negatively worded items. Negatively framed items reflected difficulty establishing friendships, limited communication with classmates, and knowing relatively few classmates. In the present sample, the overall 26-item scale demonstrated good internal consistency (Cronbach's $\alpha = .863$; McDonald's $\omega = .881$).

The item structure was consistent with the multidimensional belonging framework developed by Hoffman et al. (2002) and subsequently re-examined by Tovar and Simon (2010). However, the available study documentation was insufficient to establish whether the Indonesian 26-item version was translated directly from Hoffman et al. (2002), adapted from Tovar and Simon (2010), or derived from another Indonesian adaptation. Therefore, the precise source and adaptation procedure should be verified from the original instrument documentation before manuscript submission.

Procedure and Ethical Considerations

Research permission was obtained from the Faculty of Psychology before data collection. The questionnaire was administered online using Google Forms and distributed through class WhatsApp groups with assistance from class representatives.

The first page of the questionnaire provided information about the purpose of the study, confidentiality and anonymity of responses, voluntary participation, and participants' right to withdraw. Students who provided informed consent proceeded to the questionnaire. No identifying information was collected.

Following data collection, responses were screened before analysis. Incomplete responses and responses showing insufficiently serious patterns, including consistently selecting the same response category throughout the questionnaire, were excluded. The final dataset consisted of 450 valid responses.

Data Analysis

Statistical analyses were conducted using Jamovi. Descriptive statistics, including mean, standard deviation, range, skewness, and kurtosis, were first calculated. The Shapiro–Wilk test was also examined to assess the distribution of the overall belonging score.

The suitability of the item correlation matrix for factor analysis was evaluated using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. The number of factors to retain was determined using parallel analysis together with theoretical interpretability.

Exploratory factor analysis (EFA) was performed using principal axis factoring (PAF) with oblimin rotation. An oblique rotation was selected because the dimensions of sense of belongingness were theoretically expected to be correlated. Items were evaluated primarily according to their loading patterns. A primary loading above .40 was considered adequate, and the difference between the primary and competing loadings was expected to be at least .15. Items not fully meeting these criteria were not automatically removed; their conceptual relevance and contribution to factor interpretability were also considered.

Because oblique rotation permits correlated factors, inter-factor correlations were examined to determine whether the extracted dimensions represented related but distinguishable components of belonging. Internal consistency was evaluated using Cronbach’s alpha (α) for each factor, with coefficients above .70 considered acceptable. Cronbach’s alpha and McDonald’s omega (ω) were also calculated for the overall scale.

Result

Exploratory factor analysis supported a four-factor structure of sense of belongingness: Support and Comfort with Lecturers, Active Classroom Participation, Academic Peer Support, and Social Isolation. Together, the four factors explained 49.0% of the cumulative variance and demonstrated acceptable to excellent internal consistency.

Descriptive Statistics and Factorability

The overall sense of belongingness score had a mean of 3.60 (SD = 0.50), with scores ranging from 2.31 to 4.88. The distribution showed minimal skewness (−0.14) and kurtosis (−0.18), and the Shapiro–Wilk test was not significant ($W = .99$, $p = .150$).

Table 2
Descriptive Statistics for Sense of Belongingness

Variable	M	SD	Min	Max	Skewness	Kurtosis	Shapiro–Wilk	p
Sense of Belongingness	3.60	0.50	2.31	4.88	−0.14	−0.18	.99	.150

The item correlation matrix was suitable for factor analysis. The overall Kaiser–Meyer–Olkin measure was .889, with item-level measures ranging from .687 to .942. Bartlett’s test of sphericity was significant, $\chi^2(325) = 5571$, $p < .001$.

Factor Structure

Parallel analysis supported the retention of four factors. Principal axis factoring with oblimin rotation showed that Factor 1 accounted for 18.82% of the variance, Factor 2 for 11.07%, Factor 3 for 10.23%, and Factor 4 for 8.88%, resulting in 49.0% cumulative explained variance.

Table 3
Variance Explained by the Four-Factor Solution

Factor	SS Loadings	% of Variance	Cumulative %
Factor 1	4.89	18.82	18.8
Factor 2	2.88	11.07	29.9
Factor 3	2.66	10.23	40.1
Factor 4	2.31	8.88	49.0

The four factors were labeled according to their item content.

