



UNITA Students' Health Study

A Multidimensional Assessment of University Student Health

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Executive Summary

Study Overview

The UNITA Students' Health Study is a cross-national, cross-sectional survey designed to establish a multinational database on university students' health status and movement behaviours across European universities. The study originated from a research collaboration funded through a UNITA Alliance Starting Grant, an initiative aimed at fostering transnational and interdisciplinary research among partner universities. The project responds to the current lack of recent comparative epidemiological data in the post-pandemic context. Data were collected through an online survey across participating institutions, yielding 2,888 valid responses.

Key Findings

- **Substantial mental health burden:** more than one third of participants showed at least moderate states of anxiety, depression or stress, indicating a non-negligible burden of psychological distress within the student population.
- **Unfavourable movement behaviours:** high prevalence of poor sleep quality, elevated sedentary time, and excessive leisure screen time was reported. Three in four students did not meet all 24-hour movement recommendations, even though most students reported adequate levels of physical activity.
- **Substance use pattern:** overall, the prevalence of substance use was low, but hazardous alcohol consumption was considerably more prevalent than tobacco and cannabis risky use.
- **Female vulnerability:** female students appeared to be a particularly vulnerable group, combining less favourable movement behaviours with a twofold higher prevalence of mental health difficulties compared to male students.
- **Cross-country variation:** differences were observed in mental health and wellbeing measures, as well as in movement behaviour and substance use patterns across participating countries.

Psychological functioning, movement behaviours, and substance use represent interconnected areas of concern requiring coordinated, cross-national health promotion strategies within European university settings.

1. Introduction

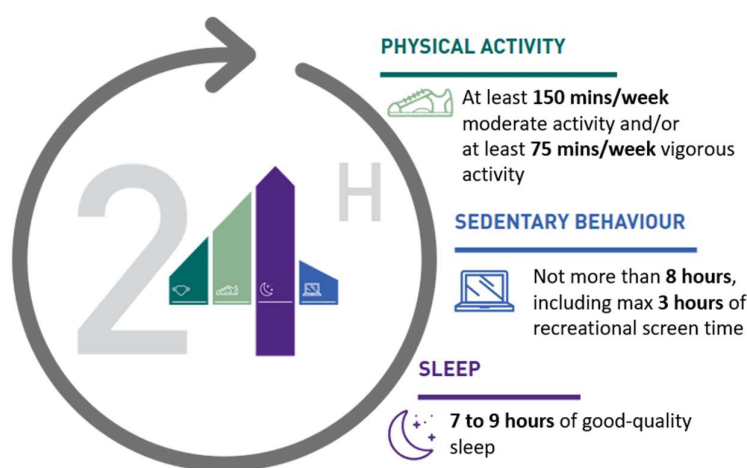
1.1 The UNITA Alliance and the Starting Grant consortium

UNITA Universitas Montium is an alliance of twelve universities and one legal entity from several European countries. Characterized by diverse institutional profiles and sizes, the Alliance brings together nearly 250,000 students and more than 22,000 university staff members. Its main objectives include developing innovative approaches to higher education, promoting research and innovation, creating an international virtual campus, and fostering European citizenship and multilingualism. Within this framework, the “UNITA Students’ Health Study”, coordinated by the Université de Pau et des Pays de l’Adour (France), was developed through a research collaboration supported by a UNITA Alliance Starting Grant, which aims to foster transnational research among partner institutions. The study involves the participation of the Università di Brescia (Italy), the Instituto Politécnico da Guarda (Portugal), the Universitatea de Vest din Timișoara and the Universitatea Transilvania din Brașov (Romania), the Universidad de Zaragoza and the Universidad Pública de Navarra (Spain).



1.2 Background and Rationale

University years represent a major transitional period for young people, characterized by adaptation to new social and academic environments and increased personal and educational demands. These challenges occur during emerging adulthood, a developmental stage associated with heightened psychological vulnerability, making university students particularly at risk for mental health problems and psychological distress (Hernández-Torrano et al. 2020). In this context, factors related to psychological functioning, such as the satisfaction of basic psychological needs (BPN; autonomy, competence, and relatedness; Vansteenkiste et al., 2010) and subjective vitality may be particularly relevant, as they have been linked to psychological wellbeing and mental health. Evidence also suggests relevant gender and cultural differences in the prevalence and expression of mental health problems (Auerbach et al., 2018; Bruffaerts et al., 2018; Mason et al., 2025). Consistently, findings from the Eurostudent 8 report highlight marked cross-country differences in student mental health, with the proportion of university students reporting a mental health problem ranging from 1% to 29% across European countries (Cuppen et al., 2024).



At the same time, university students frequently engage in suboptimal movement behaviours. According to the 24-hour movement perspective, sleep, physical activity, and sedentary behaviour are jointly considered key determinants of physical and psychological wellbeing (Ross et al., 2020).

However, previous evidence suggests that university students often experience insufficient sleep duration and poor sleep quality (Becker et al., 2018), while approximately 40% do not meet recommended levels of physical activity (Pengpid et al., 2015). In addition, sedentary behaviour levels are particularly high in this population, with estimates ranging from approximately 7 to 10 hours per day (Castro et al., 2020).

Substance and alcohol use are also highly prevalent among young adults, especially among university students (Pasman et al., 2024; White & Hingson, 2013), and are frequently associated with poorer mental health conditions, including anxiety and depressive symptoms (Garey et al., 2020; Gaume et al., 2024).

Taken together, these findings highlight the importance of monitoring psychological wellbeing, movement behaviours, and substance use in university populations, in order to support the development of targeted prevention and health promotion strategies. However, despite growing concern about student mental health following the COVID-19 pandemic, large-scale

epidemiological studies examining psychological wellbeing and movement behaviours among university students across different European countries remain limited. As a result, contemporary cross-national evidence on the mental health and lifestyle characteristics of European university students is still scarce.

1.3 Objectives of the Study

In response to the limited availability of recent cross-national epidemiological data on European university students, the UNITA Students' Health Study was developed with the broader aim of creating a multinational, continuously updated database to comprehensively investigate psychological wellbeing, physical health, and movement behaviours across diverse European university contexts.

Within this framework, the present report aims to provide an overview of university students' health status and movement behaviours across participating countries, as well as to examine the extent to which students meet current health recommendations related to sleep, physical activity, and sedentary behaviour, including sedentary time and leisure screen time. By generating standardized data from multiple European universities, the study seeks to contribute to the existing body of evidence and support the identification of priority areas for prevention and health promotion initiatives targeting university populations.

