Research paper

Profiles of intolerance of uncertainty, separation anxiety, and negative affectivity in emerging adulthood: A person-centered approach

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ABSTRACT

Background: Although Intolerance of uncertainty (IU), separation anxiety, and negative affectivity seem theoretically interrelated, no empirical study has considered them jointly so far. However, deepening this topic is clinically relevant, especially during the delicate phase of emerging adulthood. This study aimed to pinpoint psychological profiles based on IU, separation anxiety symptoms, and negative affectivity in a group of Italian non-clinical emerging adults. Such profiles were then compared in terms of key psychological and psychosocial characteristics.
Methods: 868 young adults (73 % women) aged 18–26 years entered the study. They completed a socio-demographic survey and self-report tools assessing IU, separation anxiety symptomatology, and personality traits. Subgroups exhibiting distinctive patterns of IU, separation anxiety symptoms, and negative affectivity were identified using latent profile analysis. To deepen disparities in psychological and psychosocial features by profile, analyses of variance and chi-square tests were performed.
Results: Three profiles were detected, respectively with high, low, and moderate levels of the variables considered. In each profile, IU, separation anxiety symptoms, and negative affectivity had a consistent trend. The "High-level" profile had the greatest proportion of women and people who had not spent infancy with both parents.
Limitations: The sample included mainly women and university students, and data were collected using self-report questionnaires only.
Conclusions: IU, separation anxiety symptoms, and negative affectivity can co-occur, highlighting the importance of transdiagnostic interventions. Preventive efforts should be directed to emerging adult women and those who did not spend infancy with both parents, as they may be particularly vulnerable to internalizing distress.

1. Introduction

Intolerance of Uncertainty (IU) is 'the tendency to be bothered or upset by the (as yet) unknown elements of a situation, whether the possible outcome is negative or not' (Freeston et al., 2020, p. 6). People with high IU experience negative reactions from an emotional, cognitive, and behavioral point of view when facing uncertain situations, as they struggle to tolerate and regulate the elicited emotions (Bottesi et al., 2020; Buhr and Dugas, 2002). IU was originally identified as a core dimension of Generalized Anxiety Disorder (Dugas et al., 1998), but it is currently considered a trans-diagnostic and trans-situational construct given its involvement in a wide variety of psychopathologies and

unusual life conditions (Freeston et al., 2020), as, for example, the Covid-19 pandemic (e.g., Bakioğlu et al., 2021; Korte et al., 2022). The trans-diagnostic nature of IU is further sustained by its strong link with negative affectivity (i.e., neuroticism; Krueger et al., 2012), which is the tendency to over-react to negative emotions with fear, negative moods and cognitions, and pervading anxiety (Carleton, 2016; De Bruin et al., 2007). In particular, scholars suggested that IU may be intended as a predisposition originating from this personality dimension, also in light of the evidence outlining that treatment protocols to reduce IU were also effective in reducing negative affectivity (Carleton, 2016).

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1.1. IU in emerging adulthood

Uncertainty and high levels of IU can be experienced at different life stages, but one in particular may be strictly related to that, namely emerging adulthood. Emerging adulthood ranges roughly from 18 to 26 years old and defines a particular period distinct from adolescence and adulthood (Arnett, 2006; Yeler et al., 2021). It is a phase characterized by instability, identity exploration, growing possibilities, and the experience of feeling 'in-between'(Arnett, 2006). People struggle to acquire adult roles, risking ending up in distress and psychopathology. Consistently, Smith et al. (2011) collected interviews of emerging adults who defined this life stage as troubled, confusing, and depressing. To note, a dearth of existing research focused on non-student emerging adults, to the extent they have been defined as the "forgotten half" (Arnett, 2000). Reifman et al. (2007) found only one significant difference between emerging adult students and workers, which was a greater sense of possibilities for the first group. Additionally, an Italian study showed that student emerging adults felt higher levels of instability, but broader possibilities for identity exploration than working ones, while the latter perceived their lives as more secure and certain and appeared to be more self-focused (Crocetti et al., 2015).