Factor 1, **Support and Comfort with Lecturers**, consisted of SB17–SB26, with primary loadings ranging approximately from .49 to .76.

Factor 2, **Active Classroom Participation**, comprised SB9–SB12, with loadings from .58 to .95.

Factor 3, **Academic Peer Support**, comprised SB1–SB8, with loadings from .44 to .73.

Factor 4, **Social Isolation**, comprised SB13–SB16. Three items loaded strongly on this factor (.77–.82), whereas SB14 showed a lower loading of .39.

Table 4
Pattern Matrix for the Four-Factor Solution

Item	F1	F2	F3	F4
SB1	.05	.09	.44	-.08
SB2	.09	.04	.44	-.06
SB3	-.09	.04	.67	-.02
SB4	.13	-.05	.50	-.04
SB5	.02	-.06	.73	.03
SB6	.04	.06	.50	.10
SB7	.09	.01	.53	.15
SB8	-.05	.28	.47	-.08
SB9	-.02	.58	.21	.02
SB10	.03	.89	-.02	.00
SB11	-.03	.95	-.01	-.03
SB12	.17	.66	.04	.11
SB13	-.02	-.05	.02	.80
SB14	.04	-.08	-.05	.39
SB15	-.02	.01	.04	.77
SB16	.00	.06	-.02	.82
SB17	.49	-.05	-.01	-.30
SB18	.57	.11	.09	-.01
SB19	.74	.02	-.01	.12
SB20	.69	.08	.03	.01
SB21	.71	-.08	.08	-.08
SB22	.76	-.08	.04	.05
SB23	.63	.07	-.03	.04
SB24	.74	.09	.00	-.07
SB25	.75	.01	.00	.01
SB26	.66	.02	-.09	-.13

Note. F1 = Support and Comfort with Lecturers; F2 = Active Classroom Participation; F3 = Academic Peer Support; F4 = Social Isolation. Principal axis factoring with oblimin rotation was used. Bold values indicate the primary loading for each item. Values are rounded to two decimal places.

The table above preserves the loading values reported in the original EFA output.

Model Fit

The four-factor solution produced an RMSEA of .064, with a 90% confidence interval ranging from .058 to .070. The Tucker–Lewis Index was .886. The model test was statistically significant, $\chi^2(227) = 643$, $p < .001$. The reported BIC was -744.

Table 5
Model Fit Statistics for the Four-Factor Solution

RMSEA	90% CI	TLI	BIC	χ^2	df	p
.064	[.058, .070]	.886	-744	643	227	< .001

The factors were moderately correlated. The strongest correlation was between Active Classroom Participation and Academic Peer Support ($r = .480$). Support and Comfort with Lecturers correlated with Active Classroom Participation ($r = .419$) and Academic Peer Support ($r = .316$), and negatively with Social Isolation ($r = -.235$).

Table 6
Inter-Factor Correlations

Factor	1	2	3	4
1. Support and Comfort with Lecturers	—			
2. Active Classroom Participation	.419	—		
3. Academic Peer Support	.316	.480	—	
4. Social Isolation	-.235	.089	.219	—

Note. Correlations are derived from the oblique factor solution.

Internal Consistency

Internal consistency was evaluated separately for each extracted factor. Support and Comfort with Lecturers demonstrated the highest reliability ($\alpha = .901$), followed by Active Classroom Participation ($\alpha = .889$), Academic Peer Support ($\alpha = .790$), and Social Isolation ($\alpha = .785$). The overall 26-item scale demonstrated Cronbach's $\alpha = .863$ and McDonald's $\omega = .881$.

Table 7
Internal Consistency of the Sense of Belongingness Factors

Factor	Items	Number of Items	Cronbach's α
Support and Comfort with Lecturers	SB17–SB26	10	.901
Active Classroom Participation	SB9–SB12	4	.889
Academic Peer Support	SB1–SB8	8	.790
Social Isolation	SB13–SB16	4	.785

Note. Overall scale reliability: Cronbach's $\alpha = .863$; McDonald's $\omega = .881$.