2. Methodology

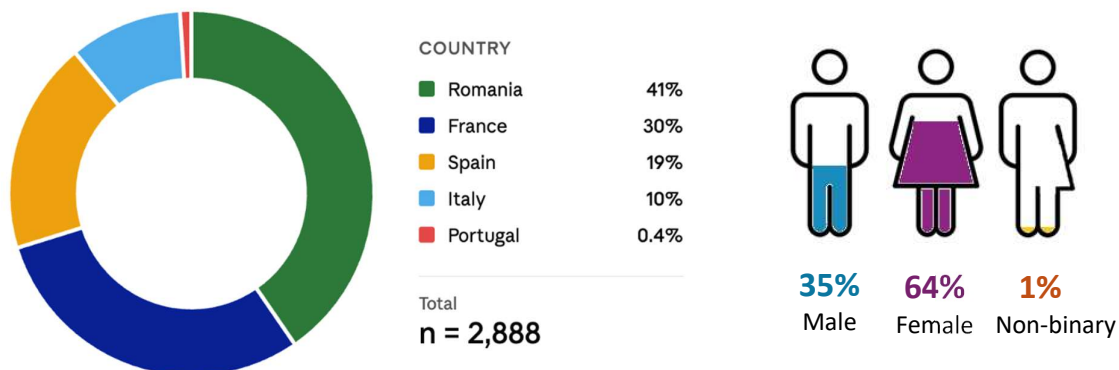
2.1 Study Design

This is a cross-sectional observational study. Data were collected through an online survey targeting university students enrolled at the participating universities, and all students were eligible to participate on a voluntary basis. The results presented here refer to data collected from October 2024 to May 2026.

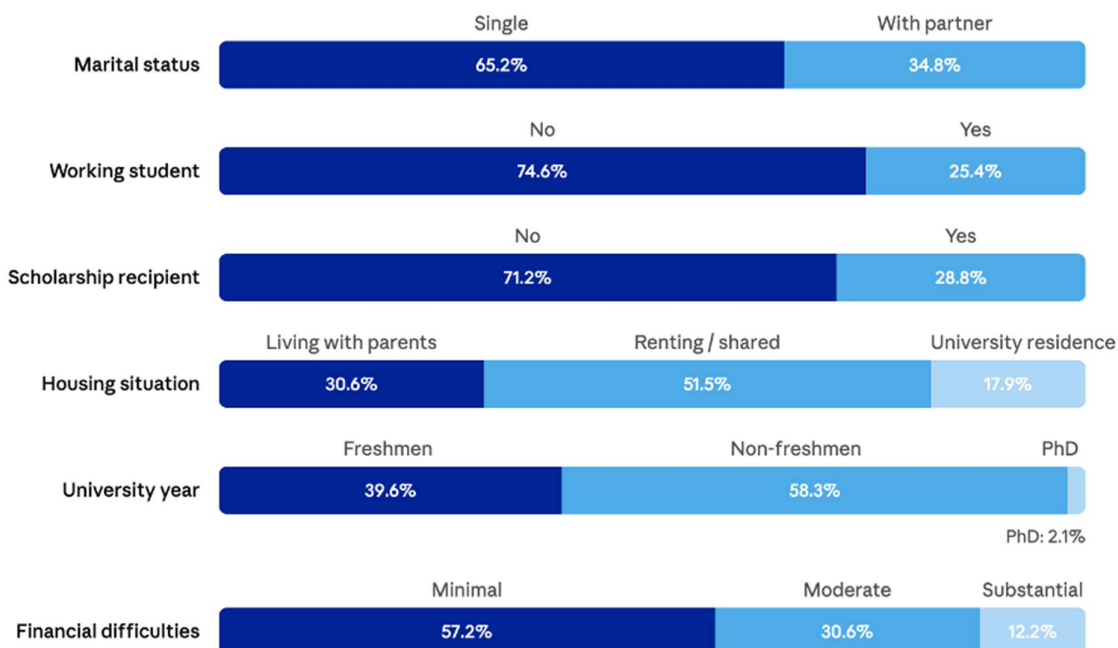
Upon accessing the survey link, participants were required to provide informed consent before proceeding. Organizational and ethical approvals were obtained from the competent offices of the coordinating centre (Comité d’Ethique pour la Recherche en STAPS, n. IRB00012476-2024-14-10-345, October 14, 2024). The study was conducted in accordance with the World Medical Association Declaration of Helsinki for research involving human participants.

2.2 Participants

Of the 2,988 responses collected, 2,888 (96%) were considered valid and unevenly distributed across countries.



Participants had a mean age of 20.91 years (standard deviation [SD] = 4.11), and the majority were female. The sample was predominantly composed of students who were single, not employed during their studies, and not receiving a scholarship. Students reported relatively low levels of perceived financial difficulties, and renting or shared accommodation was the most common housing arrangement, followed by living with parents and university residence. Freshmen represented a substantial proportion of the overall sample.



2.3 Measures and Statistical Analysis

The survey collected extensive information on sociodemographic and academic characteristics, as well as multiple standardized tools to assess students' mental health and wellbeing, substance use, and movement behaviours:



Mental health indicators included different aspects of psychological distress (anxiety, depression, and stress), and **wellbeing** indicators included subjective vitality (the experience of energy and enthusiasm) and the overall balance between the satisfaction and frustration of the BPN.



Movement behaviours comprised sleep (duration and quality), as well as physical activity indicators, including moderate-to-vigorous physical activity (MVPA), sedentary time, and leisure screen time.



Substance use indicators included tobacco dependence, at-risk alcohol consumption, and risky cannabis use.

Annex 1 describes all the assessment tools included in the study.