Following extant evidence, IU can be considered a relevant construct to investigate in such a population. Although some studies have explored IU in adolescence (e.g., Bottesi et al., 2023a; Dugas et al., 2012; Lauriola et al., 2023; Malerba et al., 2022), very little research is available when it comes to emerging adulthood. Importantly, IU plays a role in depression and anxiety, a link that can be particularly dangerous for emerging adults (McEvoy and Mahoney, 2011). Recently, Yeler et al. (2021) showed that IU and perceived difficulty of life were predictors of a developmental crisis in emerging adults. Moreover, they showed that IU tended to decrease with age in young adults (Yeler et al., 2021). Another study on 2282 emerging adults from six countries showed that the psychological impact of Covid-19 was related to increased IU and that this affected their perception of the future (Lanz et al., 2021). For sure, the Covid-19 pandemic and the restrictions imposed have had a disruptive impact on the emerging adults' perception of uncertainty from a psychological, economic, and social standpoint (Lanz et al., 2021). As a whole, these findings suggest that shedding light on IU and negative affectivity in emerging adulthood may be particularly important, since the peculiar and uncertain conditions can put people at increased risk for psychopathology.

1.2. IU and separation anxiety symptoms

Separation Anxiety Disorder (SAD) was first identified in childhood and is characterized by an intense fear of separation from close attachment figures (American Psychiatric Association, 2000). However, separation anxiety symptoms are frequent also in adults, and the Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition-Text Revision (American Psychiatric Association, 2022) included Adult Separation Anxiety Disorder (ASAD) as a separate diagnostic condition. Symptoms include worry about actual or potential separations in general - such as from parents and partners - or important life changes (American Psychiatric Association, 2013a). Emerging adults with separation anxiety symptoms may struggle to face normative developmental challenges, such as getting married, moving from their parents' home, or becoming economically independent (Bassi et al., 2021). Moreover, separation anxiety symptoms in emerging adulthood may be linked to emotional liability, relational difficulties, and uncertainty about identity, which could be risk factors for their well-being (Bassi et al., 2021).

To date, IU has been widely studied in relation to anxiety disorders and internalizing psychopathology in general (see McEvoy et al., 2019), but less is known about its role in separation anxiety symptoms (Zemestani et al., 2022). IU can be very relevant when it comes to separation anxiety, as symptoms may be elicited by ambiguous situations: people may start feeling worried about harm befalling and adopt strategies to solve the ambiguity, such as excessively calling loved ones (Wheaton and Kaiser, 2021). This association can be reinforced in such an uncertain period as emerging adulthood. However, to our knowledge, only very few studies have explored this topic, and even less regarding emerging adults. For example, Boelen et al. (2014) reported that IU was significantly associated with ASAD symptoms in a sample of emerging adults, while this link was no longer evident if controlling for covariates, such as neuroticism and attachment style. Bottesi et al. (2023a) focused on non-clinical adolescents and underlined that IU may be linked to all anxiety-based disorders, including separation anxiety symptoms. This result was then further corroborated by a recent study that showed positive significant correlations between IU and separation anxiety symptoms in a sample of Italian non-clinical pre-adolescents and adolescents (Iannattone et al., 2023). Finally, Sevil Degirmenci et al. (2020) found significant associations between IU and ASAD symptoms in a group of pregnant women (aged 26.76 ± 5.15).

1.3. The current study

Most research on IU has been carried out using a variable-centered approach (e.g., regression analysis), exploring the relations between constructs (Gentes and Ruscio, 2011; Osmanağaoğlu et al., 2018). However, a person-centered approach (e.g., Latent Profile Analysis, LPA) has been shown to perform better in preserving the complexity and heterogeneity of single profiles, thus being particularly helpful to inform clinical practice (Kishida et al., 2022). Specifically, LPA is considered a robust and reliable technique used to classify individuals from a population into smaller and more homogeneous subgroups on the basis of their scores on continuous variables (Bauer and Curran, 2003; Berlin et al., 2014; Muthén, 2001). LPA is able to detect the presence of patterns of several variables within individuals that tend to recur between individuals, rather than the effects of specific variables on individuals (Hou and Zhang, 2023; Howard and Hoffman, 2018). Therefore, through the application of this method, it becomes possible to identify previously unobserved subgroups to better understand their hidden characteristics (Hou and Zhang, 2023; Oberski, 2016). Importantly, LPA seems an ideal approach for addressing topics of clinical interest because, compared with other methods, it is thought to provide a more realistic representation of what occurs in clinical practice (Da Silva et al., 2019).

To fill the above-mentioned gaps in the literature, the present research used LPA to identify meaningful psychological profiles based on IU, separation anxiety symptoms, and negative affectivity in a non-clinical group of Italian emerging adults. Moreover, profile membership was investigated in relation to some relevant psychological, demographic, and psychosocial characteristics, namely: level of state anxiety and depression, sex, being workers or students, being in a romantic relationship, and having spent infancy with both parents. As no study has assessed IU, separation anxiety symptoms, and negative affectivity jointly so far, the present research was mainly exploratory in nature.

