Student Belonging and Well-being in Higher Education: Insights from Five European Universities

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Abstract

A sense of belonging is crucial for student success. Yet, cross-national research on this topic is scarce. This study addresses this gap by examining the relationships between belonging, mental health, and well-being among 2,072 students at five universities across five European countries. Using network analysis, we found a robust positive association between a sense of belonging and both well-being and life satisfaction across all institutions. The negative correlation between belonging and loneliness was strongest at the two universities with the largest international student populations. These findings underscore the universal importance of belonging and suggest that tailored university interventions, especially those focused on including international students, can be highly effective in mitigating loneliness and supporting student mental health.

Introduction

A sense of belonging— i.e., "a sense of connection with one's university," whereby students feel "part of the campus community" (Glass and Westmont, 2014)—appears to be key to students' ability to thrive in higher education. In various contexts, belonging has been positively associated with student satisfaction, persistence, academic performance, and overall well-being with particularly strong effects observed among students from marginalised backgrounds (Glass and Westmont, 2014; Gopalan and Brady, 2019; Kelly et al., 2024; Verbree et al., 2025).

These findings are in line with broader research on the general population. Forming and maintaining close social bonds is considered a fundamental human need (Baumeister and Leary, 1995). A meta-analysis by Park et al. (2020) documented a robust relationship between individuals' sense of belonging and their overall well-being. When this need is unmet, it can

negatively affect both mental and physical health (Cacioppo et al., 2011; Hawkley and Cacioppo, 2010).

Even if in higher education, mental health and well-being are critical to student success, many universities continue to face challenges in providing effective support. In 2018–2019, two-fifths of surveyed higher education students in the United States reported experiencing mental health issues, and most of them had difficulty accessing adequate care (Leshner, 2021). During the COVID-19 pandemic, students' mental health further declined, particularly due to reduced social contact. This trend was observed not only in the U.S. but also across Europe and Asia (Hajdúk et al., 2021; Li et al., 2021; Wang et al., 2023), with increases in perceived loneliness reported as well (Ernst et al., 2022).

Belonging has been linked to a range of psychological outcomes. Previous research has shown that students with higher levels of belonging report better mental health (Tholen et al., 2022; Gopalan and Brady, 2019), lower levels of loneliness, (Dost, 2025; Zhou et al., 2022), lower depression and anxiety (Backhaus et al, 2019; Dutcher et al., 2022; Gopalan et al., 2022; Peoples et al., 2023), greater overall well-being (Tholen et al., 2022; Yildirim et al., 2021) and life satisfaction (Civitci 2015). A strong sense of belonging enables students to engage in more meaningful and diverse social interactions, which in turn mitigates loneliness—defined as the subjective perception of insufficient quality or quantity of social relationships (Perlman and Peplau, 1981).

Loneliness can have significant negative effects, with large-scale prospective studies showing links to both morbidity and mortality in the population (Wang et al., 2023). Specifically, loneliness is very common in individuals with depression (Erzen and Çikrikci, 2018), suicidal thoughts (McClelland et al., 2020) as well as in those with other conditions such as anxiety (McQuaid et al., 2021) and personality characteristics of big five model, with strongest links to extraversion and neuroticism (Buecker et al., 2020). In contrast to that, larger peer and staff networks provide more opportunities for emotional and social support. Students who feel they belong tend to have more intense cross-cultural interactions than those who report lower levels of belonging (Glass and Westmont, 2014). These support networks are especially valuable during key transitions, such as the first year of study (Walton and Cohen, 2011; Tholen et al., 2022).

In summary, sense of belonging is associated with a range of positive outcomes in higher education, including better mental health, lower levels of loneliness, higher well-being and life satisfaction, improved academic performance, and lower risk of dropping out. However, we still know relatively little about how students' experiences of belonging vary across different institutional and national contexts. Existing studies do not fully explore how institutional characteristics—such as size, student body, or the nature of staff–student relationships—may shape belonging. Most studies that investigate belonging in higher education remain single-institution in scope (Zhou et al., 2022; Romeo et al., 2024; Walton and Cohen, 2011; Dost, 2025; Barbour et al., 2021), and even multi-site studies are confined to a single country (Gopalan and Brady, 2019; Tholen et al., 2022; Backhaus et al., 2019; Dutcher et al., 2022; Peoples et al., 2023; Yildirim et al., 2021; Glass and Westmont, 2014).

