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Student mental health profiles in Poland and Vietnam: multigroup latent profile analysis using ASR-derived dimensions

BACKGROUND
Mental health difficulties are a growing concern among university students, particularly during emerging adulthood. Given the potential role of cultural context, this study aimed to identify latent profiles of psychological functioning among students in Poland and Vietnam and examine their demographic and educational correlates.

PARTICIPANTS AND PROCEDURE
The study included 1,753 university students from Poland and Vietnam (*M*_age = 20.45, *SD* = 4.77), predominantly women. Measures included the Adult Self-Report (revised seven-factor model), School Burnout Inventory, Utrecht Study Engagement Scale, and questions on sleep and learning-related values. Analyses comprised exploratory and confirmatory factor analyses, measurement invariance testing, and latent profile analysis.

RESULTS
Four profiles emerged in both countries, reflecting varying severity of co-occurring internalizing and externalizing symptoms. Profiles differed across countries, with membership associated with gender in Vietnam and year of study and study-work status in Poland. Educational burnout and study engagement differentiated profiles in both samples.

CONCLUSIONS
The findings reveal broadly similar patterns of co-occurring psychological difficulties across both countries, but differences in severity and correlates. As sociocultural mechanisms were not directly assessed, these differences cannot be attributed to specific cultural processes. The findings support person-centered approaches to psychological functioning and underscore the need for further research on sociocultural influences.

KEY WORDS
internalizing; externalizing; educational burnout; LPA; Poland; Vietnam

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BACKGROUND

Mental health problems among university students have emerged as an increasingly serious global public health concern (Auerbach et al., 2018). Over recent years, prevalence estimates indicate considerable cross-national variability, with depressive symptoms affecting about 34.8% students in Asia, including 28.9% in China, and 24.1% in Europe (Li et al., 2022), including 28.6% in Poland (Kożybska et al., 2025). The highest rates of anxiety among students were observed in North America (48.3%) and lower-middle-income countries (54.2%; Li et al., 2022). University students also increasingly experience neurodevelopmental conditions such as attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD; Martin et al., 2025; Zeidan et al., 2022). Therefore, there is a growing need for a more integrative way to understand psychological functioning. One such approach involves examining internalizing and externalizing dimensions, which may provide a more comprehensive perspective on mental health difficulties than separate diagnostic categories (Achenbach et al., 2016). This perspective is particularly relevant given the substantial overlap and co-occurrence of symptoms across different forms of psychopathology (Chen et al., 2016; Noordhof et al., 2015).

The internalizing and externalizing symptoms framework is commonly used to distinguish two broad categories of psychopathological difficulties (Achenbach et al., 2016). Externalizing symptoms refer to outwardly directed behavioral symptoms, such as hyperactivity, conduct problems, and aggression, whereas internalizing problems involve inwardly directed distress, including anxiety, depression, social withdrawal, fears, and somatic complaints (Gresham & Kern, 2004). At the same time, studies have also shown that internalizing and externalizing difficulties often occur together (McElroy et al., 2018; Sitnik-Warchulska et al., 2026).

However, understanding students' psychological functioning requires consideration of the developmental and psychosocial challenges associated with university life. Most university students are in a period of emerging adulthood, characterized by heightened emotional sensitivity and increased susceptibility to stress (Arnett et al., 2014). During this period, students face multiple developmental demands related to identity formation, academic achievement, relationships, and future career planning (Tanious et al., 2023). Academic pressure may further intensify these difficulties, constituting a source of chronic stress that can increase vulnerability to mental health problems (Barański & Poprawa, 2025; Guo et al., 2026). For example, it may contribute to educational burnout, commonly understood as a multidimensional construct involving emotional exhaustion, a cynical attitude toward learning, and reduced feelings of accomplishment (Schaufeli et al., 2002b). In contrast, academic engagement (Schaufeli et al., 2002a), together with perceived social support, may serve a protective factor (Chong et al., 2025).

Although globalization has contributed to changing trends among young adults in Asia, for example, increasing individualization (Nam et al., 2026), prolonged education, and delayed marriage (Xenos et al., 2006), some cultural differences between individualistic and collectivistic societies may still remain. In individualistic cultures, the transition to adulthood is often associated with self-exploration and independent decision-making, whereas collectivistic cultures place greater emphasis on family obligations and interdependence (Arnett, 2015; Wang et al., 2020), as well as on the importance of family happiness, which is particularly valued in Vietnam (Mai & Le, 2024). Thus, young adults from more collectivistic societies may experience tension between traditional social expectations and increasing individualistic aspirations (Yu, 2011).

Cultural context may also shape attitudes toward mental health, including stigma, emotional expression, and attitudes toward seeking psychological help (Cowen et al., 2024; Krendl & Pescosolido, 2020; Masuda & Boone, 2011). These differences may be particularly relevant when comparing countries such as Poland and Vietnam, which differ in sociocultural norms, family expectations, and approaches to mental health. Poland is generally characterized as a moderately individualistic culture (score: 60; The Culture Factor Group, 2023), emphasizing personal autonomy and individual achievement. In contrast, Vietnam (score: 20 on Hofstede's individualism dimension) is widely recognized as a collectivistic society, with an emphasis on an interdependent self defined through social relationships and group belonging (Hofstede, 2001). As a result, individuals from collectivistic cultures may be more likely to regulate emotions, prioritizing social harmony and group cohesion, while more individualistic cultures may place greater emphasis on emotional expression, autonomy, and personal well-being (Ramzan & Amjad, 2017).

