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Psychological distress and well-being in university and high school students: a cross-sectional study in Italy

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ABSTRACT

Objective Adolescence is a transitional period marked by psychosocial changes that can impact well-being. Mental disorders before university are linked to dropout and lower employment rates, affecting long-term outcomes. This study examines the psychological well-being of Italian students aged 18–25, exploring factors related to distress.

Design Cross-sectional survey.

Setting High schools and university in Verona, northern Italy.

Participants A total of 1766 students (88.96% university students and 11.04% high school students in their final year) were recruited. Inclusion criteria were being enrolled in high school or university in Verona, aged 18–25, with adequate Italian language proficiency and informed consent. No exclusion criteria were applied.

Primary and secondary outcome measures Primary outcomes were levels of psychological distress (Kessler Psychological Distress Scale-10-item - Kessler-10), anxiety and depression (Patient Health Questionnaire Anxiety and Depression Scale - PHQ-ADS) and well-being (WHO-Five Well-Being Index - WHO-5). Secondary analyses examined the association of these outcomes with sociodemographic and educational variables.

Results Most participants (88.6%) reported psychological distress (mean K-10=22.95, SD=6.64). Mild symptoms of anxiety and depression were reported by 47.1% and 43.3% of participants, respectively. Only 16.5% reported high psychological well-being. Female and non-binary students had worse mental health outcomes than males (p value <0.001). Students in their first 3 years of university exhibited better mental health compared with those in later years or high school (p value <0.001). Students living in owned properties had lower levels of anxiety and depression (p value=0.004).

Conclusions Psychological distress, anxiety and depression are widespread among Italian students. Gender, academic stage and living situation significantly impact mental health outcomes. The findings emphasise the need for targeted mental health interventions, particularly for non-binary and female students, as well as those in advanced academic years.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Large sample size: The inclusion of 1766 students from both high school and university settings provides a broad perspective on student mental health and enhances statistical power.
⇒ Use of validated measures: Psychological distress, anxiety, depression and well-being were assessed using well-established, validated self-report scales (Kessler Psychological Distress Scale-10-item, Patient Health Questionnaire Anxiety and Depression Scale, WHO-Five Well-Being Index), enhancing the reliability of the collected data.
⇒ Design: The study's design limits the ability to infer causal relationships between psychological distress and associated factors, requiring longitudinal research for better insight into temporal effects.
⇒ Advanced statistical methods: The use of multiple imputation for missing data and seemingly unrelated regression (SUR) modelling ensured a rigorous analytical approach to examining associations.
⇒ Possible selection bias: As participation was voluntary, students experiencing higher levels of distress may have been more likely to engage in the study, potentially overestimating the prevalence of mental health issues.

BACKGROUND

Adolescence is a time for young people to have a healthy start in life and for laying the foundations for psychological well-being. It represents a transitional period to early adulthood during which young people face new social and cultural demands and expectations and are required to make important decisions about their future. This developmental stage is marked by psychosocial and biological changes and is often accompanied by lingering uncertainties about adulthood and persistent anxieties regarding future directions in life.[1] These factors can significantly affect young people's general well-being. Adolescents may experience physiological and emotional transitions, face issues related to self-image and identity, and engage in risk-taking behaviours.[2] The combinations of these factors can have a profound impact on both their mental and physical health, negatively affecting their development and hindering their present and future functioning and