To address these gaps, the current study aims to: (1) Compare levels of students' sense of belonging across universities in five different countries using cross-sectional survey data; and (2) Examine the relationships among sense of belonging, psychopathology, loneliness, well-being, and life satisfaction. To the best of our knowledge, this is the first large-scale, multi-country study on belonging and mental health among higher education students.

Methods

Sample and procedure

Data for this research were collected from 2,072 students across five universities: Central European University (CEU, Austria), Comenius University Bratislava (UNIBA, Slovakia), Nottingham Trent University (NTU, United Kingdom), Masaryk University (MUNI, Czechia) and University of Madeira (UMa, Portugal). We selected the five universities to represent diverse European contexts, and included specific faculties based on their comparable disciplinary focus. UNIBA, NTU, and MUNI are research-intensive institutions located in cities that serve as regional or national capitals. They rank among the largest universities in their respective countries, enrolling approximately 22,000 students (UNIBA) and 33,000 students each (MUNI and NTU), and offer both undergraduate and graduate programmes. All three are publicly funded, although NTU also charges tuition fees. In contrast, CEU (1,500 students) and UMa (2,900 students) are relatively small universities. CEU, a private research-intensive institution based in Vienna, Austria, primarily serves graduate students, though it also offers undergraduate programmes. UMa is a public university located in Funchal, the capital of the Autonomous Region of Madeira (Portugal), and it offers both undergraduate and graduate degrees.

NTU and CEU are markedly more internationalised than the others. At CEU, the student body is almost entirely international, comprising students from over 100 countries. At NTU, international students represent approximately 14% of the total student population, or around 4,700 students. While Masaryk University reports a slightly higher proportion of international students (16%), the largest group comes from neighbouring Slovakia—a country with a mutually intelligible language, a shared history of a common state, and a highly similar culture. Thus, internationalisation is not as defining a feature at MUNI as it is at NTU and CEU (Pleschová, 2025, 39–40, 45, 57; *Comenius University Bratislava in Numbers* 2023; *University of Madeira – About 2025; Facts and figures – CEU 2025, About Us – Nottingham Trent University 2025*).

Data was collected via a questionnaire survey developed in the English language and subsequently translated and adapted into the Czech, Portuguese and Slovak languages. In the remaining two institutions (NTU, CEU), where the language of instruction is English, students completed the questionnaire in English. Prior to data collection, ethical approval was received from the institutional review boards of University of Madeira (37a/CEUMA/2022), Comenius University Bratislava (ER/19/2022) and Nottingham Trent University (BLSS REC #1607486). The study received a waiver from the institutional review boards of Central European

University and Masaryk University, as approval granted by the University of Madeira also covered data collection at those sites.

Students completed the questionnaire online during the period of three weeks in November and December 2022. The survey was distributed only within one faculty (school) at the three institutions with larger student populations: in the Faculty of Arts at UNIBA, the Faculty of Education at MUNI, and the School of Social Sciences at NTU. The questionnaire (detailed below) included demographic questions, and measures of belonging, mental and physical health, and psychopathology. The total number of responses per institution, the response rate, and detailed demographic variables are presented in Table 1.

(Table 1 about here)

We chose network analysis to analyse the data, as it enables the visualisation and examination of complex interrelationships among multiple psychological variables simultaneously, offering deeper insights than traditional correlation or regression analyses (Borsboom and Cramer, 2013). This approach aligns closely with our research aim of exploring how belonging is interrelated with mental health and well-being.