EURO-ASIAN STUDIES ON PSYCHOLOGICAL AND ACADEMIC FUNCTIONING AMONG STUDENTS

Previous comparative studies involving Polish and Vietnamese students have primarily focused on educational attitudes and culturally shaped aspects of academic functioning, including study engagement, satisfaction with studying, filial piety (Różycka-Tran et al., 2021), and perceptions of safe learning environments (Domalewska et al., 2021), as well as body image, stigmatization, and eating-related behaviors

(Izydorczyk et al., 2021; Lipowska et al., 2019). Difficulties encountered by adolescents in almost any area of life often manifest as problems within educational settings in the Vietnamese context (Nguyen et al., 2022b). It has also been highlighted that the strong academic pressure present in East Asian societies may arise from Confucian values, parental expectations, and intense competition related to education and future employment (Pham, 2015). However, some evidence suggests that Vietnamese students report relatively high levels of psychosocial well-being in educational settings compared to students in Poland. (OECD, 2023).

PERSON-CENTERED APPROACH IN STUDIES ON INTERNALIZING AND EXTERNALIZING PROBLEMS AND ACADEMIC FUNCTIONING

Although quantitative research on internalizing and externalizing symptoms has used a wide variety of methodological and statistical approaches, most studies continue to rely on a variable-centered perspective. For example, Bjorkman (2007) indicated that internalizing and externalizing symptoms are linked to chronic academic stress and pressures related to the educational environment. Externalizing problems constitute a significant risk factor for poorer academic performance, and are consistently associated with student disengagement across childhood and adolescence (Olivier et al., 2020; Van der Ende et al., 2016; Walenista et al., 2025). In contrast, the role of internalizing symptoms appears to grow stronger among older students (Olivier et al., 2020). The findings also suggest a partially bidirectional relationship, as lower academic achievement may contribute to the intensification of behavioral and emotional problems (Van der Ende et al., 2016).

However, the variable-centered approach assumes a homogeneous population in which relationships between variables are considered uniform across individuals (Meyer & Morin, 2016). What can overlook the heterogeneity of internalizing and externalizing difficulties, which often manifest in diverse and overlapping ways across students. In turn, person-centered approaches acknowledge the possibility of distinct subgroups within the population that differ in their configuration of characteristics and underlying parameter patterns (Woo et al., 2018).

Previous studies using latent profile analysis (LPA) in the context of internalizing and externalizing symptoms focused primarily on children and adolescents, identifying distinct profiles (from three to four) characterized by varying levels of psychological difficulties, including internalizing, externalizing, mixed, and well-adjusted profiles (Espada et al., 2025; Gage, 2013; Li & Chen, 2026; Morales et al., 2021). These studies have also demonstrated associations between symptom profiles and psychosocial functioning, emotional regulation, social competence, as well as family and educational factors. However, there is still a lack of cross-cultural research in this context.

THE PRESENT STUDY

Given the increasing prevalence and severity of mental health difficulties among university students worldwide, together with the potential long-term consequences for well-being and later functioning, such as increased risk of dropout, and difficulties in labor market transition, investigating student mental health is essential for informing prevention and intervention efforts in higher education settings (Hakulinen et al., 2019; Porru et al., 2023). At the same time, the manifestation of psychological difficulties may be shaped by culturally specific norms; thus, person-centered approaches may be particularly useful for identifying culturally patterned configurations of psychological functioning.

To the best of the authors' knowledge, no previous study has explored latent profiles of internalizing and externalizing symptoms among university students in a cross-cultural context. Therefore, the present study uses a person-centered approach to investigate emotional and behavioral difficulties among students in Poland and Vietnam, aiming to identify patterns of psychological functioning. The identified profiles will also be examined in relation to demographic and education-related variables.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

The total sample comprised 1,753 university students, including 565 respondents from Poland and 1,188 respondents from Vietnam. The overall mean age was 20.45 years (SD = 4.77); Polish participants were older on average (M = 23.59, SD = 7.00) than Vietnamese participants (M = 18.96, SD = 1.82).

Although both samples were predominantly female, they differed in several sociodemographic characteristics. Compared with the Polish sample, Vietnamese participants were more likely to come from urban areas and to be single. Polish students more often combined studying with paid employment and were more frequently from towns or smaller cities. The samples also differed in religious affiliation, with Catholicism being dominant in Poland, whereas atheist/agnostic and Buddhist affiliations were more common in Vietnam. Additionally, chronic illnesses were reported more frequently among Polish participants. Details are presented in Table S1 (Supplementary materials).

PROCEDURE

Data were collected between May and December 2025 using the Profitest survey platform. The Polish sample was recruited from public and private universities located in the Tri-City area and Cracow, whereas the Vietnamese sample included students from universities in Hanoi. In both cases, recruited students represented various fields of study. Participation was voluntary and anonymous, with no compensation provided, and participants could withdraw at any time. This study was conducted as part of a larger research project on mental health in a cross-cultural context: "Applied Social Psychology in Intercultural Context" (ASPIC). The project received approval from the Research Ethics Committee at the University of Gdansk (no. 31/2025/WNS).

MEASURES

The study used instruments previously adapted into Polish and Vietnamese, as well as several scales not yet available in Vietnamese (e.g., measures of internalizing and externalizing symptoms, educational burnout). These measures were translated from English into Vietnamese and back-translated by independent bilingual experts.

Internalizing and externalizing symptoms. The Adult Self-Report (ASR) questionnaire (Achenbach & Rescorla, 2003), in the Polish adaptation by Zasępa and Wolańczyk (2011), was used to assess adaptive functioning and a broad range of psychological problems. This instrument was developed within the Achenbach System of Empirically Based Assessment (ASEBA). The ASR is a 126-item self-report measure designed for adults aged 18-59 years. The instrument includes eight syndrome scales: anxious/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior, and intrusive behavior (Zasępa & Wolańczyk, 2011).