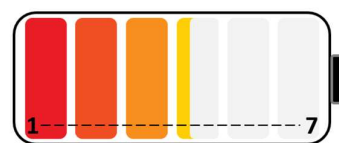
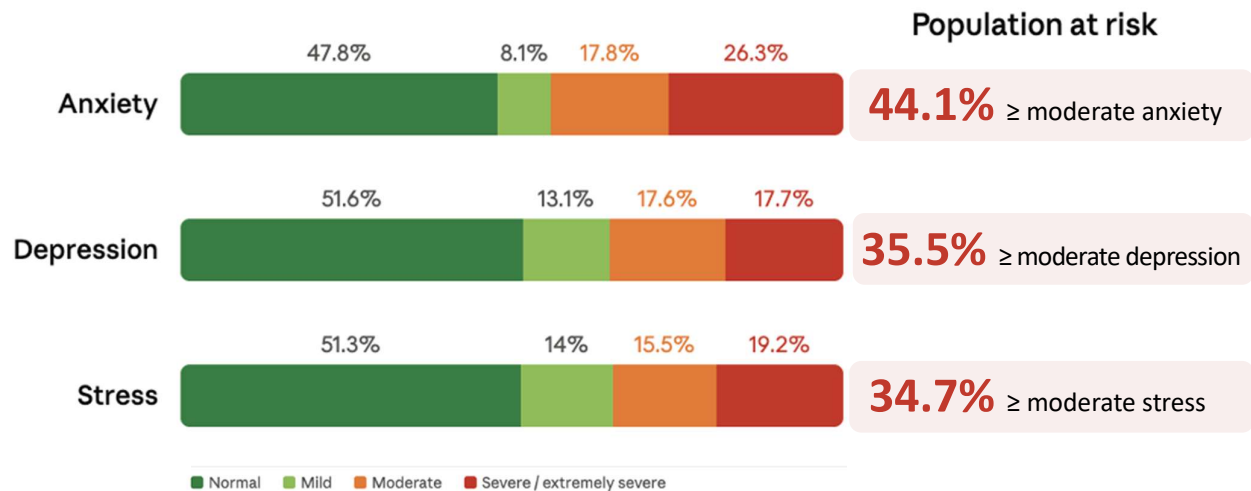
Descriptive statistics (frequencies, means, and SD) were computed for all study variables. Chi-square tests were conducted to examine outcome differences by gender and country. Independent-samples t-tests and one-way ANOVAs were also performed to examine group differences in continuous variables. Non-binary students and Portuguese students were excluded from group analyses on gender and country differences, respectively, due to insufficient group size.

3. Results

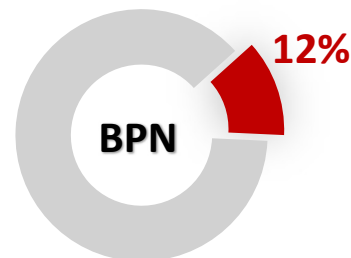
3.1 Overview of the sample

Mental health and wellbeing

The results showed that approximately half of the participants reported anxiety, depression, and stress scores within the normal range according to DASS-21 severity ratings. However, a substantial proportion presented at least moderate states of anxiety, depression, or stress, indicating a non-negligible burden of psychological distress within the student population. In contrast, only a small proportion of participants reported BPN frustration exceeding satisfaction, indicating a generally positive psychological profile in this domain. The mean vitality score was 4.32 out of 7, indicating a moderate level of perceived vitality.



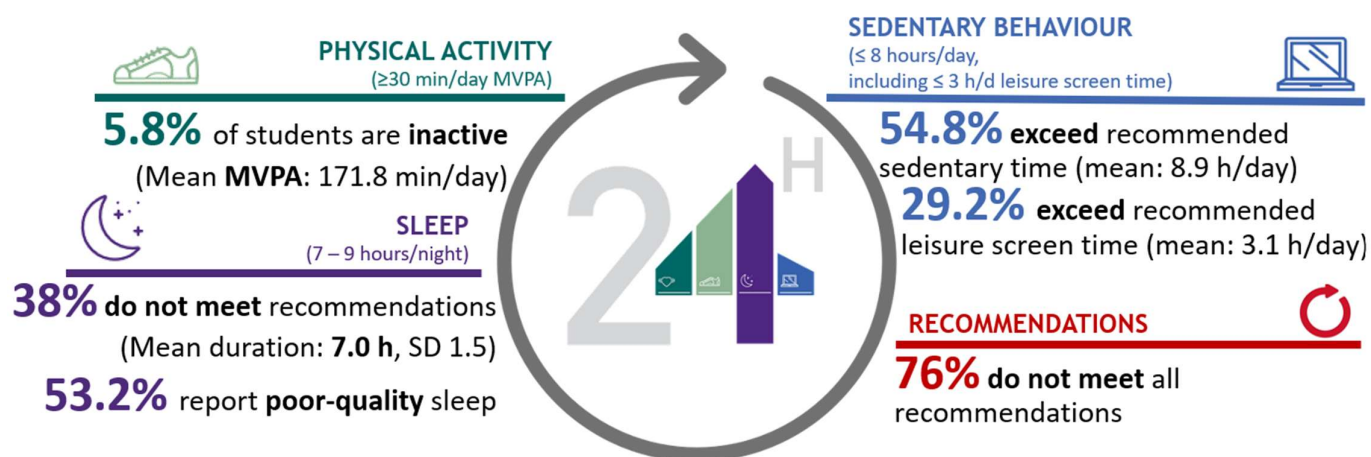
Subjective vitality
Mean = 4.3 (SD=1.2)



Students reporting
more frustrated than satisfied
BPN

Movement behaviours

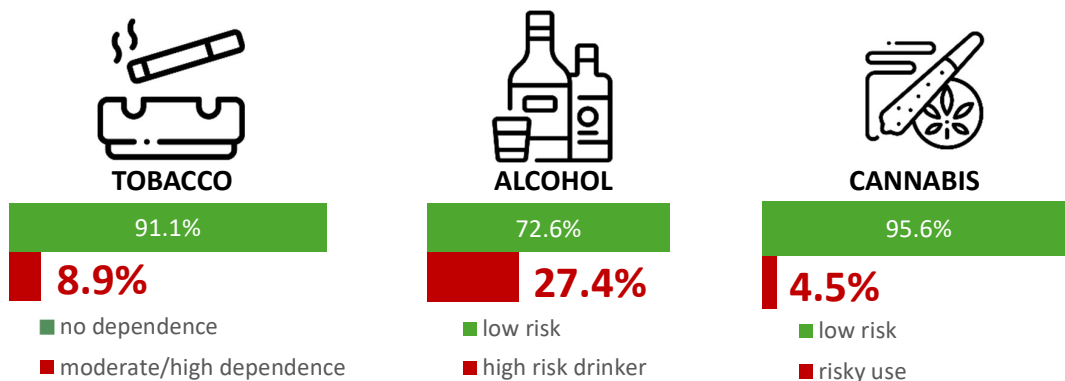
Within the framework of 24-hour movement behaviours, the sample showed generally adequate levels of physical activity, with the vast majority of participants classified as active (≥ 30 minutes of MVPA per day, corresponding to a daily adaptation of weekly physical activity recommendations). However, this positive profile was partly counterbalanced by less optimal levels in sedentary behaviour: more than half of the students exceeded the recommended threshold for sedentary time (i.e., more than eight hours per day), and a non-negligible proportion reported excessive leisure screen time, beyond the recommended limit of three hours per day. It is important to note that, in the survey, physical activity and sedentary behaviour could only be assessed using self-report measures, a method that is known to lead to overestimation of minutes of physical activity and underestimation of sedentary behaviour.¹ Sleep quality also appeared suboptimal, with slightly more than half of the participants reporting poor sleep quality. Students reported a mean sleep duration of 6.96 hours per night (SD = 1.45), approximating the recommended 7-9 hours of sleep per night. Nevertheless, 38% of participants failed to meet such recommendations.