Measures

The literature shows little consensus on how belonging should be measured, with many studies developing new instruments or adapting existing ones. A recent systematic review identified 52 distinct measures across 95 quantitative and mixed-method studies of belonging in higher education (Dias-Broens et al., 2024). Because such measures are often designed to reflect the specific aims and contexts of individual institutions (Quinlan, 2025) or tailored to research purposes (e.g., Kember and Leung, 2010), universities/researchers typically adopt tools that address their unique priorities and/or capture the diverse ways in which students may experience belonging (Dias-Broens et al., 2024). In this study, we therefore adapted several existing instruments to assess students' sense of belonging as well as its associations with psychopathology, well-being, and life satisfaction.

To account for the students' sense of belonging at five European institutions, we used the 10-item Imperial College London's Sense of Belonging Scale (Imperial College London, 2019). This questionnaire directed respondents to think of themselves as students at their respective universities and include questions regarding academic embeddedness, such as how much they feel understood, respected, and connected to academic and administrative staff. The last question directly asked students how much they felt they belong to their university. Responses were recorded on a 5-point Likert-scale, where 1 denoted the lowest level of belonging and 5 the highest. To obtain a final score, the responses were summed, resulting in a best sense of belonging at the summary score of 50. The reliability of the scale in the current study for the entire sample was satisfactory (α = .90).

The Patient Health Questionnaire (PHQ-4, Kroenke et al., 2009) was used to measure anxiety (2 items), and depression (2 items). Answer options ranged from 'not at all' (=0) to 'nearly

every day' (=3) and were summed to represent each dimension. A score of 3 or higher suggests clinical anxiety. Likewise, a total score of 3 or higher on the last two questions was indicative of depression. The reliability coefficients for both depression (α = .79) and anxiety (α = .83) were sufficient.

The UCLA 3-Item Loneliness Scale (Hughes et al., 2004) was used to measure loneliness. It consists of three questions: 'How often do you feel that you lack companionship?', 'How often do you feel left out?', and 'How often do you feel isolated from others?'. Each question is answered on a 3-point Likert scale (1 = 'Hardly ever', 2 = 'Some of the time', 3 = "Often"). Responses were averaged to create a total score, with higher scores indicating greater feelings of loneliness. The reliability of the scale in the current study was satisfactory (α = .82).

Well-being was measured by using the WHO-5 Well-being Index (Staehr Johansen, 1998), which consists of five simple questions about how frequently someone has felt specific positive states (e.g., cheerful, calm, or active) in the past two weeks. Answers range from 'all the time' (5) to 'at no time' (0). The final score is obtained by adding answers across the five questions. A score of 25 indicates the best quality of life, and zero denotes the worst. The scale had sufficient reliability in the current study (α = .88).

Finally, to capture respondents' global cognitive judgements of satisfaction with their own life, the 5-item Satisfaction with Life Scale (SWLS-5, Diener et al., 1985) was used. Answers were recorded on a 7-point Likert scale, ranging from 7 ('strongly agree') to 1 ('strongly disagree'). To get a final score, scores across the questions were summed up, with 35 indicating the highest possible satisfaction with life. The reliability of the scale in the current study was satisfactory (α = .88).

Statistical analysis

First, a one-way ANOVA was used to compare the levels of belonging across five universities. To find the interconnections among the variables in focus, a network model was computed using R package *qgraph* (Epskamp et al., 2012). The specific model used was the Gaussian Graphical Model (Lauritzen, 1996), where variables are represented by nodes in the network and the network edges indicate partial correlations between two variables while accounting for the effects of all remaining nodes. Only non-zero edges are kept in the computed network model. To assess the importance of each node in the network, node strength will be calculated as a measure of centrality. Furthermore, Correlation stability coefficient (CS-coefficient) will be used to estimate the stability of the edges through a bootstrapping method (Epskamp et al., 2018). Full dataset is available on reasonable request.