well-being.[3] There is evidence that many mental disorders diagnosed in adulthood have early manifestations in adolescence[4 5] and early adulthood,[6] with 50% of cases emerging before the age of 14 and 75% by the mid-20s.[7] This period is particularly critical, as young people may be especially vulnerable to the negative effects of stress, a well-established risk factor for mental health disorders. The characteristics of psychological distress include a lack of enthusiasm, desperation about the future and symptoms of anxiety.[8] Globally, it is estimated that mental health conditions affect about one in seven children and adolescents aged 10–19.[9 10] The literature indicates that adolescence is characterised by an increased vulnerability to anxiety and depressive symptoms.[11] Data show that depression is one of the leading causes of disability among young people,[7 12] with the prevalence of adolescents reporting major depressive disorder symptoms that has nearly doubled in the last decade, increasing from 8.3% in 2008 to 14.4% in 2018.[13 14] In Italy, depressive disorders are reported to affect 3.6% of adolescents (ages 15–19), with a higher prevalence among females (4.7% females and 2.5% males).[15 16] Moreover, it is important to consider that suicide is the fourth leading cause of death among adolescents worldwide.[7] The rise in mental health issues appears to have a relevant impact on key domains of adolescents' lives, including social and academic life.[17 18] This is because distress can potentially affect psychosocial competencies that help people to be more aware in the decision-making process and motivation,[19] in problem-solving and critical thinking, in developing safe relationships and managing their lives in a healthy and productive way.[20] In the academic domain, studies show that poor psychological health interferes with academic engagement and success,[1] being strongly associated with school absenteeism, low academic performance and school dropout ideation,[21] as well as low educational aspirations and poorer academic achievement, which in turn may exacerbate depressive symptoms.[11] Furthermore, mental disorders that manifest before university matriculation appear to be strong predictors of dropping out.[17] More broadly, they are also associated with lower employment rates in adulthood.[22] The findings of these studies are particularly important because young adulthood confronts students with some of the most significant decisions of their lives, such as the potential choice of university faculty, which can have long-term personal and professional consequences. The study of the prevalence of psychological distress at sensitive periods of life is crucial for developing interventions that can prevent or reduce mental problems.[23] If untreated, mental disorders that emerge before adulthood can determine a high cost in terms of health, quality of life and occupational choices for the individual, as well as leading to potential health costs up to 10 times higher than those associated with conditions that develop later in life.[24] While a general increasing trend in psychological disorders has been observed over the last two decades, most research has been done in Canada,[25] the USA and several European countries, like Sweden,[26] Norway,[27] France[28] and the UK,[29] with few exceptions of studies focused on Italian students.[15 30 31] A slight decline in mental well-being has been observed in Italy in the last decades.[32] It emerges that a global overview of the prevalence of mental health problems in young people aged between 18 and 25 is poor. However, this would be essential for promoting preventive strategies and supportive treatments. Based on this theoretical framework and existing literature, the present study aimed to investigate the psychological attitude of Italian students aged 18–25, focusing on variables potentially associated with psychological distress.

MATERIALS AND METHODS

Study design and data collection

The study consisted of a cross-sectional online survey of students aged 18–25. The target population included students attending the last year of high school in Verona and engaged in orientation classes coordinated by the University of Verona and students attending the University of Verona. Participants were eligible to participate in the study if they met the following criteria: (a) being a student aged 18–25, attending the last year of a high school in Verona or the University of Verona; (b) having sufficient mastery (written and spoken) of Italian; (c) providing an informed consent, before entering the study. No exclusion criteria were applied.

Data were collected through a fully anonymised, web-based survey designed using LimeSurvey, to facilitate distribution and completion. Participation was voluntary and no incentives were offered to participants recruited through brief in-class announcements related to the study and through flyers, emails and other communication strategies. Participants were informed that they could withdraw from the study any time they wished and that the choice to participate, decline or withdraw would not impact their academic career. Completion of the questionnaire took 10 min. Once the survey ended, the data were downloaded from LimeSurvey and securely stored in a password-protected comma-separated values file for further analysis.

The research protocol received ethical approval from the Institutional Review Board of the University of Verona (n. 05.R1/2023).

Patient and Public Involvement

Patients or the public were not involved in the design, or conduct, or reporting, or dissemination plans of our research.

Measures

Using LimeSurvey, students were asked to complete an assessment that included an ad-hoc sociodemographic information page (age, gender, living conditions, characteristics of their course of study), as well as four self-administered questionnaires measuring psychological

distress, depression and anxiety symptoms, and psychological well-being.

To assess the psychological distress, we used the Kessler-10 scale (K-10).[33] This is a 10-item self-report questionnaire to screen broadly for psychological distress experienced in the past 30 days. Each item is rated on a five-point Likert scale ranging from none of the time to all of the time. The K-10 has robust psychometric properties and strong discriminatory power to distinguish Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition cases from non-cases[33] (online supplemental file 1). Depression and anxiety symptoms were assessed using the Patient Health Questionnaire Anxiety and Depression Scale (PHQ-ADS). The PHQ-ADS is a 16-item self-reported instrument that combines the nine-item Patient Health Questionnaire depression scale (PHQ-9) and seven-item Generalized Anxiety Disorder scale (GAD-7) into a composite measure of depression and anxiety.[34] Respondents were asked how much each symptom bothered them over the past 2 weeks, with response options of "not at all", "several days", "more than half the days" and "nearly every day", scored as 0, 1, 2 and 3. The scale ranges from 0 to 48, with higher scores indicating higher levels of depression and anxiety symptoms (online supplemental file 1). Finally, psychological well-being was assessed through the WHO-Five Well-Being Index (WHO-5). This is a 5-item questionnaire measuring current psychological well-being and quality of life, rather than psychopathology. Scores range from 0 to 25 and the scale has demonstrated sensitivity to change in well-being and is available in numerous languages[35] (online supplemental file 1).