Overall, these findings indicate suboptimal patterns in sleep quality and sedentary behaviour. Notably, only 24% of participants met all 24-hour movement guidelines. This suggests that, despite generally positive levels of physical activity, the other key components of 24-hour movement behaviours remain areas of concern in this population.

¹ Objective measures on a subsample of 160 students indicated that, on a typical day, they spent a mean of 56.5 min/day (± 23.8 min) in moderate-to-vigorous physical activity, 10 h 50 min (± 1 h 26 min) in sedentary time, and 7 h 53 min (± 2 h 30 min) in screen time, including 5 h 17 min (± 2 h 10 min) on their mobile phone.

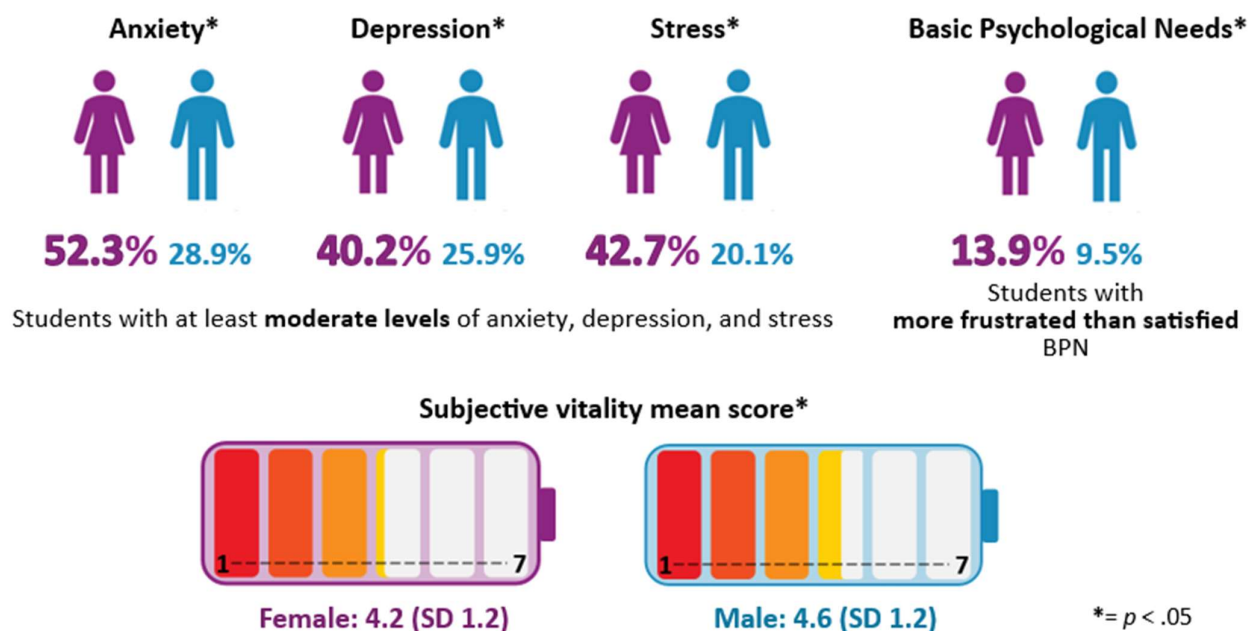
Substance Use



Regarding substance use behaviours, the vast majority of participants showed no indication of tobacco dependence, while a small proportion (8.9%) reported moderate to high levels of dependence. Cannabis use data indicated generally low levels of risky use, although risky patterns were still present among 4.5% of respondents. In terms of alcohol consumption, most participants were classified as low-risk drinkers, while more than a quarter (27.4%) fell into the high-risk drinking category, suggesting a non-negligible prevalence of potentially hazardous alcohol use within the sample.