2. Methods

2.1. Participants

Of the 905 who initially participated in the survey, 95.9 % fully completed the questionnaires and answered "Strongly agree" to all catch items (see the Procedure section). The incomplete surveys ($n = 26$) and participants who selected an option other than "Strongly agree" in any or all of the catch items ($n = 11$) were excluded from any further analysis.

Therefore, the final sample was composed of 868 young adults (73 % women) aged 18 to 26 years ($M = 22 \pm 1.87$). Specifically, most of them (65 %) were university students, while the remaining percentage (35 %) were workers. Among students, 54.9 % attended a humanistic faculty (e.

g., psychology), while 45.1 % a scientific faculty (e.g., engineering). Furthermore, about course year, 21.6 % attended the first year of the bachelor's degree/single-cycle degree, 27.7 % the second year of the bachelor's degree/single-cycle degree, 33.5 % the third year of the bachelor's degree/single-cycle degree, 8.1 % the fourth year of the single-cycle degree or the first year of the master's degree, 7.9 % the fifth year of the single-cycle degree or the second year of the master's degree, and 1.3 % the sixth year of the single-cycle degree. Among workers, 32.6 % were full-time employees, 26.1 % part-time employees, 17.5 % occasional employees, 0.4 % homemakers, 2.9 % unemployed, 0.2 % unable to work due to disability, and 15.7 % selected the option "other". Finally, considering the whole sample, 39.6 % of those who responded reported having undertaken a psychological treatment; in particular, among the main reasons were internalizing symptoms (e.g., anxiety, depression), and familial or school problems.

Table 1 presents the mean scores and Pearson's *r* correlations for each administered measure.

2.2. Procedure

Emerging adults between 18 and 26 years old were invited to participate in the present study through snowball sampling. Two links via *Google forms* were created to collect data, one for university students and one for workers. Participants had to fill out a socio-demographic survey and some standardized self-report questionnaires, assessing IU, separation anxiety symptoms, personality traits, and depression and anxiety symptoms. In addition, three catch items ("Please select the option 'Strongly agree' for this question to indicate that you are paying attention") were added randomly along the survey to evaluate participants' engagement and identify inattentive responding. The other possible answers provided were: 'Strongly disagree', 'Disagree', 'Neutral', and 'Agree'. The two forms only differed in some questions related to socio-demographic information. The link to get access to the forms was shared on social networks (e.g., Facebook, Instagram, Telegram). Before starting to fill out the questionnaires, participants had to read and sign an informed consent, where the study's aims, methodology, and privacy protection norms were detailed. The compilation lasted about 30 min and was held between March and May 2022. No reward was offered for participation. The project was approved by the local Ethics Committee for Research in Psychology and conducted according to the Declaration of Helsinki and the Ethical and Deontological codes of Italian Psychologists.

2.3. Measures

The *Sociodemographic schedule* asked questions about age, sex, level of education, working condition, current romantic relationship (yes/no), previous/current psychological treatment (yes/no), and information about infancy (i.e., spent with both parents or not).

The *Intolerance of Uncertainty Scale- Revised* (IUS-R; Walker et al., 2010) is a self-report questionnaire assessing IU. It consists of 12 items (e.g., "When I am not sure about what to do I get paralyzed") on a 5-

point Likert Scale, from 1 "Strongly disagree" to 5 "Strongly agree". Participants have to indicate to what extent they agree with each statement. Higher scores correspond to higher levels of IU. The IUS-R showed good psychometric properties across non-clinical undergraduates (Bottesi et al., 2015) and adults (Bottesi et al., 2019). In the present study's sample, Cronbach's alpha for the total score was α = 0.90.

The *Adult Separation Anxiety–27* (ASA-27; Manicavasagar et al., 2003) assesses separation anxiety symptoms in adulthood. Participants are asked to respond to the 27 self-report items (e.g., "Do you find that you talk a lot in order to keep people close to you?") using a 4-point Likert scale ranging from 0 "This has never happened" to 3 "This happens very often". The higher the total score, the greater the presence of adult separation anxiety symptoms. The Italian version of the questionnaire showed good validity and reliability (Mabilia et al., 2019). In the present study, Cronbach's alpha was α = 0.91.

The *Personality Inventory for DSM-5 Brief Form* (PID-5-BF American Psychiatric Association, 2013b) is a 25-item self-report questionnaire that assesses the five pathological personality domains negative affectivity, detachment, antagonism, disinhibition, and psychoticism. Participants rate each item on a 4-point Likert scale, from 0 "Very false or often false" to 3 "Very true or often true" (e.g., "Often my thoughts make no sense to others"). The greater the scores, the greater the dysfunction in each domain. The measure has acceptable psychometric properties (Fossati et al., 2017; Krueger et al., 2013). Given the aims of the current study, only the PID-5-BF Negative affectivity scale was used, and the Cronbach's alpha value was α = 0.57.