Educational burnout. Educational burnout was assessed using the School Burnout Inventory (SBI; Salmela-Aro et al., 2009). Although the original scale includes nine items and three dimensions (emotional exhaustion, cynicism, and inadequacy), the Polish and Vietnamese adaptations (Bochniarz et al., 2025) use an eight-item, two-factor version combining cynicism and inadequacy. Responses were rated on a 6-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Previous studies have confirmed the instrument's good psychometric properties among university students (Bochniarz et al., 2025; Platania et al., 2020).

Study engagement. Study engagement was assessed using an academic adaptation of the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2002b), in which the original work-related items were modified to refer to studying (Carmona-Halty et al., 2019). The scale includes nine items measuring three dimensions of engagement: vigor, dedication, and absorption. Responses were provided on a 7-point Likert scale ranging from 1 (*never*) to 7 (*everyday*). Previous studies have supported the validity and reliability of the instrument among student populations (Różycka-Tran et al., 2021).

Additional questions. Sleep was evaluated using two questions: one measuring average sleep duration ("Please indicate how many hours you sleep on average per day…") and another assessing subjective sleep quality ("How satisfied are you with your sleep?"), rated on a 5-point scale from 1 (*very dissatisfied*) to 5 (*very satisfied*). Learning-related values were assessed with two statements: "Learning is ranked highly among my personal values" and "My parents believe that studying hard will ensure me a good future", both rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

OVERVIEW OF MEASUREMENT MODELING AND CONSTRUCTION OF LPA INDICATORS

The analytic goal was to derive psychometrically defensible, cross-nationally comparable indicators of student mental health problems and psychosocial functioning from the ASR and to use these indicators as inputs for LPA. Because the ASR items are ordinal (0–2), measurement modeling proceeded in a staged approach: (1) initial CFA of the original ASR structure; (2) exploratory refinement via iterative EFA/CFA resulting in a new item-level measurement model; (3) parcel-based multi-group invariance testing as a technical strategy to enable stable estimation; (4) computation of item-level factor scores for LPA indicators.

Step 1: Initial CFA of the original ASR structure. A confirmatory factor analysis (CFA) was first estimated in the total sample (N = 1,753) to evaluate the published ASR factor structure at the item level. Given the ordinal response format, the CFA was estimated using DWLS with robust standard errors and a categorical threshold parameterization. The original item-level model did not achieve adequate fit, indicating that the published structure did not sufficiently capture the covariance structure of responses in this cross-cultural student sample.

Step 2: Exploratory refinement and evaluation of the final item-level model. Because the original structure fit poorly, exploratory factor analyses (EFA) were conducted in the combined dataset to identify an empirically supported and substantively interpretable factor structure. EFA was based on a polychoric correlation matrix and estimated using minimum residual (MINRES) extraction with oblimin rotation. Par-

allel analysis with 100 iterations was used to inform the assessment of dimensionality, and alternative factor solutions were examined with respect to factor loadings, factor correlations, model fit, and substantive interpretability. Item retention and factor selection were guided jointly by statistical and substantive criteria. Items were preferentially retained when they showed a salient loading of at least .30 on the target factor without substantial cross-loadings on competing factors. Candidate factors were required to contain at least three substantively coherent items. Item content and the conceptual coherence of the resulting factors were also considered when evaluating alternative solutions. The final factor solution was therefore selected based on the overall pattern of factor loadings and substantive interpretability rather than on a single fit index or a purely mechanical statistical criterion. This process yielded a seven-factor model comprising 97 items. To avoid construct confusion and inadvertent comparability claims with the original ASR syndrome scales, factor labels were revised to align with the substantive content of the retained indicators. The final item-level CFA model included: (1) Interpersonal Distress and Negative Self-Concept (IDNSC), (2) Withdrawn, (3) Somatic Complaints, (4) Thought Problems, (5) Executive Dysfunction and Disorganization, (6) Aggressive and Rule-Breaking Behavior (AggRule), and (7) Emotional Dysregulation (EmoDys). The exploratory refinement and subsequent CFA model evaluation were conducted using the same combined sample (N = 1,753); no independent holdout sample was used. Accordingly, the final CFA should be interpreted as an evaluation of the fit of the empirically refined measurement model within the development sample rather than as an independent confirmatory validation. The final item-level CFA was estimated for the 97 ordinal indicators using DWLS and showed good in-sample fit (CFI = 0.971; TLI = 0.970; RMSEA = 0.054; SRMR = 0.077) with substantial standardized factor loadings.

Step 3: Parceling to enable tractable multi-group invariance testing. Multi-group measurement invariance (MI) testing with 97 ordinal items would require estimating a very large number of thresholds and parameters, potentially compromising numerical stability. Therefore, parceling was used solely as a technical device to reduce model complexity and enable stable multi-group estimation. For each factor, items were assigned to three balanced parcels based on standardized loadings (using serpentine allocation), and parcel scores were computed as the mean of constituent items. Because parcels are approximately continuous, parcel-level CFA and MI analyses were estimated using maximum likelihood estimation with robust standard errors (MLR).