Item-rest correlations ranged from .514 to .753 for Support and Comfort with Lecturers, .633 to .850 for Active Classroom Participation, .439 to .598 for Academic Peer Support, and .341 to .694 for Social Isolation. Within Social Isolation, SB14 showed the lowest item-rest correlation (.341).

Discussion

The present study identified four related but distinguishable dimensions of sense of belongingness among Indonesian psychology students: Support and Comfort with Lecturers, Active Classroom Participation, Academic Peer Support, and Social Isolation. Together, these findings support a multidimensional understanding of belonging in which students' university experiences involve relationships with lecturers and peers, participation in the classroom, and perceived integration into the broader social environment. The acceptable to excellent internal consistency of

all four factors further indicates that these dimensions represent coherent components of students' belonging experiences.

The four-factor solution is broadly consistent with previous multidimensional conceptualizations of university belonging. Hoffman et al. (2002) incorporated peer, faculty, classroom, and social experiences into their framework, while Tovar and Simon (2010) demonstrated that the factorial organization of belonging requires empirical re-examination across student populations. More recent studies have similarly distinguished faculty-related, peer-related, classroom, and isolation-related dimensions (Verbree et al., 2025; Stafford et al., 2025). Therefore, the present findings should not be interpreted as identifying entirely new dimensions. Rather, they indicate **partial replication with contextual differentiation**, in which established domains remain recognizable but are empirically organized in ways that reflect the experiences of Indonesian psychology students.

The first factor, **Support and Comfort with Lecturers**, reflects lecturer accessibility, responsiveness, empathy, and students' comfort in seeking academic or personal assistance. Its emergence as a distinct dimension indicates that students' belonging involves more than relationships with peers. Lecturers may function both as sources of academic guidance and as interpersonal connections to the academic community. This interpretation is consistent with research showing associations between instructor support, faculty interactions, and student belonging (Burk & Pearson, 2022; Kim et al., 2023), as well as recent models distinguishing faculty understanding from other dimensions of belonging (Verbree et al., 2025; Stafford et al., 2025).

Support and Comfort with Lecturers was moderately associated with Active Classroom Participation. Students who perceive lecturers as approachable and supportive may experience fewer interpersonal barriers to asking questions or expressing ideas in class. Conversely, active participation may create more opportunities for interaction with lecturers. Because the present study was cross-sectional, however, the direction of this relationship cannot be determined.

The second factor, **Active Classroom Participation**, reflects students' willingness to contribute to classroom activities, ask questions, express ideas, and speak freely. Although comparable dimensions have previously been described as classroom comfort (Verbree et al., 2025; Stafford et al., 2025), the items in the present study emphasize observable academic participation and expression. The label Active Classroom Participation therefore more closely represents their content.

This dimension suggests that classroom belonging may be expressed not only through feelings of comfort but also through students' willingness to participate academically. Zengilowski et al. (2023) similarly found that belonging was associated with students' affective, cognitive, and discourse experiences during classroom discussions. Importantly, Active Classroom Participation remained distinguishable from lecturer and peer support, indicating that students may have supportive interpersonal relationships without necessarily feeling comfortable expressing themselves publicly in academic settings.

The third factor, **Academic Peer Support**, combines interpersonal relationships with academically functional forms of peer support. Its items include studying together, exchanging notes, discussing academic and personal matters, maintaining friendships, and participating in social activities. This pattern is consistent with evidence identifying peer relationships as a central component of university belonging (Anistranski & Brown, 2023; Allen et al., 2024) and showing that social resources influence academic help-seeking and peer assistance (Schlusche et al., 2021; Jeng et al., 2023).

The integration of academic and interpersonal content within this factor is noteworthy. For the psychology students in this study, peer belonging appears to involve not only friendship but also

access to relationships that support academic functioning. The strongest inter-factor association was observed between Academic Peer Support and Active Classroom Participation ($r = .480$), suggesting that supportive peer relationships and academic participation are interconnected. Supportive classmates may make classroom expression less socially threatening, while classroom participation may itself create opportunities for stronger peer relationships. These possibilities require longitudinal examination before directional conclusions can be drawn.

The fourth factor, **Social Isolation**, reflects difficulty establishing friendships, limited communication with classmates, and knowing relatively few members of the classroom community.