The *Patient Health Questionnaire – 9* (PHQ-9; Spitzer, 1999) is a 9-item self-report tool that assesses the presence and severity of depressive symptoms. Participants respond to each item (e.g., "Little interest or pleasure in doing things") referring to the last two weeks. The Likert scale has 4 points, from 0 "Not at all" to 3 "Nearly every day". The higher the total score, the greater the severity of depressive symptoms. In particular, a score higher than 9 would be of clinical interest (Kroenke and Spitzer, 2002). In our sample, all participants scored below this clinically meaningful cut-off score. The questionnaires showed good psychometric properties in different translations, including in Italian (Gilbody et al., 2007; Shevlin et al., 2022). In the present research, Cronbach's alpha was α = 0.86.

The *Generalized Anxiety Disorder-7* (GAD-7; Spitzer et al., 2006) is a 7-item self-report measure that evaluates symptoms of general anxiety and worries in the last two weeks. Participants rate their experience on a 4-point Likert scale, from 0 "Not at all" to 3 "Nearly every day" (e.g., "Worrying too much about different things"). The higher the total score, the greater severity of anxiety symptoms. More specifically, a GAD-7 score of 10 or greater is often used to reflect a score of clinical interest (Spitzer et al., 2006). In our study, 53.4 % individuals were above this cut-off. The tool showed good psychometric properties (Shevlin et al., 2022). In the present research, Cronbach's alpha was α = 0.88.

2.4. Data analysis

The main statistical analyses were performed in two steps.

In the first step, subgroups featured by distinctive patterns of IU, separation anxiety symptoms, and negative affectivity were identified by means of LPA. Specifically, the indicator variables were the standardized total scores on the IUS-R, ASA-27, and PID-5-BF Negative affectivity scale. To determine the optimal number of classes, a class enumeration procedure was used: a model with one class was first fitted, and then the number of classes was gradually increased until there was no further fit improvement in the model (Lubke and Muthén, 2007). Next, models with different numbers of classes were compared using the Bayesian Information Criterion (BIC; Schwartz, 1978), Akaike Information Criterion (AIC; Akaike, 1987), Integrated Classification Likelihood criterion (ICL; Biernacki et al., 2000), and Bootstrapped Likelihood Ratio Test (BLRT; McLachlan and Peel, 2004). Lower values on these fit indices are indicative of a better model fit (Nylund et al., 2007). In

Table 1
Correlation coefficients, mean scores, and standard deviation for each measure.

	$M \pm SD$	1	2	3	4
1. IUS-R	33 ± 9.91				
2. ASA-27	25.5 ± 13.2	0.51*			
3. PID-5 Neg. Affectivity	6.59 ± 2.94	0.54*	0.52*		
4. GAD-7	10.2 ± 5.26	0.55*	0.59*	0.56*	
5. PHQ-9	10.6 ± 6.08	0.45*	0.48*	0.54*	0.72*

Note. IUS-R = Intolerance of Uncertainty Scale- Revised; ASA-27 = Adult Separation Anxiety-27, PID-5 Neg. Affectivity = Negative affectivity scale of the Personality Inventory for DSM-5 Brief Form; PHQ-9 = Patient Health Questionnaire – 9; GAD-7 = Generalized Anxiety Disorder-7.

* $p < 0.001$.

particular, the BLRT tests whether the estimated model fits the data better than a model with one less latent profile, with a statistically significant value indicating a better fit of the estimated model. Moreover, entropy values were taken into account to assess the classification accuracy of each model. Higher entropy values represent greater classification accuracy; in particular, values >0.70 are generally preferable (Muthén, 2001). The sample size of each class was also evaluated, specifically deciding that models with a class with fewer than 5 % members should be rejected (Nylund-Gibson and Choi, 2018). Finally, the profiles of the chosen model were described considering mean age and proportion of members who had/had not undertaken a psychological treatment.