3.2 Group differences

Gender differences²

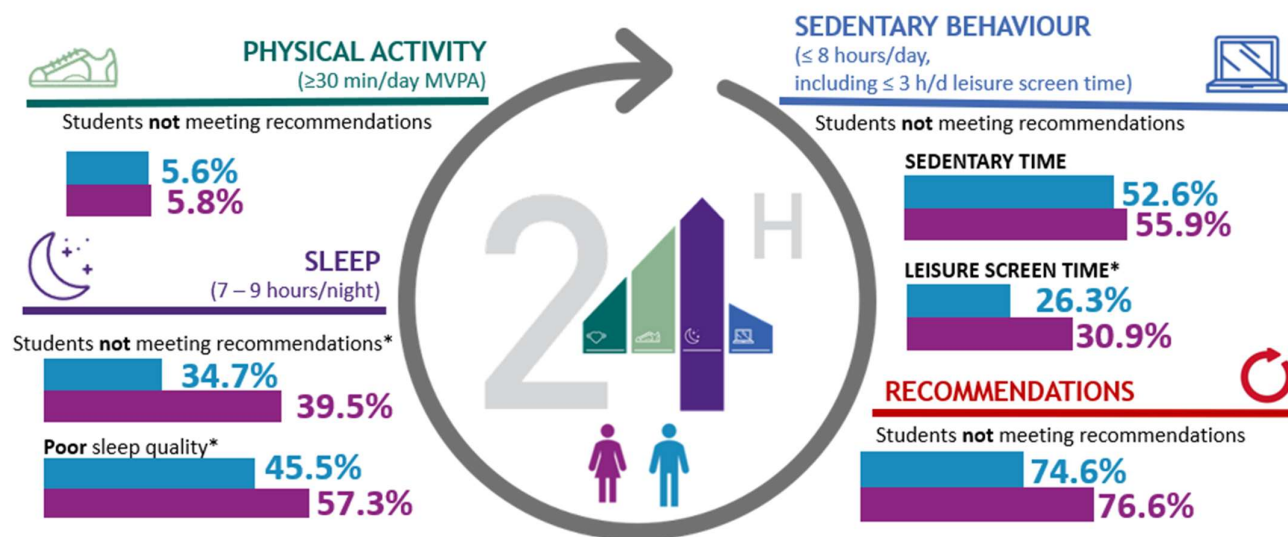


Across the examined mental health indicators, a consistent gender pattern emerged, with a higher proportion of female students reporting at least moderate levels of anxiety, depression, and stress. The same pattern was observed for BPN, where having more frustrated than satisfied needs was more prevalent among female students. Similarly, the mean subjective vitality score was lower in females than in males. Overall, the findings suggest a disproportionate psychological burden among female students across all measured domains, alongside a slightly less favourable profile in terms of BPN. All gender differences were statistically significant, indicating a robust and non-random association between gender and the examined outcomes. This pattern highlights a clear gender disparity in mental health and psychological functioning within the student population.

Across 24-hour movement behaviours, gender differences were generally less pronounced than those observed for psychological functioning. Physical inactivity and sedentary time showed comparable distributions across genders, with minimal variation. Leisure screen time exceeding recommendations was slightly more prevalent among females. Poor sleep quality was more frequently reported among female students compared to males. Although average sleep duration was similar between genders (females: $M = 6.94$, $SD = 1.45$; males: $M = 7.00$,

² Non-binary participants were not included in the gender comparisons due to the extremely small sample size, which did not allow for meaningful statistical comparisons with the other groups. However, this group may still represent a relevant population for future monitoring in larger samples.

SD = 1.42), a higher proportion of female students failed to meet the recommended sleep duration guidelines compared to male students.



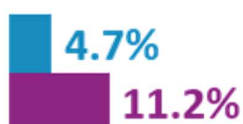
*= $p < .05$

As previously noted, physical activity and sedentary behaviour were assessed through self-report measures, which may have affected the sensitivity of the measures. Overall, these findings indicate a generally comparable behavioural profile between male and female students for physical activity and sedentary time, while sleep and screen time appear to represent more gender-sensitive domains.



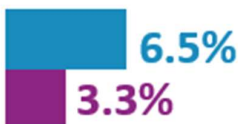
TOBACCO*

Moderate/high dependence



CANNABIS*

Risky use



ALCOHOL*

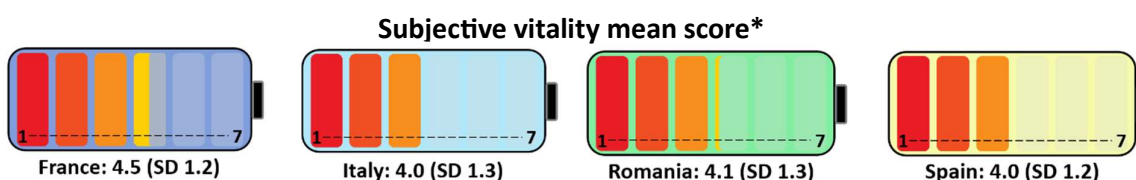
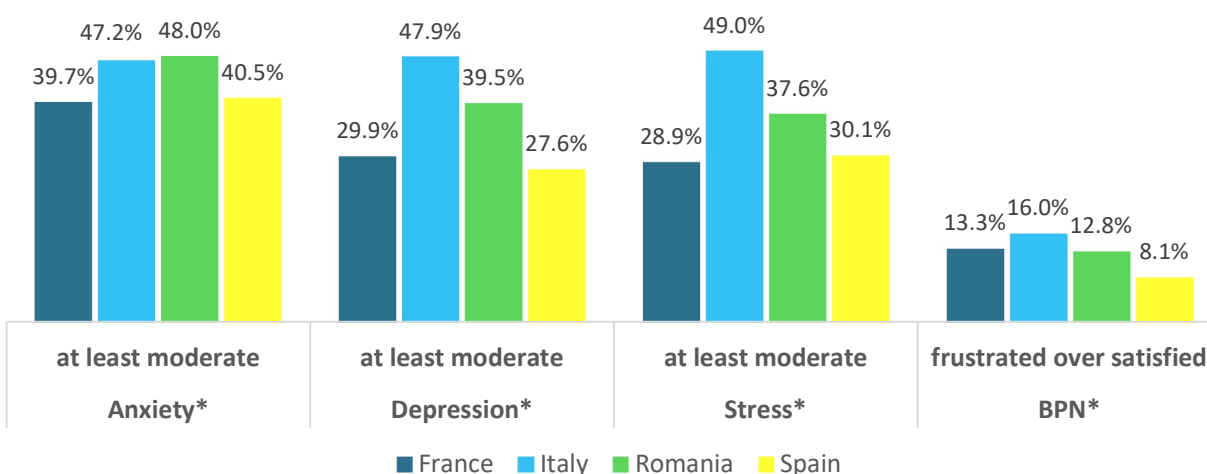
High risk drinkers



*= $p < .05$

Across substance use indicators, clear gender differences emerged. In particular, the patterns for alcohol and cannabis indicate a higher concentration of risky consumption behaviours among males, in contrast to tobacco, where the burden appears relatively higher among females. Taken together, these findings suggest a differentiated gender profile across substances, with a tendency towards substance-specific patterns rather than a uniform gradient of risk. All gender differences were statistically significant.