Its emergence as a separate factor is consistent with contemporary work distinguishing perceived isolation from peer, faculty, and classroom support (Stafford et al., 2025). Importantly, Social Isolation was not simply the inverse of Academic Peer Support. The small positive correlation between the two factors suggests that students may have a limited number of dependable peers for academic or personal support while still perceiving themselves as peripheral to the wider classroom community.

This distinction highlights the difference between the **quality or functionality of close relationships** and the **breadth of social integration**. Having supportive friends does not necessarily mean feeling connected to the broader student community. Similarly, the weak association between

Social Isolation and Active Classroom Participation indicates that academic visibility does not necessarily imply broader social integration. A student may participate actively in class while maintaining relatively limited relationships with classmates.

One psychometric issue warrants particular attention. SB14 showed a primary loading of .392 on Social Isolation, slightly below the .40 criterion, and also had the lowest item-rest correlation within this factor (.341). These indicators suggest that SB14 is a weaker representation of Social Isolation than the other three items. Nevertheless, immediate deletion would be premature because the item remains conceptually relevant and its loading falls only marginally below the criterion. Its performance should therefore be evaluated in an independent sample before a final retention decision is made.

The negatively worded Social Isolation items also require further examination. Their separation may represent substantive social-isolation content, a wording effect, or a combination of both. Confirmatory factor analysis could compare the present four-factor structure with alternative models that account for potential method effects associated with negatively worded items. This would provide stronger evidence regarding whether Social Isolation represents a substantively distinct dimension.

Overall, the moderate inter-factor correlations suggest that the four dimensions belong to a common conceptual domain while retaining distinguishable content. This finding also illustrates why reliance exclusively on a total belonging score may obscure meaningful differences among students. Two students with similar overall scores may have substantially different profiles—for example, strong lecturer support but high social isolation, or strong peer support but limited classroom participation. If the structure is confirmed, examining dimensional profiles may therefore provide more informative evidence than relying solely on an overall score.

The findings also reinforce the importance of evaluating belonging measures within the educational and cultural contexts in which they are applied. Reviews have documented substantial variation in how university belonging is conceptualized and measured (Allen et al., 2024; Dias-Broens et al., 2024), while cross-national and Asian higher-education studies demonstrate that belonging is shaped by institutional and social environments (Kim et al., 2023; Gao, 2024; Lee et al., 2024). The broad correspondence between the present solution and previous belonging frameworks suggests

conceptual continuity across contexts, whereas the emphasis on active classroom participation and academically functional peer relationships indicates potential contextual differentiation.

Accordingly, the principal contribution of this study is not the proposal of a new four-factor theory of belonging. Instead, it provides exploratory evidence that established domains of faculty relationships, classroom experiences, peer support, and social isolation are broadly reproduced among Indonesian psychology students while showing a contextually meaningful organization. This **partial replication with contextual differentiation** extends psychometric evidence on student belonging to an Indonesian higher-education context and provides a foundation for subsequent confirmatory and cross-cultural validation.

Conclusion

The conclusion

This study provides exploratory evidence for a four-factor structure of sense of belongingness among Indonesian psychology students: Support and Comfort with Lecturers, Active Classroom Participation, Academic Peer Support, and Social Isolation. The four factors explained 49.0% of the cumulative variance and demonstrated acceptable to excellent internal consistency ($\alpha = .785-.901$), while the overall scale showed good reliability ($\alpha = .863$; $\omega = .881$).

The findings support a multidimensional understanding of student belonging involving relationships with lecturers, classroom participation, supportive peer relationships, and social integration. Rather than proposing a new model of belonging, the study demonstrates **partial replication with contextual differentiation**, as dimensions identified in previous research were broadly reproduced but showed a meaningful organization within the Indonesian psychology student context.

Implications

The findings reinforce the importance of evaluating belonging measures within the educational and cultural contexts in which they are applied. A global belonging score may conceal differences in students' experiences across lecturer relationships, classroom participation, peer support, and social isolation.

If confirmed through further validation, these dimensions may also help universities identify different areas of student belonging and develop more targeted support. For example, difficulties related to lecturer interaction, classroom participation, peer support, and social integration may require different forms of intervention rather than a single general approach to strengthening belonging.