Results

Comparing belonging across universities

Descriptive statistics is presented in Table 2. No difference in the sense of belonging between males (M = 34.60, SD = 7.65) and females (M = 34.62, SD = 7.20) was found (t = 0.06, p =

.954, d = .05). When comparing student belonging across universities, the differences were small or absent (F(4,1706) = 7.824, p < .001, η^2 = 0.015). MUNI students reported significantly higher score than CEU and UMa students (p_{tukey} = .004, d = .278; and p_{tukey} < .001, d = .318; respectively). Similarly, UNIBA students scored significantly higher in belonging than CEU (p_{tukey} = .007, d = .252) and UMa students (p_{tukey} = < .001, d = .291). The distributions of belonging scores across the universities are displayed in Figure 1.

(Table 2 about here)

(Figure 1 about here)

Network structure

The structures of the estimated network models for the five universities are presented in Figure 2. Across all five university samples, two clusters were generally discernible. One cluster comprised the psychopathology measures of depression and anxiety, which were always strongly interconnected. The second cluster consistently featured well-being, satisfaction with life, and sense of belonging. Within the clusters, all variables were correlated positively.

(Figure 2 about here)

While a broadly consistent pattern emerged, several notable differences were observed. First, sense of belonging consistently showed significant positive associations with well-being and life satisfaction across all five universities, indicating a robust link between feeling connected and positive psychological states. On the other hand, while the association between sense of belonging and loneliness was always present, its strength varied. This connection was consistently negative and appeared more pronounced at CEU and NTU compared to the other three universities, suggesting that loneliness may be a particularly strong correlate of low belonging in these two contexts.

The relationships of belonging and psychopathology were weak or absent. The expected negative association between belonging and depression was evident only in the CEU, MUNI, and UMa networks, while it was missing in the NTU and UNIBA samples. Belonging was positively linked to anxiety only in CEU and UNIBA students.

Regarding other consistent patterns, loneliness and well-being maintain links to all other variables in all networks, which suggests they are the most interconnected variables in the network. The special role of well-being is stressed by the centrality analyses, which quantified the importance of nodes in the network. When looking at node strength, well-being, alongside depression, consistently emerged as the most central across the network models, with the only exception being UNIBA, where satisfaction with life appeared slightly higher in strength than depression, although the difference between the two was not significant. Figure 3 shows all strength estimates for the individual networks.

(Figure 3 about here)

Discussion

This international study underscores the role of the sense of belonging for students across five European universities. The results suggest there is a stable link of belonging with well-being and life satisfaction, while the connection with loneliness was site-specific. The relationship between belonging and psychopathology was mixed. Across all five universities, the sense of belonging consistently showed positive associations with well-being and life satisfaction. This indicates a robust link between feeling connected and positive psychological states, confirming earlier results regarding well-being (Yildirim et al., 2021) and life satisfaction (Civitci, 2025).

While all networks showed negative association between belonging and loneliness, it was the strongest at CEU and NTU. As detailed above, these two higher education institutions that are notably more internationalised than other universities in this study. This difference regarding the number of international students at CEU and NTU as opposed to the other institutions under study is apparent with 88.5% and 32.4% of the samples coming from international students, respectively. For international students who typically leave their social networks behind to study abroad, their universities gain significance, not only as a place of education that is likely to enhance their future career prospects, but also as a place of socialization. In their day-to-day life in a foreign country, international students spend most of their time at the university interacting with their peers and professors. Thus, their universities become an important place to belong.

The literature highlights international students' challenges with belonging (Mendoza et al., 2022), particularly due to the additional hurdle of integrating their identities into a new environment (Johnson, 2025). In contrast, Verbree and colleagues (2025), in their study at a Dutch university, found that international students' authenticity—defined as 'the freedom to express their authentic selves without renunciation and feel valued while being themselves'— was positively correlated with belonging, a finding that resonates with our results. Importantly, international students reported feeling that their authenticity was valued more than that of their domestic peers, which the authors attributed to the institution's strong focus on internationalisation. In this study, both NTU and CEU place a strong emphasis on internationalisation by attracting international students, fostering cross-cultural dialogue, and organising dedicated events. Our findings therefore suggest that universities with a strong international orientation may help reduce loneliness among international students by fostering a stronger sense of belonging. This way they can contribute towards substantially improving international students' situation with respect to psychopathology.