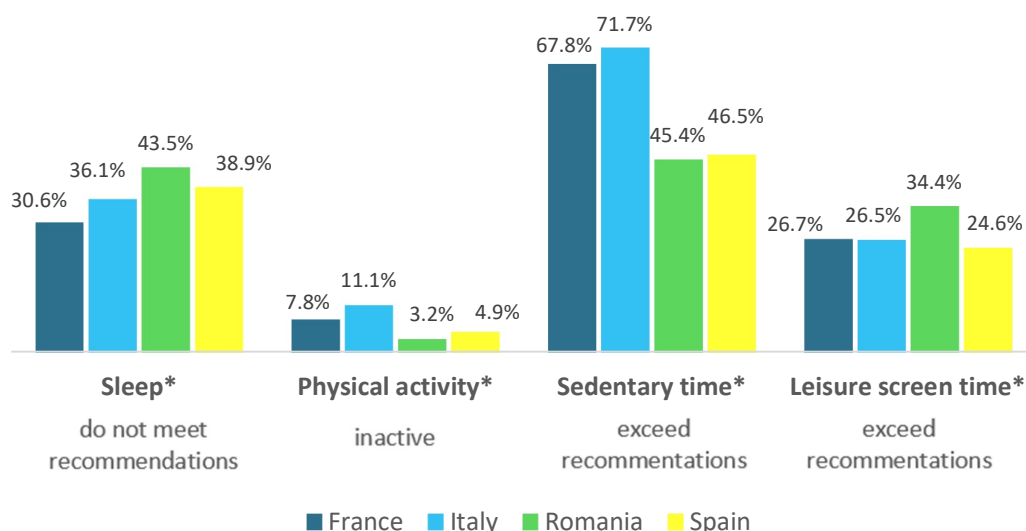
Differences by country³



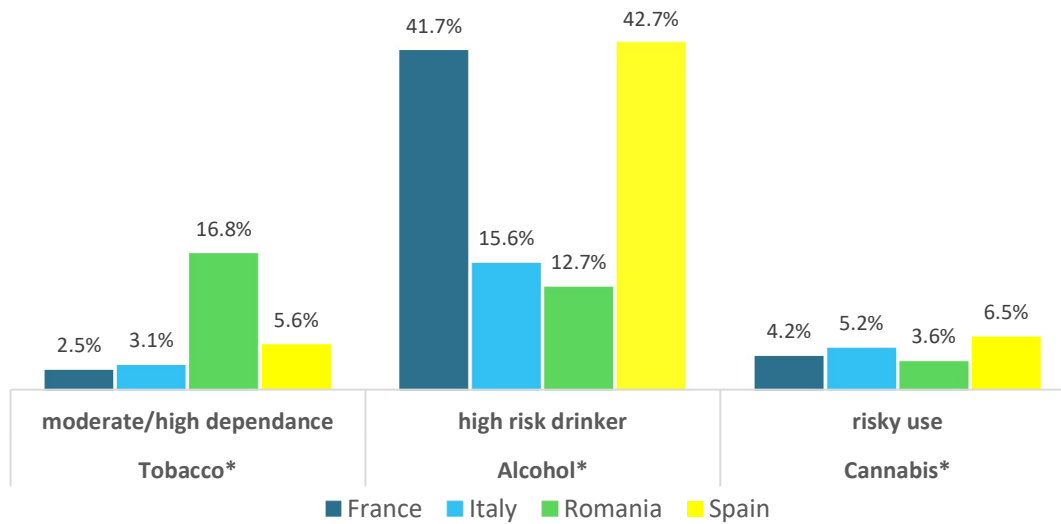
*= $p < .05$

Across countries, marked differences emerged in the prevalence of psychological distress and in BPN balance score. Overall, Italy and Romania showed higher proportions of students reporting at least moderate levels of anxiety, depression, and stress compared to France and Spain, with Italy consistently displaying the highest values across all three indicators. France and Spain tended to show comparatively lower levels of depressive symptoms and stress, with Spain generally presenting the most positive profile. BPN frustration exceeding need satisfaction was more prevalent in Italy and France, while Spain showed the lowest proportion of students reporting an imbalance favouring need frustration. Moreover, participants from France and Spain reported higher levels of subjective vitality compared to those from Italy and Romania. Taken together, these findings highlight substantial cross-country variability in students' mental health and psychological functioning, with a consistently more positive profile observed in Spain and higher levels of distress concentrated in Italy and, to a lesser extent, Romania.

³ Portuguese students were excluded from these analyses due to the very small sample size, which did not allow meaningful statistical comparisons with the other national groups.



Across movement behaviours, relevant cross-country differences also emerged. Poor sleep quality was reported by around half of the sample in every country, but it was more frequently reported among students from Italy and Romania (57.3% in both countries), while France and Spain showed comparatively lower levels (47.6% and 51.0%, respectively). However, when considering the proportion of students who did not meet sleep duration recommendations, Romania and Spain reported the highest rates. These findings suggest that sleep duration is not always indicative of good sleep quality, highlighting the importance of a multidimensional assessment of sleep that considers both quantitative and qualitative aspects. The prevalence of physical inactivity remained generally low across all countries, although higher proportions were observed in Italy and France. Sedentary behaviour exceeding recommendations was particularly prevalent in France and Italy, whereas Romania and Spain showed lower levels, although almost half of the sample exceeded the recommended sedentary time threshold in these countries. In contrast, excessive leisure screen time was most common among Romanian students, while lower proportions were observed in the other countries. A high proportion of students failed to meet all 24-hour movement recommendations across all countries. This prevalence was highest in Italy (81.8%) and France (81.2%), followed by Romania (73.3%) and Spain (69.7%). Overall, these findings indicate substantial variability across national contexts, with Italy and France generally showing a less positive profile for physical activity and sedentary time, and Romania standing out for poor compliance with sleep recommendations and high leisure screen exposure. Differences between countries were statistically significant for all examined outcomes.



Across substance use indicators, notable cross-country differences emerged, with distinct patterns depending on the substance considered. Tobacco dependence was markedly higher among Romanian students compared to the other countries, where prevalence remained comparatively low. In contrast, high-risk alcohol consumption was substantially more common in France and Spain, while Italy and Romania showed considerably lower proportions of high-risk drinkers. Risky cannabis use was overall less prevalent across all countries, with no significant country differences, although slightly higher levels were observed in Spain and Italy compared to France and Romania. Overall, the findings suggest that substance-related risk behaviours vary substantially across national contexts and do not follow a uniform pattern across substances.

4. Discussion and Final Considerations

4.1 Main Findings

Overall, the findings highlight a substantial burden of psychological distress and suboptimal movement behaviours within the UNITA University student population. Although approximately half of the participants reported anxiety, depression, and stress scores within the normal range, a considerable proportion presented at least moderate states of anxiety, depression, or stress. At the behavioural level, students generally showed adequate engagement in physical activity, but this positive behaviour coexisted with poor sleep patterns, high sedentary time, and excessive leisure screen time in a substantial part of the sample. Risky substance use was overall limited for tobacco and cannabis, whereas hazardous alcohol consumption emerged as more widespread.