Step 4: Parcel-level CFA and measurement invariance across countries. A parcel-level CFA (seven correlated factors, three parcels per factor) fitted in the total sample showed acceptable fit (robust CFI = 0.960; robust TLI = 0.950; robust RMSEA = 0.060; SRMR = 0.034). Measurement invariance across Poland and Vietnam was tested sequentially at the configural, metric, and scalar levels. As shown in Table S2 (Supplementary materials), the change in fit from configural to metric was minimal (ΔCFI = −0.002), supporting metric invariance. The change from metric to scalar was modest (ΔCFI = −0.010), while changes in RMSEA and SRMR remained small. Collectively, these results support approximate measurement equivalence of the parcel-level representation across countries. However, because invariance was not established directly for the 97 ordinal items, parcel-level scalar invariance should not be interpreted as evidence of item-level scalar invariance and provides only indirect support for the cross-national comparability of the item-level factor scores subsequently used in the LPA.

Step 5: Deriving LPA indicators from item-level CFA factor scores. Although parceling was used for MI testing, the indicators used in the LPA were derived from the item-level CFA in order to retain item-level information. Latent factor scores were computed for each participant for each of the seven factors from the 97-item model and served as continuous indicators in the subsequent LPA. Their cross-national comparability should be interpreted cautiously because MI was established only for the parcel-level representation. Thus, the parcel-level invariance results support comparability of the broader latent structure across Poland and Vietnam but do not rule out differential functioning of individual items across countries.

Step 6: Reliability and descriptive properties of the indicators. Reliability evidence supported the use of the seven factor scores as LPA indicators. Ordinal internal consistency was high (α = 0.861-0.947; ω = 0.795-0.901), composite reliability ranged from 0.875 to 0.951, and AVE ranged from 0.399 to 0.554 (details in Table S3, Supplementary materials). Descriptive statistics and between-country comparisons of factor scores are reported in Supplementary materials (Tables S4-S5).

ANALYTICAL STRATEGY: LATENT PROFILE ANALYSIS

LPA was conducted to identify relatively homogeneous profiles based on seven standardized factor scores (IDNSC, Withdrawn, Somatic, Thought, Executive, AggRule, EmoDys). A series of one- through six-profile solutions was estimated in R using tidy LPA, assuming equal variances across indicators and zero within-profile covariances. Model selection was based on multiple criteria, including log-likelihood, the Akaike information criterion (AIC), Bayesian information criterion (BIC), sample-size-adjusted BIC (SABIC), bootstrap likelihood ratio test (BLRT), en-

tropy, posterior classification probabilities, profile sizes, parsimony, and substantive interpretability. As shown in Table S6 (Supplementary materials), AIC, BIC, and SABIC decreased across successive solutions, and the BLRT remained significant for the two- through six-profile models, indicating that these indices did not identify a clear statistical stopping point. The four-profile solution was retained as a parsimonious and substantively interpretable representation that maintained high classification quality (entropy = .913; minimum posterior classification probability = .948) and contained no very small profiles, with class proportions ranging from 10.9% to 38.2%. Although the five- and six-profile solutions yielded lower information criteria, they produced progressively smaller classes, including profiles representing 7.1% and 4.2% of the sample, respectively. In addition, classification quality declined in the six-profile solution (entropy = .903; minimum posterior classification probability = .907). Accordingly, the four-profile solution was selected based on the combined consideration of statistical fit, classification quality, profile size, parsimony, and substantive interpretability rather than on any single fit criterion.

Next, the four-profile solution was evaluated in a multigroup framework in Mplus 8.11, treating countries as known classes. Three increasingly constrained models were compared: (M0) configural similarity (means and variances free across countries), (M1) structural similarity (class means equal, variances free), and (M2) dispersion similarity (class means and variances equal). Models were estimated with robust maximum likelihood (MLR) and extensive random starts (3,000 initial; 1,000 final) to reduce the risk of local maxima. Model selection relied on LL, AIC, BIC, and SABIC; classification quality was evaluated with entropy and posterior probabilities.

Associations between profile membership and external variables were examined separately within each country. For these analyses, participants were assigned to the profile with the highest posterior probability (most-likely class assignment). Categorical sociodemographic variables were examined using chi-square tests, whereas continuous sociodemographic and psychosocial variables were compared across profiles using one-way analyses of variance (ANOVAs). The use of most-likely class assignment was supported by high classification quality in both countries. Entropy was .920 in Poland and .936 in Vietnam. Average posterior probabilities for the assigned classes were .972, .947, .958, and .957 in Poland and .975, .958, .959, and .973 in Vietnam. The mean maximum posterior probability across participants was .954 in Poland and .963 in Vietnam. Thus, even the lowest class-specific average posterior probability was .947 in Poland and .958 in Vietnam, indicating relatively low classification uncertainty. Nevertheless, most-likely class assignment treats assigned profile membership as observed and does not explicitly account for residual classification uncertainty; this limitation was considered when interpreting associations with external variables.

RESULTS

MULTIGROUP LPA MODEL COMPARISON

Three multigroup LPA models were compared: configural similarity (M0), structural similarity with equal class means (M1), and dispersion similarity with equal class means and variances (M2). As shown in Table S6 (Supplementary materials), the configural model (M0) provided the best fit across information criteria (LL, AIC, BIC, SABIC). Imposing equality constraints on class means (M1) and then on both means and variances (M2) resulted in systematic deterioration of model fit, indicating that cross-national equality constraints were not supported. Despite these differences in fit, classification quality was excellent and virtually identical across models (entropy = .93; posterior probabilities = .96; Table S7), indicating highly reliable class assignment regardless of constraints. Therefore, the configural model (M0) was retained for interpretation.