The second step was aimed at deepening possible disparities in psychological and demographic/psychosocial characteristics by profile. Specifically, Welch's Analysis of Variance (ANOVA) was run to verify whether the profiles differed significantly in both the scores on the scales included in the LPA (i.e., IUS-R, ASA-27, and PID-5-BF Negative affectivity scale) and the levels of state anxiety (i.e., GAD-7) and depression (i.e., PHQ-9). Since the assumption of homogeneity of variances was violated, Games-Howell post-hoc tests were chosen for pairwise comparisons. Furthermore, Chi-square (χ^2) tests were performed to analyze the associations between class membership and specific variables, namely sex (2 levels: woman vs. man), being a worker or a student (2 levels), being in a romantic relationship (2 levels: yes vs. no) and having spent infancy with both parents (2 levels: yes vs. no). Cramér's V was used as an index of effect size: $0.07 \leq V < 0.21$ indicates a small effect, $0.21 \leq V < 0.35$ a moderate effect, and $V \geq 0.35$ a large effect (Cohen, 1988).

The statistical significance level was established at $p < 0.05$. LPA was carried out using the mclust (Scrucca et al., 2016) and tidyLPA (Rosenberg et al., 2018) R packages, while the other analyses using the statistical software Jamovi (The jamovi project, 2022).

3. Results

3.1. LPA

Model selection. Table 2 shows the fit indices for the 1- to 6-profile models. Solutions with latent profiles resulted to fit the data better than a solution without latent profiles. In particular, all fit indices except entropy values indicated that a 5-profile solution was the best model. However, a percentage below 5 % of cases was found for the smallest profile of this solution, as well as for the 4- and 6-profile solutions; therefore, these models were all excluded. The 3-profile solution was then considered: it showed the best entropy value, the other fit indices were all acceptable, and each profile accounted for at least 5 % of cases. In light of these reasons, the 3-profile solution was chosen as the final fitted model.

Profiles identification and description. Fig. 1 provides a visual illustration of the profiles based on the standardized scores on the IUS-R, ASA-27, and PID-5-BF Negative affectivity scale. As can be seen, each profile had a peculiar trend on the selected scale. Specifically, the first profile comprised the lowest proportion of the sample ($n = 96$, 11.1 %; $M_{age} = 21.3 \pm 1.8$) and was characterized by high scores on all the

scales, thus it was called "High-level". The second profile ($n = 336$, 38.7 %; $M_{age} = 22.2 \pm 1.82$) showed low scores on all the scales, so it was named "Low-level". Finally, the third profile accounted for the greatest proportion of the sample ($n = 436$, 50.2 %; $M_{age} = 21.9 \pm 1.89$) and was featured by average scores on all the scales; hence the label "Moderate-level". In the "High-level" profile, most members had undertaken a psychological treatment ($n_{yes} = 63$, 65.6 %), while in the other two profiles most members had not ("Low-level": $n_{no} = 249$, 74.1 %; "Moderate-level": $n_{no} = 242$, 55.5 %).

3.2. Differences between profiles in psychological characteristics

Table 3 summarizes the results of Welch's ANOVA with profile membership as an independent variable and the IUS-R, ASA-27, PID-5-BF Negative affectivity, GAD-7, and PHQ-9 total scores as dependent variables. All the F values were statistically significant ($p < 0.001$). In particular, post-hoc tests revealed that the "High-level" profile scored significantly higher on all the scales compared to the other profiles; conversely, the "Low-level" profile scored significantly lower.

3.3. Association between profile membership and demographic/psychosocial characteristics

Chi-square tests showed significant, albeit small, associations between profile membership and sex ($\chi^2 (2) = 30, p < 0.001, V = 0.19$) and having spent infancy with both parents ($\chi^2 (2) = 11.2, p < 0.004, V = 0.11$). To be specific, although all profiles were mainly composed of women, the difference between the proportion of women and men was significantly higher in the "High-level" profile (89.6 % vs. 10.4 %) than in the other profiles ("Low-level": 63.9 % women vs. 36.1 % men; "Moderate-level": 76.4 % women vs. 23.6 % men). Similarly, although all profiles mainly included participants who spent infancy with both parents, the difference between the proportion of those who had and had not spent infancy with both parents was greater in the "Moderate-level" (81.2 % vs. 18.8 %) and "Low-level" (83.9 %, vs. 16.1 %) profiles than in the "High-level" profile (68.8 % vs. 31.3 %). No significant associations emerged for the other variables.

4. Discussion

The present research adopted a person-centered analytic approach with the aim to pinpoint psychological profiles based on IU, separation anxiety symptoms, and negative affectivity in a group of non-clinical emerging adults. Such profiles were then compared in terms of key psychological and psychosocial characteristics.

Our data elucidated three different profiles, named "High-level", "Low-level" and "Moderate-level". In each profile, IU, separation anxiety symptoms and negative affectivity had a consistent trend; specifically, the profiles were characterized by, respectively, high, low, and average scores on all the scales. Overall, these results would indicate that IU, separation anxiety symptoms, and negative affectivity can co-occur in emerging adults. Importantly, our findings expand knowledge on IU and negative affectivity as underlying various anxiety-related manifestations (McEvoy et al., 2019; Naragon-Gainey et al., 2018);

Table 2
Fit indices of the tested models.