Analysis

Statistical analysis was conducted using Stata 18.[36] We performed a descriptive analysis of each of the four clinical scales (K-10, GAD-7, PHQ-9, WHO-5) and of the study population features: age, gender, living conditions (whether in a house of property or not, and with whom) and characteristics of their course of study (whether in their last year of high school or at university and, in the latter case, in which study area and in which academic year). Absolute frequencies and percentages were used to describe the levels observed; whereas, means and SD were employed to report scale scores. Clinical scales were also grouped according to the following categories: absence (0–15) vs presence (16–50) of psychological distress for K-10; absent or minimal (0–4), mild (5–9), moderate (10–14) or severe (15–21) anxiety for GAD-7; absence of (0–4), subthreshold (5–9), mild (10–14), moderate (15–19) or severe (20–27) depression for PHQ-9; high (17–25), medium (9–16) or low (0–8) psychological well-being for WHO-5. Both for means and SD, and for absolute numbers and percentages, only complete scales (ie, scales without any missing items) were considered.

Missing data were then imputed using the 'ice' Stata routine.[37 38] Upper and lower bounds were set for clinical scales with missing values only at the scale level as appropriate, while, in the case of continuous clinical measures with missing values only on some items, imputation followed the approach reported by Plumpton *et al*,[39] that is, we used scale totals within prediction equations and, for imputations of responses to individual scale items, we additionally included the responses to the other scale items. Single-item scores were considered as ordered categorical variables. The number of imputed samples was determined by following the rule of thumb suggested by White *et al*,[40] that is: "at least equal to the percentage of incomplete cases". We rounded such number to the nearest multiple of 10 above, and then tested whether such number was at least equal to the upper limit of the 95% CI of the number resulting from the quadratic rule described by von Hippel,[41] by using the Stata "how_many_imputations" command.[42] In case the number of performed imputations was lower, we updated the number of imputations (again, by rounding the one resulting from the quadratic rule to the nearest multiple of 10 above) and repeated the test.

A global model with seemingly unrelated regression (SUR) equations[43] was performed, having as outcomes the total scores of PHQ-ADS, K-10 and WHO-5; in case of global statistical significance of the coefficients associated to the predictors of interest (age, gender, living in a house of property or not, with whom the person was living, educational period), we proceeded to perform the three single regressions. A global test across the three regressions was also performed for each predictor separately, and only in case of its statistical significance results from single regressions were considered. Finally, pairwise correlations between clinical scales were calculated.

The imputed datasets were used both to perform the regressions and to calculate the correlations.

RESULTS

Description of the sample

Students who provided informed consent and completed the assessment were 1766, with most attending university (88.96%) while the others were in their final year of high school (table 1). In total, 2576 students were invited to participate in the study between February 2023 and June 2024: 2296 university students and 280 high school students. Among university students, 520 did not complete the survey and 204 did not meet the inclusion criteria, resulting in 1572 eligible participants. Among high school students, 86 did not meet the inclusion criteria due to being under 18 years of age, yielding 194 final participants.

The sample of students was predominately female (77%), with a mean age of 21.4 years. Most students lived with their parents (74.9%) in a property house (69.8%). The characteristics of the course of study and the year of enrolment for university students are detailed in table 1, with most students attending the first 3 years of university (89.4%) and being enrolled in Business or Medicine and Surgery degree programmes.