PROFILE INTERPRETATION AND CROSS-NATIONAL DIFFERENCES

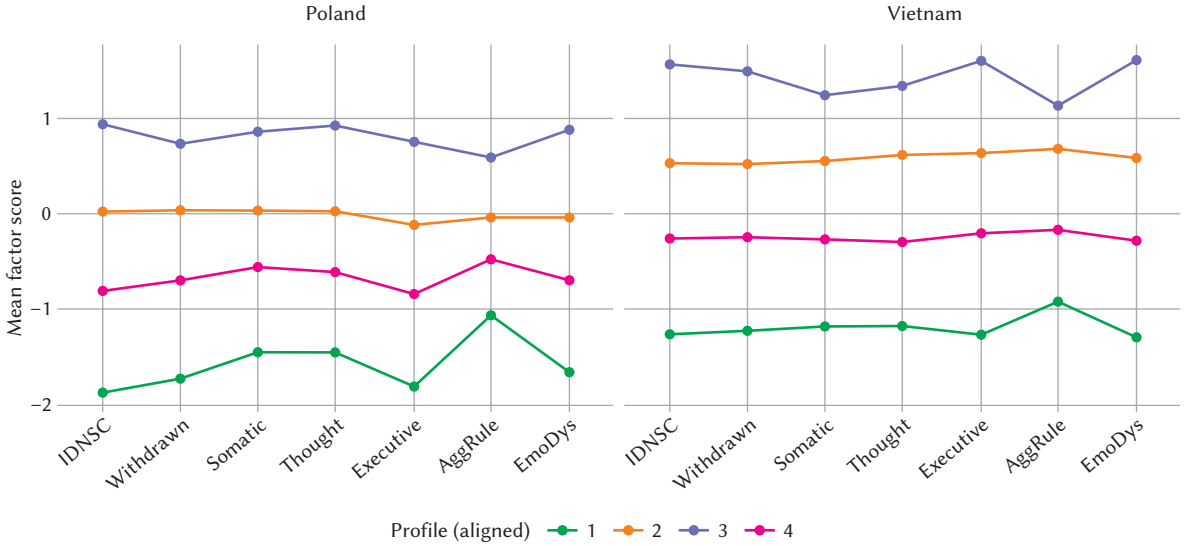
Figure 1 displays country-specific mean scores on the seven indicators for the four-profile solution. Across both countries, profiles were differentiated primarily by overall severity level, but profile levels and dispersion differed between Poland and Vietnam, consistent with the configural model being retained.

In both countries, Profile 1 represented a globally low-symptom group, with consistently low scores across domains (Poland: approximately −1.4 to −1.9; Vietnam: approximately −0.9 to −1.3). This profile was more extreme in Poland, suggesting a subgroup with particularly low levels of problems across domains. Profile 3 reflected a globally high-symptom group, but it was more pronounced in Vietnam (approximately 1.1 to 1.6) than in Poland (approximately 0.6 to 0.9), suggesting higher severity and greater homogeneity of the most impaired subgroup in Vietnam.

The intermediate profiles also differed across countries. In Poland, Profile 2 was characterized by near-zero scores across indicators, consistent with an average-functioning group. In Vietnam, the corresponding Profile 2 showed clearly above-average scores (approximately 0.5 to 0.7), placing it closer to the high-symptom profile. Profile 4 represented a moderately low group in both countries, but with different levels (Poland: approximately −0.5 to −0.8;

Figure 1

Country-specific latent profile means for the four-profile solution



Student mental health profiles in Poland and Vietnam

Vietnam: closer to the mean at approximately −0.16 to −0.29). Overall, the results indicate that although a common four-profile structure can be identified, the absolute level and dispersion of profiles vary meaningfully between countries.

Given that both profile means and within-profile variances differed across countries, subsequent analyses were conducted separately for Poland and Vietnam to avoid imposing unwarranted cross-national equivalence. Cross-national comparisons were therefore limited to qualitative comparisons of profile patterns rather than direct comparisons of profile levels. This conservative approach is also consistent with the fact that measurement invariance was established at the parcel level rather than directly for the item-level factor scores used as LPA indicators.

ASSOCIATIONS BETWEEN PROFILE MEMBERSHIP AND SOCIODEMOGRAPHIC CHARACTERISTICS

Associations between profile membership and sociodemographic characteristics were examined separately within each country using chi-square tests (Tables 1-2). Percentages represent the distribution of individuals across profiles within each category (rows sum to 100%).

In Poland, profile membership was not associated with gender; distributions of females and males across profiles were highly similar. Significant associations were observed for study–work status and year of study, indicating that profile membership related to educational context variables. In Vietnam, gender

Table 1

Distribution of latent profiles across sociodemographic categories in Poland

Variable	Profile 1	Profile 2	Profile 3	Profile 4	$\chi^2(3)$	*p*
Gender						
Female	7.2	38.9	29.8	24.2	1.78	.620
Male	10.5	38.1	25.7	25.7		
Study–work status						
Only studying	4.1	42.1	30.3	23.6	10.10	.018
Studying and working	10.9	36.1	28.6	24.5		
Year of study						
Higher years	8.5	39.2	25.5	26.8	11.50	.009
First year	5.7	38.4	37.9	18.1		

Note. Percentages indicate the distribution of individuals across profiles within each category (rows sum to 100%). Significant *p*-values ($p < .05$) indicate non-random differences in profile distribution across categories.