Belonging did not consistently protect students from psychological distress in all universities. While students at CEU, MUNI, and UMa, who felt a stronger sense of belonging, tended to report fewer depressive symptoms, which is in line with previous research (Backhouse et al, 2019; Dutcher et al., 2022), this pattern did not emerge in the NTU and UNIBA groups. Surprisingly, a stronger sense of belonging was associated with higher anxiety levels among students at CEU and UNIBA, suggesting that in some contexts, feeling connected might coincide with heightened emotional demands or pressures.

Limitations

The results of the current study need to be interpreted with caution due to the following limitations. First, to have comparable sample sizes, we only surveyed students from a single faculty (focused on the humanities and social sciences) at three of the institutions, rather than collecting data from the entire university, as was the case of other two universities. Therefore, we are unable to generalise our results to the broader university populations.

Second, we should be equally careful about the generalizability of our findings given that our sample was not representative and because the survey response rate was between 7 and 20 % at the studied institutions. As many other studies on student belonging in higher education (e.g., Tholen at al., 2022; Dost 2025), this study is based on a convenience sample. Third, the cross-sectional nature of study limits our findings. Longitudinal studies are therefore needed with the goal to explore potential protective and risk factors affecting students' sense of belonging.

What is also important, we did not specifically examine whether participants may have interpreted the survey questions differently based on their cultural backgrounds. Finally, we did not control for the degree of social support, and the experience of both academic challenge and support that Glass and Westmont (2014) consider part of the definition of belonging. We made this decision because we wanted to explore what institutions do within their existing capacities. Some institutions included in our research do not intentionally provide social support, nor do they actively seek to influence the balance between academic challenges and support. Therefore, other aspects that were not accounted for might impact how the sense of belonging relates to the other variables.

Implications for future research

Our findings indicate that further research is particularly needed in three key areas. First, longitudinal studies are needed with the goal to explore potential protective and risk factors affecting students' sense of belonging over time—not just across countries. Second, our study has been exploratory in nature and, therefore, based on association between variables—not causation. Therefore, future studies should investigate the direction of the relationship between belonging, depression, anxiety, loneliness, well-being, and life satisfaction in a cross-cultural context. Finally, two variables of interest emerged from this study—the effect of which should be further investigated on belonging and psychopathology. There appears to be a difference between home students and international students regarding how they relate to their universities.

Conclusion and recommendations

This study highlights the crucial role of a sense of belonging for university students across diverse European countries and institutional settings. Our findings show that belonging is

positively associated with well-being and life satisfaction, with no major differences observed across the five universities. However, the extent to which a greater sense of belonging correlated with reduced loneliness varied between sites, appearing stronger in universities with larger international student populations. The relationship between belonging and psychological distress was less consistent, indicating the need for further investigation.

These cross-site differences suggest that tailored university approaches, particularly those addressing the belonging of international students, could positively influence student mental health. We recommend that higher education institutions implement dedicated orientation sessions, structured peer mentoring schemes, and integration programmes to support international students in building relationships with both international and home peers, as well as with the wider university community. Additional measures, in line with previous literature, include increasing international student representation in institutional bodies, facilitating international students' access to counselling services (Islam et al., 2025), and fostering intercultural competences among staff members (Ostatnikova et al., 2019). More broadly, our results underscore the importance of fostering a sense of belonging for all students.

Disclosure statement

The authors report there are no competing interests to declare.

Ethical considerations

Prior to data collection, ethical approval was received from the institutional review boards of University of Madeira (37a/CEUMA/2022), Comenius University Bratislava (ER/19/2022) and Nottingham Trent University (BLSS REC #1607486). The study received a waiver from the institutional review boards of Central European University and Masaryk University, as approval granted by the University of Madeira also covered data collection at those sites.

Data availability

Full dataset from this research is available on reasonable request.

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