The analyses also revealed consistent gender and cross-country disparities. Female students showed higher levels of psychological distress and poorer sleep quality, while male students were more likely to report risky alcohol and cannabis use. Differences between countries also emerged in health-related behaviours and substance use patterns, with higher levels of sedentary behaviour observed in Italy and France, higher levels of leisure screen time in Romania, a higher proportion of high-risk drinkers in France and Spain, and markedly higher tobacco dependence in Romania. Taken together, these findings suggest that mental health, movement behaviours, and substance use represent interconnected public health priorities requiring continued monitoring and health promotion actions within university settings.

4.2 Implications and recommendations for universities within UNITA

The present findings highlight the importance of strengthening student health promotion within the UNITA alliance, particularly in relation to mental health, sleep patterns, sedentary behaviour, and substance use. Although some differences emerged across countries, the results also revealed several shared challenges, suggesting the need for coordinated and transnational health promotion strategies within the university context. At the same time, the variability observed between countries indicates that local cultural and behavioural patterns should also be considered when designing interventions and prevention initiatives.

Within the broader mission of UNITA to foster innovation, inclusion, and student wellbeing across European universities, these findings support the value of integrating health promotion into academic environments through evidence-informed and student-centred approaches. In particular, the results underline the importance of preventive actions targeting psychological distress, healthy lifestyles, and risky substance use behaviours as part of a wider strategy to support students' wellbeing and overall quality of university life.

References

- Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., Demyttenaere, K., Ebert, D. D., Green, J. G., Hasking, P., Murray, E., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Stein, D. J., Vilagut, G., Zaslavsky, A. M., & Kessler, R. C. (2018). WHO world mental health surveys international college student project: Prevalence and distribution of mental disorders. *Journal of Abnormal Psychology, 127*(7), 623–638. <https://doi.org/10.1037/abn0000362>
- Becker, S. P., Jarrett, M. A., Luebke, A. M., Garner, A. A., Burns, G. L., & Kofler, M. J. (2018). Sleep in a large, multi-university sample of college students: Sleep problem prevalence, sex differences, and mental health correlates. *Sleep Health, 4*(2), 174–181. <https://doi.org/10.1016/j.sleh.2018.01.001>
- Bruffaerts, R., Mortier, P., Kiekens, G., Auerbach, R. P., Cuijpers, P., Demyttenaere, K., Green, J. G., Nock, M. K., & Kessler, R. C. (2018). Mental health problems in college freshmen: Prevalence and academic functioning. *Journal of Affective Disorders, 225*, 97–103. <https://doi.org/10.1016/j.jad.2017.07.044>
- Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The pittsburgh sleep quality index: A new instrument for psychiatric practice and research. *Psychiatry Research, 28*(2), 193–213. [https://doi.org/10.1016/0165-1781\(89\)90047-4](https://doi.org/10.1016/0165-1781(89)90047-4)
- Castro, O., Bennie, J., Vergeer, I., Bosselut, G., & Biddle, S. J. H. (2020). How sedentary are university students? A systematic review and meta-analysis. *Prevention Science, 21*(3), 332–343. <https://doi.org/10.1007/s11121-020-01093-8>
- Charles, M., Thivel, D., Verney, J., Isacco, L., Husu, P., Vähä-Ypyä, H., Vasankari, T., Tardieu, M., Fillon, A., Genin, P., Larras, B., Chabanas, B., Pereira, B., & Duclos, M. (2021). Reliability and validity of the ONAPS physical activity questionnaire in assessing physical activity and sedentary behavior in French adults. *International Journal of Environmental Research and Public Health, 18*(11), 5643. <https://doi.org/10.3390/ijerph18115643>
- Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., Duriez, B., Lens, W., Matos, L., Mouratidis, A., Ryan, R. M., Sheldon, K. M., Soenens, B., Van Petegem, S., & Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion, 39*(2), 216–236. <https://doi.org/10.1007/s11031-014-9450-1>
- Cuppen, J., Muja, A., & Geurts, R. (2024). Well-being and mental health among students in European higher education. EUROSTUDENT 8 Topical module report. Available online: https://www.eurostudent.eu/download_files/documents/TM_wellbeing_men-talhealth.pdf
- Garey, L., Olofsson, H., Garza, T., Rogers, A. H., Kauffman, B. Y., & Zvolensky, M. J. (2020). Directional effects of anxiety and depressive disorders with substance use: A review of recent prospective research. *Current Addiction Reports, 7*(3), 344–355. <https://doi.org/10.1007/s40429-020-00321-z>
- Gaume, J., Carrard, V., Berney, S., Bourquin, C., & Berney, A. (2024). Substance use and its association with mental health among Swiss medical students: A cross-sectional study. *International Journal of Social Psychiatry, 70*(4), 808–817. <https://doi.org/10.1177/00207640241232321>
- Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., Rickert, W., & Robinson, J. (1989). Measuring the heaviness of smoking: using self-reported time to the first cigarette of the day and number of cigarettes smoked per day. *British Journal of Addiction, 84*(7), 791–799. <https://doi.org/10.1111/j.1360-0443.1989.tb03059.x>
- Henry, J. D., & Crawford, J. R. (2005). The short-form version of the depression anxiety stress scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*(2), 227–239. <https://doi.org/10.1348/014466505X29657>