Table 2

Distribution of latent profiles across sociodemographic categories in Vietnam

Variable	Profile 1	Profile 2	Profile 3	Profile 4	$\chi^2(3)$	*p*
Gender						
Female	18.6	35.1	11.9	34.3	10.00	.019
Male	27.1	33.2	11.6	28.2		
Study–work status						
Only studying	20.6	34.2	11.6	33.5	1.52	.677
Studying and working	19.8	37.3	12.4	30.5		
Year of study						
Higher years (0)	20.7	36.1	12.5	30.8	2.05	.562
First year (1)	20.1	34.1	11.2	34.6		

Note. Percentages indicate the distribution of individuals across profiles within each category (rows sum to 100%). Significant *p*-values ($p < .05$) indicate non-random differences in profile distribution across categories.

Table 3

Means (and standard deviations) of external variables across latent profiles in Poland

Variable	Profile 1	Profile 2	Profile 3	Profile 4	$F(3, 561)$	*p*
Age	27.40 (8.43)	23.50 (6.88)	21.50 (4.10)	25.10 (8.53)	12.10	< .001
Standard of living	5.12 (0.70)	4.80 (0.84)	4.61 (0.96)	4.93 (0.88)	5.27	.001
Sleep quality	3.60 (0.88)	3.05 (0.90)	2.61 (0.89)	3.30 (0.89)	22.60	< .001
Learning values	4.12 (0.93)	3.98 (0.90)	3.92 (1.02)	4.07 (0.87)	0.92	.429
Parental study beliefs	3.84 (0.79)	3.91 (0.96)	4.10 (0.93)	3.90 (0.93)	1.92	.125
Educational burnout	−1.07 (0.76)	−0.09 (0.87)	0.64 (0.95)	−0.66 (0.89)	73.10	< .001
Study engagement	0.11 (0.98)	−0.24 (0.94)	−0.37 (0.95)	−0.09 (0.97)	3.97	.008

Note. Values are means with standard deviations in parentheses.

was significantly associated with profile membership, whereas study–work status and year of study were not, suggesting a different pattern of sociodemographic correlates across countries.

PROFILES AND EXTERNAL VARIABLES

To evaluate differences between profiles in continuous demographic and psychosocial variables, one-way ANOVAs were conducted separately within each country (Tables 3-4). In Poland, significant profile differences emerged for age, standard of living, sleep quality, educational burnout, and study engagement; no significant differences were observed for learning values or parental study beliefs. In Vietnam, significant differences emerged for standard of living, sleep quality, learning values, educational burnout, and study engagement; age differences were marginal, and parental study beliefs were not significant. Across both countries, profiles largely reflected a severity gradient, with more impaired profiles showing higher educational burnout and lower adaptive functioning indicators.

DISCUSSION

The present study used a person-centered approach to identify patterns of psychological functioning and their demographic and educational correlates among students in Poland and Vietnam.

Four profiles were identified in each country. Overall, the profiles were differentiated primarily by the level of psychological difficulties rather than by clearly distinct symptom configurations. At the same time, differences in profile severity and within-profile variability across countries indicated that the profiles should not be interpreted as fully equivalent latent groups. Accordingly, the findings provide evidence

Table 4

Means (and standard deviations) of external variables across latent profiles in Vietnam

Variable	Profile 1	Profile 2	Profile 3	Profile 4	$F(3, 1184)$	p
Age	19.20 (3.11)	18.90 (1.48)	19.00 (1.16)	18.90 (1.14)	2.55	.054
Standard of living	5.70 (0.91)	4.97 (1.07)	4.31 (1.19)	5.38 (1.02)	64.10	< .001
Sleep quality	3.90 (0.85)	3.30 (0.92)	2.95 (0.91)	3.60 (0.81)	44.40	< .001
Learning values	4.10 (0.99)	3.89 (0.91)	3.70 (1.10)	3.96 (0.91)	5.94	< .001
Parental study beliefs	4.29 (0.90)	4.16 (0.92)	4.23 (1.10)	4.18 (1.03)	0.98	.403
Educational burnout	−0.48 (0.91)	0.27 (0.89)	0.76 (0.93)	−0.14 (0.89)	72.00	< .001
Study engagement	0.57 (0.97)	0.02 (0.91)	−0.43 (1.11)	0.10 (0.96)	34.90	< .001

Note. Values are means with standard deviations in parentheses.

for similarities in the broad organization of psychological difficulties across the two samples, while also indicating that the specific distribution and severity of these difficulties differed between countries.

In Poland, Profile 1 represented a low-symptom group across all domains. This profile represented the smallest subgroup. Profile 2 was characterized by scores close to the sample mean and reflected a relatively average level across the measured domains. Profile 3 comprised students with elevated scores across all domains and represented the most burdened profile. Profile 4 reflected a moderately low-symptom group positioned between Profiles 1 and 2, with somewhat greater variability in executive dysfunction and aggressive/rule-breaking behavior.

In the Vietnamese sample, Profile 1 also represented a low-symptom group with reduced scores across all domains. Profile 2 occupied an intermediate position within the Vietnamese profile structure but was located closer to the high-symptom profile than to the low-symptom profile. Profile 3 represented elevated symptoms across all domains with a relatively uniform pattern. This profile represented the smallest subgroup. Finally, Profile 4 reflected a moderately low-symptom subgroup situated near the sample mean, with relatively even levels across indicators.

Moreover, profile 3 showed less within-profile variability in the Vietnamese sample than in the Polish sample, which may suggest that students with elevated psychological difficulties formed a more distinct subgroup in the Vietnamese sample, whereas symptom patterns in the Polish sample were more heterogeneous.