Limitations

Several limitations should be considered. Participants were recruited through convenience sampling from a single psychology faculty, limiting generalizability to other disciplines and institutions. The sample was predominantly female and included only first- and second-year students.

The study also relied on cross-sectional self-report data, preventing causal interpretation. Most importantly, the factor structure was derived from a single sample and should therefore be regarded as exploratory rather than confirmed. SB14 also showed a comparatively weak loading on Social Isolation, while the negatively worded isolation items may involve substantive or wording-related effects.

Future Research

Future studies should conduct confirmatory factor analysis using an independent sample and compare the present four-factor solution with alternative measurement models. Particular attention should be given to SB14 and potential method effects associated with negatively worded items.

Further validation should examine convergent and discriminant validity, test-retest reliability, and measurement invariance across gender, year of study, discipline, and institution. Replication across Indonesian universities and other Southeast Asian higher-education contexts would also help determine which dimensions of belonging are structurally stable and which are context-dependent.

Author Contribution Statement

D.K.D.: Conceptualization, Methodology, Writing – Original Draft, Writing – Review & Editing.

R.P.S.: Formal Analysis, Writing – Review & Editing, Funding Acquisition.

F.M.: Conceptualization, Methodology, Data Curation, Investigation, Writing – Original Draft.

L.N.A.: Conceptualization, Methodology, Writing – Original Draft, Writing – Review & Editing.

R.P.: Conceptualization, Methodology, Writing – Original Draft, Writing – Review & Editing.

All authors reviewed and approved the final version of the manuscript and agreed to be accountable for their respective contributions.

Acknowledgment

The authors thank all the participants who agreed to participate in the study.

References

- Ahn, M. Y., & Davis, H. H. (2020). Four domains of students' sense of belonging to university. *Studies in Higher Education*, 45(3), 622–634. <https://doi.org/10.1080/03075079.2018.1564902>
- Allen, K.-A., Slaten, C., Hong, S., Ma, L., Craig, H., May, F., & Counted, V. (2024). Belonging in higher education: A twenty year systematic review. *Journal of University Teaching and Learning Practice*, 21(5), 1–55. <https://doi.org/10.53761/s2he6n66>
- Anistranski, J. A., & Brown, B. B. (2023). A little help from their friends? How social factors relate to students' sense of belonging at a large public university. *Journal of College Student Retention: Research, Theory & Practice*, 25(2), 305–325. <https://doi.org/10.1177/1521025120985107>
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497–529. <https://doi.org/10.1037/0033-2909.117.3.497>
- Burk, N. R., & Pearson, A. R. (2022). Encouraging student sense of belonging through instructor face support. *Journal of Communication Pedagogy*, 6, 214–230. <https://doi.org/10.31446/JCP.2022.1.16>
- Costello, M. A., Nagel, A. G., Hunt, G. L., Rovens, A. J., Hazelwood, O. A., Pettit, C., & Allen, J. P. (2022). Facilitating connection to enhance college student well-being: Evaluation of an experiential group program. *American Journal of Community Psychology*, 70(3–4), 314–326. <https://doi.org/10.1002/ajcp.12601>
- Crawford, J., Allen, K.-A., Sanders, T., Baumeister, R., Parker, P., Saunders, C., & Tice, D. (2024). Sense of belonging in higher education students: An Australian longitudinal study from 2013 to 2019. *Studies in Higher Education*, 49(3), 395–409. <https://doi.org/10.1080/03075079.2023.2238006>
- Dias-Broens, A. S., Meeuwisse, M., & Severiens, S. E. (2024). The definition and measurement of sense of belonging in higher education: A systematic literature review with a special focus on students' ethnicity and generation status in higher education. *Educational Research Review*, 45, Article 100622. <https://doi.org/10.1016/j.edurev.2024.100622>