Table 1 Descriptive statistics on sociodemographic variables

	N/N	%
Study (n=1766)		
High school	194	11.04
University	1572	88.96
Gender (n=1757)		
Male	398	22.65
Female	1353	77.01
Non-binary*	7	0.34
Age (n=1682)		
Mean (SD)	21.35	1.66
Range	18–25	
≤20	544	32.34
21–23	941	55.95
24–25	197	11.71
Area of study of university students (n=1429)		
Business	315	22.04
Philosophy and social work	152	10.64
Legal	72	5.04
Humanities, arts and communication	114	7.98
Foreign languages and literatures	141	9.86
Medicine and surgery	327	22.88
Science and engineering	213	14.91
Motor sciences	95	6.65
Year of attendance of university students (n=1559)		
First year of university	305	19.56
Second year of university	452	28.99
Third year of university	636	40.80
Fourth year of university	71	4.55
Fifth year of university	69	4.43
Other	26	1.67
Type of housing in which they live (n=1551)		
House owned	1083	69.83
House for rent	436	28.11
Other	32	2.06
Who they live with (n=1562)		
Parents	1170	74.90
Flatmates	317	20.29
Partner	27	1.73
Partner and children	3	0.19
Alone	31	1.99
Other	14	0.90

*Either replying “Yes” to “Other” or “No” to all three options (Female/Male/Other).

Table 2 Clinical variables (n=1766)

K-10	N	%
Absence of psychological distress	200	11.4
Presence of psychological distress	1554	88.6
Total	1754	
Mean (SD)	22.95 (6.64)*	
GAD-7	N	%
Minimal anxiety	295	16.9
Mild anxiety	824	47.1
Moderate anxiety	444	25.4
Severe anxiety	187	10.7
Total	1750	
Mean (SD)	8.46 (4.29)†	
PHQ-9	N	%
Absence of depression	343	19.7
Subthreshold depression	752	43.3
Mild major depression	429	24.7
Moderate major depression	157	9.0
Severe major depression	56	3.2
Total	1737	
Mean (SD)	8.68 (4.86)‡	
WHO-5	N	%
High psychological well-being (17–25)	286	16.5
Medium psychological well-being (9–16)	989	57.2
Low psychological well-being (0–8)	455	26.3
Total	1730	
Mean (SD)	11.63 (4.65)§	

*Mild/moderate level of psychological distress.
†Mild level of anxiety.
‡Mild level of major depression.
§Medium to low level of psychological well-being.
GAD-7, seven-item Generalized Anxiety Disorder scale; K-10, Kessler-10 scale; PHQ-9, nine-item Patient Health Questionnaire depression scale; WHO-5, WHO-Five Well-Being Index.

The clinical characteristics of the sample are presented in table 2.

The K-10 scale showed that most participants (88.6%) reported some psychological distress, with only 11.4% indicating an absence of distress. The average distress score was 22.95 (SD=6.64), showing mild to moderate levels of psychological distress. The GAD-7 scale revealed that most participants experienced at least mild anxiety. Specifically, 47.1% of participants reported mild anxiety, 25.4% experienced moderate anxiety and 10.7% reported severe anxiety; only 16.9% were classified as having minimal anxiety. The mean score was 8.46 (SD=4.29), showing that anxiety symptoms were widespread, though mainly in the mild to moderate range. Depression levels were similarly high, with 43.3% of participants falling into the subthreshold depression category, and 24.7% reporting mild major depression; the proportion of participants with moderate to severe major depression was lower (12.2%), but still significant. The average PHQ-9 score was 8.68 (SD=4.86), showing that, overall, participants exhibited mild depressive symptoms. Regarding psychological well-being, the WHO-5 scale showed a predominance of

medium to low well-being (mean=11.63; SD=4.65). Only 16.5% of participants reported high psychological well-being; the majority (57.2%) reported medium well-being, while 26.3% indicated low well-being.

Association between variables and outcomes

The rate of observations with at least one missing value was 22.94%. The iterative procedure described in the Methods section to select the number of imputed datasets to use led us to perform 50 imputations. The global test of significance showed evidence of global significance of our parameters of interests. Tests on each predictor highlighted that gender had the most significant association with the outcomes (p value <0.001) (online supplemental file 1). Female participants consistently reported worse mental health outcomes compared with males, with lower well-being scores and higher levels of depression and anxiety, and distress. Non-binary participants experienced the most severe outcomes, with markedly lower well-being and higher distress and depression and anxiety scores, compared with both male and female groups (online supplemental table 2). The educational period was also associated with psychological outcomes (p value=0.002) (online supplemental table 1). Students in their first 3 years of university reported better mental health overall, with higher well-being and lower levels of depression and anxiety and distress. However, while such variable did not reach the conventional significance level for WHO-5 (p value 0.065), evidence of a conditional association was found for the PHQ-ADS (p value <0.001) and K-10 (p value=0.003) outcomes. Students in their fourth to sixth years exhibited moderately worse anxiety and depression and distress outcomes, followed by those attending high school, while those outside the prescribed years of study (eg, extended or delayed education) had the poorest mental health scores (online supplemental table 2). The parameter 'living with whom' did not globally reach statistical significance (p value=0.099), while living situation showed globally significant associations (p value=0.008) (online supplemental table 1). Students living in property houses tended to have better mental health outcomes, particularly in terms of lower depression and anxiety symptoms (PHQ-ADS, p value=0.004). However, housing situation was not significantly related to well-being (WHO-5, p value=0.246) and marginally above the significance threshold for K-10 (p value=0.050, online supplemental table 2). Age demonstrated a marginally significant effect (p value=0.049) (online supplemental table 1). It was a significant predictor for psychological well-being (WHO-5), with older students reporting lower well-being scores (p value=0.022). However, age did not significantly predict depression and anxiety symptoms (PHQ-ADS, p value=0.540) or psychological distress (K-10, p value=0.187) (online supplemental table 2).