The predominance of a severity gradient rather than sharply differentiated symptom configurations suggests that internalizing and externalizing difficulties tended to co-occur in the present samples. This finding is broadly consistent with previous person-centered research reporting substantial co-occurrence between internalizing and externalizing problems (Aksoy et al., 2022; Morales et al., 2021). One possible explanation is that these domains may share underlying vulnerabilities that increase general susceptibility to psychological difficulties (Willner et al., 2016). Developmental processes may also contribute to such co-occurrence, as externalizing behaviors can be associated with adverse interpersonal experiences, including rejection, punishment, or conflict, which may subsequently increase vulnerability to internalizing difficulties (McElroy et al., 2018). However, because the present study was cross-sectional, these mechanisms cannot be directly evaluated here. The observed profiles should therefore be interpreted as patterns of co-occurring symptoms rather than evidence for particular developmental pathways. The finding that broadly similar profile structures emerged in Poland and Vietnam may be compatible with the view that some dimensions of psychological difficulties show cross-cultural regularities, while their expression and distribution may nevertheless vary across sociocultural contexts (Choudhury & Kirmayer, 2009; Liu et al., 2022). Importantly, the present data do not allow us to determine which specific cultural processes account for the observed differences. For example, previous literature has suggested that cultural norms concerning emotional expression, interpersonal relationships, and behavioral regulation may influence how psychological difficulties are experienced or expressed (Liddell & Williams, 2019; Song et al., 2024). Similarly, differences in attitudes toward mental health and help-seeking have been discussed in relation to stigma and social evaluation in some Asian contexts (Do et al., 2014). These processes may therefore represent possible explanations for some of the cross-national differences observed in the present study. However, collectivism, individualism, stigma, emotional-expression norms, and help-seeking attitudes were not directly assessed, and consequently their contribution to the observed profile differences cannot be established from the present data.

RELATIONSHIP BETWEEN PROFILE MEMBERSHIP, SOCIODEMOGRAPHIC CHARACTERISTICS, AND PSYCHOSOCIAL VARIABLES

The associations between profile membership and sociodemographic characteristics also differed between countries. The absence of a significant association in Poland should be interpreted descriptively rather than as evidence that gender-related processes are unimportant in the Polish context. In Vietnam, by contrast, gender was significantly associated with profile membership: male students were more frequently represented in the lowest-symptom profile, whereas female students were more frequently represented in Profile 4.

Several explanations for this pattern can be considered. Gendered expectations concerning emotional expression, communal behavior, and family responsibilities may differ across sociocultural contexts (Kosakowska-Berezecka et al., 2025). Studies conducted in Vietnam have also described expectations that women may combine educational or occupational achievement with traditional family responsibilities (Do et al., 2023; Nguyen et al., 2022a). Such expectations could potentially contribute to differences in psychological burden. Nevertheless, these interpretations remain hypothetical in the context of the present study because gender-role attitudes, family responsibilities, emotional-expression norms, and perceived social expectations were not measured. Therefore, the observed association between gender and profile membership should not be interpreted as evidence that traditional gender norms caused the observed differences.

The pattern observed for study–work status in Poland provides another example of an association for which several explanations are possible. Students who were only studying were less frequently represented in the lowest-symptom profile and more frequently represented in more burdened profiles, particularly Profiles 2 and 3, compared with students who combined studying with paid employment. One possible interpretation is that employment may be associated with greater financial resources or perceived autonomy, which could in turn be related to psychological functioning (Huertas-Hoyas et al., 2025). An alternative explanation is that students with better psychological functioning may be more able or willing to maintain employment alongside their studies. The cross-sectional design does not allow these possibilities to be distinguished. Thus, the present findings indicate an association between study-work status and profile membership but do not establish the direction or mechanism of this relationship.

Similarly, first-year students in Poland were more frequently represented in the most burdened profile. This pattern is consistent with previous research suggesting that the transition into university may involve substantial adaptation demands and stress (Bewick et al., 2010). However, the present study did not directly measure transition-related stress, adjustment difficulties, or changes in psychological functioning over time. Consequently, adaptation difficulties constitute a plausible interpretation rather than a mechanism demonstrated by the data. In Vietnam, study-work status and year of study were not significantly associated with profile membership, suggesting that the correlates of the observed psychological profiles may differ between the two samples.

Learning-related variables also showed different patterns across countries. In Poland, personal learning values did not significantly differentiate profile membership. In Vietnam, stronger learning values were observed in the least burdened profile. One possible explanation is that educational values may be particularly closely connected with personally meaningful goals in some sociocultural contexts. Previous research has suggested that educational aspirations and values can be related to family expectations, social obligations, and future security (Vansteenkiste et al., 2018). Such processes could potentially contribute to a stronger association between learning values and profile membership in the Vietnamese sample. However, because the present study measured learning values using only two items and did not directly assess family expectations, educational pressure, perceived purpose, or social obligations, these mechanisms remain speculative. The observed association should therefore be interpreted as an empirical relationship between reported learning values and profile membership rather than as evidence for a specific cultural mechanism.

Parental beliefs about the importance of studying did not significantly differentiate profile membership in either country. This finding suggests that the measured parental belief was not strongly associated with profile membership in the present samples. It does not, however, indicate that family expectations are irrelevant to student mental health. Family influence is multidimensional, and a single item concerning parental beliefs about studying may not adequately capture processes such as perceived pressure, emotional support, autonomy support, or family conflict. Thus, explanations based on parental expectations should be examined using more comprehensive measures in future research.

Standard of living was associated with profile membership in both countries. Students in the least burdened profiles reported higher standard-of-living levels, whereas students in the most burdened profiles reported lower levels. This finding is consistent with research linking socioeconomic conditions to psychological well-being and suggesting that eco-

nomic disadvantage may be associated with chronic stress and reduced access to social and psychological resources (Barry et al., 2022). Nevertheless, the present study was observational and cross-sectional. Therefore, the directionality of this association cannot be established. Psychological difficulties may also influence students' perceptions of their circumstances or their ability to obtain and maintain financial resources.