Model	AIC	BIC	ICL	Entropy	Min. % cases	BLRT	BLRT p
1-profile	7399	7427	−7427	1	1		
2-profile	6861	6909	−7104	0.69	47.5	546	0.009
3-profile	6698	6765	−7013	0.74	10.8	171	0.009
4-profile	6655	6741	−7098	0.71	4.03	50.8	0.009
5-profile	6633	6738	−7197	0.68	4.38	30.7	0.009
6-profile	6641	6765	−7442	0.59	1.84	−0.32	0.861

Note. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; ICL = Integrated Classification Likelihood criterion; Min. % cases = percentage of cases in the smallest profile; BLT = Bootstrapped Likelihood Ratio Test.
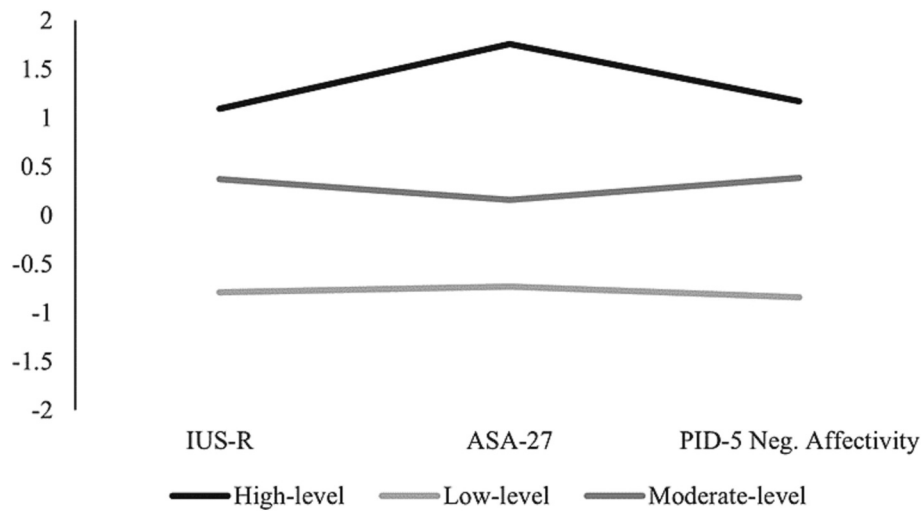
Fig. 1. Visual representation of the profiles based on the standardized scores on the Intolerance of Uncertainty Scale- Revised (IUS-R), Adult Separation Anxiety-27 (ASA-27), and the Negative affectivity scale of the Personality Inventory for DSM-5 Brief Form (PID-5 Neg. Affectivity).

Table 3
Results of Welch's ANOVA with profile membership as an independent variable.

		High-level (1)	Low-level (2)	Moderate-level (3)	
	F (df1, df2)	$M \pm SD$	$M \pm SD$	$M \pm SD$	Post-hoc comparisons
IUS-R	457 (2253)*	44.3 ± 8.01	24.6 ± 5.91	36.9 ± 7.54	2 < 3 < 1*
ASA-27	748 (2, 257)*	50.4 ± 8.89	15.4 ± 6.56	27.9 ± 8.78	2 < 3 < 1*
PID-5 Neg. Affectivity	519 (2, 268)*	10.1 ± 1.96	4.02 ± 1.94	7.79 ± 2.03	2 < 3 < 1*
GAD-7	331 (2, 283)*	2.39 ± 0.51	0.94 ± 0.55	1.66 ± 0.63	2 < 3 < 1*
PHQ-9	174 (2, 255)*	1.94 ± 0.66	0.78 ± 0.50	1.31 ± 0.59	2 < 3 < 1*

Note. IUS-R = Intolerance of Uncertainty Scale- Revised; ASA-27 = Adult Separation Anxiety-27, PID-5 Neg. Affectivity = Negative affectivity scale of the Personality Inventory for DSM-5 Brief Form; PHQ-9 = Patient Health Questionnaire – 9; GAD-7 = Generalized Anxiety Disorder-7.
   * $p < 0.001$.