Correlation between the outcome variables

Additionally, the correlation analysis revealed strong associations between the clinical scales, with all correlations being statistically significant (p value <0.001) (online supplemental table 3). The lowest correlation in absolute value was between WHO-5 and GAD-7 (r=−0.590). Both K-10 and WHO-5 had stronger correlations with PHQ-ADS than with PHQ-9 or GAD-7 separately.

DISCUSSION

The findings of this study reveal a high prevalence of psychological distress, anxiety and depression among students, with most participants experiencing moderate to high levels of distress. Anxiety symptoms were common, with a significant proportion reporting mild or moderate levels, while depressive symptoms ranged from subthreshold to mild major depression for much of the sample, with some students experiencing more severe depression. Additionally, the majority of students reported medium to low psychological well-being, highlighting potential gaps in resilience and overall mental health. These results may also reflect the cumulative burden of academic stress, social isolation and the challenges students face in transitioning into adulthood, all of which are known risk factors for mental health difficulties.

The findings of this study are consistent with a growing body of literature on the mental health challenges faced by students, particularly about psychological distress, anxiety and depression. The high prevalence of psychological distress and anxiety among students, as observed in this study, mirrors trends found in previous research. A systematic review by Beiter and colleagues[44] highlighted that anxiety and stress are widespread among university students, often exacerbated by academic performance, pressure to succeed and other context factors. Similarly, the PHQ-9 results indicating mild to moderate levels of depression among participants align with findings from Zivin *et al*,[45] who identified depression as a significant mental health concern among college students. These findings are further supported by Calear *et al*,[19] who highlighted depression as a leading cause of morbidity among adolescents, often characterised by a chronic, recurrent and episodic course, with poor academic performance being one of its associated negative outcomes. These results also align with those of a systematic literature review by Caldarelli and colleagues[46] on Italian university students that found moderate to high psychological distress, poor general psychological functioning, and relevant depressive and anxiety symptoms prevalence rates. Furthermore, the WHO World Mental Health Surveys International College Student Project[18] highlighted the high global prevalence of mental disorders among college students, with anxiety and depression being the most commonly reported conditions. The study found that a significant portion of college students worldwide experience psychological distress, with similar patterns of distress observed in both high-income and low-income countries. This global perspective aligns with our findings, suggesting that mental health issues among students

are not only prevalent but also consistent across different cultural and geographical contexts.

In this study, gender was found to be a strong predictor of mental health outcomes, with female participants reporting worse mental health compared with males. This finding corroborates previous studies, such as Kuehner,[47] who found that females are more likely to report higher levels of depression and anxiety and is consistent with Nogueira and colleagues,[48 49] who showed that female undergraduates generally exhibit significantly worse mental health than male students. Additionally, the poorer mental health outcomes observed in non-binary students highlight the importance of addressing mental health disparities in gender-diverse populations. A recent systematic review by O'Shea *et al*[50] on the prevalence, severity and risk factors for mental disorders among sexual and gender minority (SGM) young people emphasised that these groups are disproportionately affected by mental health issues. The review found that SGM youth are at significantly higher risk for depression, anxiety and self-harm due to stigma, discrimination and family rejection. These findings align with our observation that non-binary students exhibited the most severe mental health outcomes, reinforcing the urgent need for inclusive and tailored mental health interventions to support gender and sexual minority populations.