Educational burnout and study engagement differentiated profile membership in both countries. Students in profiles characterized by higher levels of psychological difficulties generally reported greater educational burnout and lower study engagement, whereas the least burdened profiles showed more adaptive academic functioning. These associations are consistent with perspectives suggesting that broader psychological difficulties may co-occur with impairment in academic and psychosocial functioning (Olivier et al., 2020; Williamson et al., 2021). At the same time, the direction of these relationships remains uncertain.

The findings also have implications for the cross-cultural assessment of psychological difficulties. The original ASR syndrome structure was not fully reproduced in the present multinational student sample, whereas the empirically refined seven-factor model provided an acceptable representation of the observed data. This result is consistent with previous research indicating both broad cross-cultural regularities in the organization of psychological symptoms and challenges in achieving stronger forms of measurement invariance across cultural contexts (Ivanova et al., 2015; Liu et al., 2021).

However, the present findings should not be interpreted as demonstrating that the seven-factor structure represents a culturally specific or universally superior organization of psychological difficulties. The factor structure was refined using the combined sample and evaluated within the same development sample, without an independent holdout sample. In addition, measurement invariance was evaluated at the parcel level rather than directly at the item level. The subsequent LPA indicators were derived from item-level factor scores. Therefore, the results provide support for broad comparability of the measurement representation across Poland and Vietnam, but they cannot exclude differential functioning of individual items across countries. This consideration is particularly important when interpreting differences in the absolute level of the latent profiles.

More generally, the cross-national differences observed in the present study should not be attributed to culture alone. The Polish and Vietnamese samples differed in several characteristics, including age, urbanicity, relationship status, employment, religious affiliation, and the prevalence of reported chronic illness. Moreover, participants were recruited from specific universities and geographical areas, and the Vietnamese sample was younger on average than the Polish sample. These differences represent potential alternative explanations for some of the observed cross-national variation. Consequently, the present findings may be best understood as differences between the two study samples rather than as effects of national culture.

STUDY LIMITATIONS AND FUTURE DIRECTIONS

A major limitation of this study is its cross-sectional design, which precludes conclusions on directionality or causality of the observed associations between variables. The study also relied solely on self-report measures, which may be influenced by response biases, social desirability, and culturally specific norms related to reporting psychological symptoms.

Moreover, the samples consisted exclusively of university students and were not nationally representative, which limits the generalizability of the findings. Both samples were dominated by women and urban students, and relatively few students from later years of study were included. Future research would benefit from longitudinal designs as well as more demographically diverse samples.

Furthermore, the ASR-derived measurement model demonstrated acceptable psychometric properties; however, the adapted factor structure may not be directly comparable to the original ASEBA scales, limiting comparisons with studies using the standard ASR configuration. Importantly, exploratory refinement and evaluation of the final item-level model were conducted using the same combined sample. Therefore, the favorable CFA fit indices should be interpreted as evidence of in-sample model fit rather than as independent confirmatory evidence for the seven-factor structure. Replication of this structure in an independent sample is needed. Future studies should further validate the adapted structure across different cultural and developmental populations and examine its comparability with the original ASR framework. The revised seven-dimensional model nevertheless provided a conceptually coherent representation of the measured psychological difficulties with favorable fit in the present sample and enabled the identification of interpretable latent profiles.

Another limitation concerns the fact that measurement invariance was evaluated at the parcel rather than item level to enable stable multigroup estimation with a large set of ordinal indicators, whereas the factor scores subsequently used as LPA indicators were derived from the item-level CFA. Although parcel-level invariance provides support for the comparability of the broader latent structure across

countries, it does not establish scalar invariance at the individual-item level. Parceling may reduce sensitivity to item-level noninvariance because differential item functioning may be attenuated or offset when items are aggregated (Little et al., 2002). Accordingly, the parcel-level scalar invariance results provide only indirect support for the cross-national comparability of the item-level factor scores, and direct comparisons of their absolute levels across Poland and Vietnam should be interpreted cautiously. This concern is partly mitigated by the subsequent multigroup LPA results, which did not support equality constraints on profile means and variances across countries; consequently, subsequent analyses were conducted separately by country and cross-national comparisons were limited to qualitative comparisons of profile patterns rather than direct comparisons of profile levels. Future studies should examine invariance directly at the item level using approaches such as alignment methods, targeted subsets of items, or item response theory (IRT)-based analyses.

A further limitation concerns the treatment of profile membership in analyses involving external variables. Sociodemographic and psychosocial comparisons were based on most-likely profile assignment rather than on a three-step procedure explicitly accounting for classification uncertainty. Although classification quality was high in both countries, assigning each participant to a single profile treats latent-profile membership as observed. Residual classification error may therefore attenuate or otherwise bias associations with external variables. Accordingly, these findings should be interpreted as associations based on most-likely profile classification. Future studies could use BCH or other three-step approaches to account explicitly for classification uncertainty when examining predictors and distal outcomes of profile membership.

CONCLUSIONS

Although conceptually similar profiles emerged in both countries, differences in profile levels, variability, and correlates indicate that psychological difficulties were not distributed identically across the two samples. These differences may reflect the broader sociocultural and contextual characteristics of the study populations, although specific cultural mechanisms were not directly assessed.

These findings also highlight the value of person-centered approaches such as LPA for capturing heterogeneity in psychological difficulties and support the potential value of culturally sensitive psychological support programs for university students.

Supplementary materials are available on the journal's website.

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