indeed, these constructs appear to be involved in separation anxiety symptoms as well, which have been often overlooked in the literature on this topic (Zemestani et al., 2022). Therefore, although IU, separation anxiety symptoms and negative affectivity have been studied separately so far, further research investigating them together is warranted, especially in emerging adulthood. Moreover, it should be taken into account that, in line with the non-clinical nature of the sample, the "High-level" profile was composed of the lowest percentage of participants; at the same time, however, most participants were classified in the "Moderate-level" profile, not in the "Low-level" one. These data further support the relevance of IU, separation anxiety symptoms, and negative affectivity in emerging adulthood, suggesting that they may be peculiar features of this life stage, perhaps because of its inherent aspects of instability and uncertainty (Arnett, 2006). This notwithstanding, high or moderate IU, separation anxiety symptoms, and negative affectivity levels in emerging adults should not be underestimated, as they may be associated to negative short- and long-term sequelae for individual psychological well-being, including impairments in age-adequate functioning and symptoms of various internalizing problems (Bassi et al., 2021; McEvoy and Mahoney, 2011). To support this, people in the "High-level" profile had the highest levels of not only IU, separation anxiety

symptoms and negative affectivity, but also state anxiety and depression. This result is consistent with the frequent comorbidity between internalizing problems (Barlow et al., 2014), which can be partly explained by the role of IU and negative affectivity as vulnerability factors common to such problems (McEvoy et al., 2019; Naragon-Gainey et al., 2018). Furthermore, previous studies found that IU mediated or partially mediated the association between negative affectivity and different internalizing symptoms (including depression and generalized anxiety) in adult and undergraduate samples (Clarke and Kiropoulos, 2021; McEvoy and Mahoney, 2012). Consequently, emerging adults with marked separation anxiety symptoms may also be characterized by elevated levels of IU and negative affectivity; these, in turn, may promote a state of general internalizing distress, which can also take the form of generalized anxiety and depression symptoms under certain individual and environmental conditions.

Subsequently, although all profiles included mainly women, the "High-level" profile was characterized by the largest difference between the proportion of women and men. This fits with research showing that internalizing disorders, including separation anxiety, are more frequent in female than in male individuals in different age groups (Altemus et al., 2014; Poulton et al., 2001; Shear et al., 2006). In light of the above and our results, emerging adult women could represent an at-risk population, since they may be particularly likely to develop internalizing problems and, more specifically, separation anxiety symptoms. Indeed, emerging adulthood is itself a critical phase that could foster exacerbation of the aforementioned symptomatology, especially in conjunction with a pre-determined vulnerability such as sex; hence the importance of implementing targeted prevention efforts for girls and young women.

By the same token, although all profiles were mainly composed of individuals who spent their infancy with both parents, the difference between the percentage of those who had and had not spent infancy with both parents was lower in the "High-level" profile than in the other profiles. This result would suggest the existence of a relation between not spending infancy with both parents and the co-occurrence of IU, separation anxiety symptoms, and negative affectivity at high levels in emerging adulthood. However, it must be considered that not spending infancy with both parents is not itself a risk factor for the development of internalizing symptoms, as a multiplicity of factors can interact to elicit them (Sameroff, 1998). Therefore, other variables, such as attachment style, may intervene in explaining the relation found in the current study. Actually, attachment style is an important feature in the developmental tasks of re-negotiating the relationship with parents and starting new ones in emerging adulthood (Arnett, 2006). Future studies

with more focus on this aspect are suggested.

Instead, no significant differences emerged as regards being workers or students and being or not in a romantic relationship. These findings, if interpreted together with the previous ones, could mean that IU, separation anxiety symptoms, and negative affectivity are linked to emerging adulthood per se, regardless of the individuals' work and relationship status. Nevertheless, it should be acknowledged that we did not collect data on the quality and characteristics of either the work/study course or the relationship. Therefore, it could also be that IU, separation anxiety symptoms, and negative affectivity levels in emerging adulthood are associated with some specific features of occupation and marital status (e.g., functional or dysfunctional relationship, job satisfaction, etc.). Additional research is required to develop a full picture of this topic.

Finally, it is worth noting that the majority of the people in the "High-level" profile reported having undertaken a psychological treatment, while in the other two profiles most people reported having not. In light of the features of the "High-level" profile, its members would seem to be characterized by high levels of IU and negative affectivity, which – as pointed out earlier – are predisposing factors to internalizing distress. Consequently, it could be hypothesized that these individuals, at some point in their lives, experienced a peak of psychological distress, which was perceived as difficult to manage and interfering with their daily function and quality of life, leading them to seek psychological support. Another possible explanation of this result is linked to the self-report nature of the questionnaires administered; indeed, people who scored higher might be more aware of their difficulties, thus also more prone to ask for psychological help. Despite being tentative and descriptive, our data call attention to the need for early detection of signs of psychological distress, since, if underestimated, they can evolve into a different and/or more severe symptomatology. At the same time, however, it should be considered that the reasons why people have undertaken a psychological treatment and the characteristics of the latter are unknown to us. Therefore, caution must be applied in the interpretation of our finding, which offers an important avenue for future investigations.