The relationship between housing situation and mental health outcomes observed in this study also reflects findings from existing literature. Research by Kornbluh *et al*[51] suggested that housing instability and poor living conditions, such as sharing apartments or living far from family, can contribute to higher levels of stress, anxiety and depression. Similarly, Beiter and colleagues[44] found a significant difference in anxiety levels between transfer and non-transfer students, noting that for many, college is the first experience of living away from home and managing the costs of daily life. This aligns with our findings that students living in owned properties tended to report lower levels of depression and anxiety. Other studies indicated that students experiencing housing insecurity were more likely to have poorer mental health outcomes.[51 52]

Finally, the influence of the academic stage on mental health is well-documented in the literature. This study found that students in their first 3 years of university exhibited better mental health outcomes. These findings support those of Dawson and Pooley,[53] who noted that, despite being stressful, the early university years are often associated with higher levels of optimism and greater access to academic and social support systems, which help mitigate the psychological challenges students face. On the other hand, the stress associated with prolonged academic careers, such as delayed graduation, may contribute to poorer mental health outcomes.[54] Beiter and colleagues[44] reported postgraduation plans among the top 10 sources of concern, finding that upperclassmen scored the highest on the depression, anxiety and stress scales when compared with underclassmen.

While this study provides valuable insights, several limitations should be acknowledged. First, the study's cross-sectional design means that causal relationships between variables cannot be established. Future longitudinal studies are needed to track changes in mental health over time and explore how academic factors influence the progression of psychological distress. Second, the study relied on self-reported measures, which may be subject to response bias. Using additional objective measures or clinical assessments would strengthen the findings. Third, potential selection bias should be considered, as it is possible that individuals experiencing greater psychological distress were more likely to participate, potentially leading to an overestimation of mental health difficulties in the sample. Additionally, we did not assess whether students sought or received professional help for their mental health concerns. Understanding help-seeking behaviour is critical to contextualising psychological distress and could inform the design of more accessible and responsive support services. Future research should explore this aspect to better address barriers to care and intervention uptake among students. Lastly, while this study focused on university and high school students, expanding the sample to include other populations, such as working students or non-students, would be beneficial to explore how mental health outcomes differ across broader groups.

This study highlights several areas for future research in understanding and addressing student mental health. First, the gender disparities observed in mental health outcomes, particularly between binary and non-binary individuals, underscore the need for research that explores the unique experiences and stressors of gender-diverse populations. Longitudinal studies could provide insight into how these disparities evolve and identify specific interventions that can mitigate them.

Second, the role of housing stability and living conditions warrants further investigation. While this study found that students living in owned properties reported better mental health, future research should explore whether this relationship reflects economic stability, geographical factors or the psychosocial benefits of secure housing. Studies that incorporate direct measures of socioeconomic status could disentangle these effects.

Additionally, the impact of the academic stage on mental health suggests that transitions and prolonged academic stress are critical periods for intervention. Future research could focus on identifying protective factors, such as coping strategies or institutional support systems, that promote resilience during these times.

Another critical area for research is the help-seeking behaviour of students. Many students within this population do not receive mental health treatment, even when facing significant psychological distress. It is crucial to understand more about this subgroup, including the factors that inhibit or facilitate help-seeking and receiving care. Additionally, future research should examine the academic, social and personal consequences of persistent

untreated mental health problems. It is essential to address the unmet psychological needs of students, particularly in the context of limited resources and growing demand for student mental health services. A further investigation to better tailor mental health services and improve their accessibility and effectiveness would be needed.

To address these challenges, it would be essential to explore scalable and accessible mental health interventions. The WHO has developed tools that have the potential to be particularly beneficial in settings where large numbers of students may need support, but resource constraints limit access to traditional mental health services. Research should focus on evaluating the effectiveness of these tools in reducing psychological distress and improving well-being in student populations, as well as exploring how digital delivery methods can enhance accessibility and engagement.

Overall, this study highlights the significant prevalence of psychological distress, anxiety and depression among students aged 18 to 25 years, with gender, academic stage and housing situation identified as key predictors of mental health outcomes. The findings emphasise the need for targeted mental health interventions that address the specific needs of students, particularly those in later years of study, females and non-binary students. Promoting better psychological well-being through early intervention and support services will be essential in improving mental health outcomes and academic success for higher-education students.

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Ethics approval This study involves human participants and was approved by Institutional Review Board of the University of Verona (n. 05.R1/2023). Participants gave informed consent to participate in the study before taking part.

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