- Dutcher, J. M., Lederman, J., Jain, M., Price, S., Kumar, A., Villalba, D. K., Tumminia, M. J., Doryab, A., Creswell, K. G., Riskin, E., Sefdigar, Y., Seo, W., Mankoff, J., Cohen, S., Dey, A., & Creswell, J. D. (2022). Lack of belonging predicts depressive symptomatology in college students. *Psychological Science*, 33(7), 1048–1067. <https://doi.org/10.1177/09567976211073135>
- Gao, F. (2024). 'I am not what you label me': Senses of belonging in a mainland Chinese university among cross-border Hong Kong students. *British Educational Research Journal*, 50(4), 2001–2019. <https://doi.org/10.1002/berj.4013>
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, 30(1), 79–90. [https://doi.org/10.1002/1520-6807\(199301\)30:1%3C79::AID-PITS2310300113%3E3.0.CO;2-X](https://doi.org/10.1002/1520-6807(199301)30:1%3C79::AID-PITS2310300113%3E3.0.CO;2-X)
- Gopalan, M., & Brady, S. T. (2020). College students' sense of belonging: A national perspective. *Educational Researcher*, 49(2), 134–137. <https://doi.org/10.3102/0013189X19897622>
- Linden-Carmichael, A., & Lanza, S. (2022). College students' sense of belonging and mental health amidst the COVID-19 pandemic. *Journal of Adolescent Health*, 70(2), 228–233. <https://doi.org/10.1016/j.jadohealth.2021.10.010>
- Hoffman, M., Richmond, J., Morrow, J., & Salomone, K. (2002). Investigating "sense of belonging" in first-year college students. *Journal of College Student Retention: Research, Theory & Practice*, 4(3), 227–256. <https://doi.org/10.2190/DRYC-CXQ9-JQ8V-HT4V>
- Jeng, A., Bosch, N., & Perry, M. (2023). Sense of belonging predicts perceived helpfulness in online peer help-giving interactions. *The Internet and Higher Education*, 57, Article 100901. <https://doi.org/10.1016/j.iheduc.2022.100901>
- Kelly, M., Willis, R., & Nieuwoudt, J. (2022). A sense of belonging at university: Student retention, motivation and enjoyment. *Journal of Further and Higher Education*, 46(3), 397–408. <https://doi.org/10.1080/0309877X.2021.1955844>
- Kim, D., Woo, Y., Song, J., & Son, S. (2023). The relationship between faculty interactions, sense of belonging, and academic stress: A comparative study of the post-COVID-19 college life of Korean and international graduate students in South Korea. *Frontiers in Psychiatry*, 14, Article 1169826. <https://doi.org/10.3389/fpsy.2023.1169826>
- Lee, J., Brooks, R., & Abrahams, J. (2024). Students, community and belonging: An investigation of student experience across six European countries. *Higher Education Research & Development*, 43(4), 906–921. <https://doi.org/10.1080/07294360.2023.2269886>
- Mellinger, C., Fritzson, A., Park, B., & Dimidjian, S. (2024). Developing the Sense of Belonging Scale and understanding its relationship to loneliness, need to belong, and general well-being outcomes. *Journal of Personality Assessment*, 106(3), 347–360. <https://doi.org/10.1080/00223891.2023.2279564>
- Schlusche, C., Schnaubert, L., & Bodemer, D. (2021). Perceived social resources affect help-seeking and academic outcomes in the initial phase of undergraduate studies. *Frontiers in Education*, 6, Article 732587. <https://doi.org/10.3389/feduc.2021.732587>
- Stafford, L., Bol, L., & Gansle, K. A. (2025). Investigating the reliability and validity of the Sense of Belonging Inventory among first year undergraduates. *Journal of College Student Retention: Research, Theory & Practice*. Advance online publication. <https://doi.org/10.1177/15210251251321107>
- Tovar, E., & Simon, M. A. (2010). Factorial structure and invariance analysis of the Sense of Belonging Scales. *Measurement and Evaluation in Counseling and Development*, 43(3), 199–217. <https://doi.org/10.1177/0748175610384811>
- Verbree, A.-R., van der Schaaf, M., Wijngaards-de Meij, L., & Dilaver, G. (2025). Students' sense of belonging and authenticity in higher education. *British Educational Research Journal*, 51(3), 1097–1127. <https://doi.org/10.1002/berj.4114>
- Zengilowski, A., Lee, J., Gaines, R. E., Park, H., Choi, E., & Schallert, D. L. (2023). The collective classroom "we": The role of students' sense of belonging on their affective, cognitive, and discourse experiences of online and face-to-face discussions. *Linguistics and Education*, 73, Article 101142. <https://doi.org/10.1016/j.linged.2022.101142>