Some limitations should be mentioned. First, the sample was mainly composed of women and university students; in addition, participants were only Italian, limiting the generalizability of the findings to emerging adults from different countries and cultural backgrounds. Another noteworthy shortcoming linked to the characteristics of the sample is that we collected data from unscreened non-clinical emerging adults only; however, it would be relevant to involve clinical individuals as well. Secondly, data were collected online and using self-report questionnaires, which may increase the relations among variables and be subject to some biases; hence, they should be supported by other kinds of tools, especially because most of the information was retrospective. For example, using behavioral measures (e.g., to assess reaction to uncertainty) and clinician interviews or other qualitative assessment tools may add relevant information and introduce variability in measurement. Therefore, future studies should further investigate this topic, preferably using a multimodal and multimethod approach. Thirdly, internal consistency of the PID-5-BF Negative affectivity scale was rather low, in line with the result obtained in the only available Italian study conducted on a non-clinical adolescent sample (Fossati et al., 2017). Finally, the cross-sectional study design limits the identification of causal relations and the investigation of longitudinal stability or transition between profiles over time.

5. Conclusions and practical implications

To our knowledge, this is the first study applying LPA to explore IU, separation anxiety symptoms, and negative affectivity in emerging adults, thus providing valuable insight into the patterns of these constructs. People high (or low) in IU and negative affectivity were found to be high (or low) in separation anxiety symptomatology as well (and vice versa), supporting their co-occurrence. From a practical perspective, these findings would underscore the importance of considering IU and

negative affectivity in preventive and treatment interventions for separation anxiety symptoms in emerging adults. In particular, the suggestion arising from current evidence is that programs encompassing a module promoting the use of flexible and adaptive strategies to deal with uncertainty and negative emotions may be promising in preventing and treating separation anxiety symptoms. These considerations gain even greater relevance when declined in emerging adulthood, an 'in-between' period often neglected in literature, although it is fraught with uncertainty in several domains and could increase distress, especially in a post-Covid-19 era (Lanz et al., 2021). To support this, our results suggest that emerging adults may per se be vulnerable to developing high/moderate levels of IU, anxiety symptoms, and negative affectivity. Importantly, separation anxiety symptoms, if not adequately recognized and treated, could lead to subsequent difficulties in facing normative developmental tasks (Bassi et al., 2021). Therefore, preventive efforts addressing dysfunctional beliefs about IU and negative emotions appear to be paramount to contrast the development of uncertainty and emotional distress in emerging adults, thus ultimately promoting psychological well-being and avoiding the onset of psychopathology in general and separation anxiety symptoms specifically. Moreover, our results might be applied to clinical populations, as they suggest that transdiagnostic interventions targeting IU and negative affectivity in emerging adults may be beneficial in treating separation anxiety symptoms and comorbid distress simultaneously (Carleton, 2016), thus enhancing improvements and their maintenance after treatment. In keeping with this, CBT interventions addressing such transdiagnostic factors were found to be effective in reducing clinical symptomatology (regardless of primary diagnosis) and emotional distress in different populations (Boswell et al., 2013; Khakpoor et al., 2020; Mofrad et al., 2020; Talkovsky and Norton, 2016, 2018), including emerging adult university students (Bottesi et al., 2023b).

In conclusion, we hope that the current study may set the frame for additional research investigating IU, separation anxiety, and negative affectivity in the whole emerging adult population, thus leading to increasing consideration of the 'forgotten half' (Arnett, 2006).

Ethics approval

The study was approved by the Ethics Committee for Psychological Research of the University of Padova and was conducted in accordance with the Declaration of Helsinki.

Consent to participate

Written informed consent was obtained from all the participants.

CrediT authorship contribution statement

Conceptualization: Daniela Di Riso, Gioia Bottesi; Methodology: Sara Iannattone, Daniela Di Riso, Gioia Bottesi; Formal analysis: Sara Iannattone; Investigation: Silvia Spaggiari, Daniela Di Riso, Gioia Bottesi; Writing - original draft preparation: Sara Iannattone, Silvia Spaggiari; Writing - review and editing: Daniela Di Riso, Gioia Bottesi; Supervision: Daniela Di Riso, Gioia Bottesi. All authors read and approved the final manuscript.

Declaration of competing interest

The authors have no competing interests to declare that are relevant to the content of this article.

Data availability

The data that support the findings of this study are available from the corresponding author, S.I., upon reasonable request.

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