- Hernández-Torrano, D., Ibrayeva, L., Sparks, J., Lim, N., Clementi, A., Almukhambetova, A., Nurtayev, Y., & Muratkyzy, A. (2020). Mental health and well-being of university students: A bibliometric mapping of the literature. *Frontiers in Psychology*, 11, 1226. <https://doi.org/10.3389/fpsyg.2020.01226>
- Kokotailo, P. K., Egan, J., Gangnon, R., Brown, D., Mundt, M., & Fleming, M. (2004). Validity of the alcohol use disorders identification test in college students. *Alcoholism, Clinical and Experimental Research*, 28(6), 914–920. <https://doi.org/10.1097/01.alc.0000128239.87611.f5>
- Legleye, S., Karila, L., Beck, F., & Reynaud, M. (2007). Validation of the CAST, a general population Cannabis Abuse Screening Test. *Journal of Substance Use*, 12(4), 233–242. <https://doi.org/10.1080/14659890701476532>
- Mason, A., Rapsey, C., Sampson, N., Lee, S., Albor, Y., Al-Hadi, A. N., Alonso, J., Al-Saud, N., Altwaijri, Y., Andersson, C., Atwoli, L., Auerbach, R. P., Ayuya, C., Báez-Mansur, P. M., Ballester, L., Bantjes, J., Baumeister, H., Bendtsen, M., Benjet, C., Berman, A. H., ... WMH-ICS collaborators (2025). Prevalence, age-of-onset, and course of mental disorders among 72,288 first-year university students from 18 countries in the World Mental Health International College Student (WMH-ICS) initiative. *Journal of psychiatric research*, 183, 225–236. <https://doi.org/10.1016/j.jpsychires.2025.02.016>
- Pasman, E., Blair, L., Solberg, M. A., McCabe, S. E., Schepis, T., & Resko, S. M. (2024). The substance use disorder treatment gap among US college students: Findings from the 2021 national survey on drug use and health. *Drug and Alcohol Dependence Reports*, 12, 100279. <https://doi.org/10.1016/j.dadr.2024.100279>
- Pengpid, S., Peltzer, K., Kassean, H. K., Tsala Tsala, J. P., Sychareun, V., & Müller-Riemenschneider, F. (2015). Physical inactivity and associated factors among university students in 23 low-, middle- and high-income countries. *International Journal of Public Health*, 60(5), 539–549. <https://doi.org/10.1007/s00038-015-0680-0>
- Ross, R., Chaput, J., Giangregorio, L. M., Janssen, I., Saunders, T. J., Kho, M. E., Poitras, V. J., Tomasone, J. R., El-Kotob, R., McLaughlin, E. C., Duggan, M., Carrier, J., Carson, V., Chastin, S. F., Latimer-Cheung, A. E., Chulak-Bozzer, T., Faulkner, G., Flood, S. M., Gazendam, M. K., . . . Tremblay, M. S. (2020). Canadian 24-hour movement guidelines for adults aged 18–64 years and adults aged 65 years or older: An integration of physical activity, sedentary behaviour, and sleep. *Applied Physiology, Nutrition, and Metabolism*, 45(10 (Suppl. 2)), S57–S102. <https://doi.org/10.1139/apnm-2020-0467>
- Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons with Harmful Alcohol Consumption--II. *Addiction (Abingdon, England)*, 88(6), 791–804. <https://doi.org/10.1111/j.1360-0443.1993.tb02093.x>
- Vansteenkiste, M., Niemiec, C. P., & Soenens, B. (2010). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. In T. Urdan, & S. Karabenick (Eds.), *Advances in motivation and achievement: The decade ahead* (pp. 105–165). Emerald Group Publishing Limited. [https://doi.org/10.1108/S0749-7423\(2010\)000016A007](https://doi.org/10.1108/S0749-7423(2010)000016A007)
- White, A., & Hingson, R. (2013). The burden of alcohol use: Excessive alcohol consumption and related consequences among college students. *Alcohol Research*, 35(2), 201–218. <https://doi.org/10.35946/arcr.v35.2.11>

Annexes

Annex 1. Assessment tools

Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015)

Assessed Domain	Measure	Cut-off scores	
Basic psychological needs' satisfaction and frustration	General Composite Score ^a	< 0 ≥ 0	Needs are more frustrated than satisfied Needs are equally or more satisfied than frustrated

Depression Anxiety Stress Scales-21 (DASS-21, Henry & Crawford, 2005)

Assessed Domain	Measure	Cut-off scores	
Psychological distress	Levels of anxiety	≤ 7	Normal
		8-9	Mild
		10-14	Moderate
		≥15	Severe or extremely severe
	Levels of depression	≤ 9	Normal
		10-13	Mild
		14-20	Moderate
		≥21	Severe or extremely severe
	Levels of stress	≤ 14	Normal
		15-18	Mild
		19-25	Moderate
		≥26	Severe or extremely severe

Subjective Vitality Scale (SVS; Ryan & Frederick, 1997)

Assessed Domain	Measure	Cut-off scores	
Perceived vitality	Perceived vitality	No available cut-offs, score range 1-7	

Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989)

Assessed Domain	Measure	Cut-off scores	
Multiple dimensions of sleep	Overall sleep quality	≤ 5 > 5	good sleep quality poor sleep quality

ONAPS-Physical Activity Questionnaire (ONAPS-PAQ, Charles et al., 2021)

Assessed Domain	Measure	Cut-off scores	
Physical activity and sedentary behaviour	Physical activity	≥ 150 mins/week moderate activity and/or ≥ 75 mins/week vigorous activity	active
		<150 mins/week moderate activity and/or < 75 mins/week vigorous activity ^b	inactive
	Sedentary time	≤ 8 hours/jour > 8 hours/jour	meet the recommendations exceed the recommended limit ^b
	Leisure screen time	≤ 3 hours/jour > 3 hours/jour	meet the recommendations exceed the recommended limit ^b

Alcohol Use Disorders Identification Test (AUDIT, Saunders et al., 1993)

<i>Assessed Domain</i>	<i>Measure</i>	<i>Cut-off scores</i>	
Drinking behaviours and alcohol-related problems	Risk level for problematic use	< 6 ≥ 6	low risk high risk drinker ^c
Cannabis Abuse Screening Test (CAST, Legleye et al., 2007)			
<i>Assessed Domain</i>	<i>Measure</i>	<i>Cut-off scores</i>	
Problematic use of cannabis	Risk level for problematic use	< 2 ≥ 2	no risky use risky use of cannabis
Fagerström Test for Nicotine Dependence (Heatherton et al., 1991)			
<i>Assessed Domain</i>	<i>Measure</i>	<i>Cut-off scores</i>	
Heaviness of smoking	Severity of nicotine dependence	< 2 2-3 > 3	no dependence moderate dependence high dependence ^d

Note. ^aThe General Composite Score measure the relative predominance of satisfaction versus frustration within the basic psychological needs. ^bThe cut-offs used for physical activity and sedentary behaviour refer to the recommendations proposed by the OMS and the 24hours movement perspective (Ross et al., 2020). ^cThe cut-off refers to the validation of the AUDIT among college students (Kokotailo et al., 2004). ^dThe cut-off refers to Heaviness of Smoking index derived from the Fagerström Test (Heatherton et al., 1989).

Annex 2. Glossary

Active/Inactive: a person whose level of physical activity is sufficient to meet current physical activity recommendations (i.e., 30min/day of MVPA on most days of the week or 150min/week). /A person whose level of physical activity is insufficient to meet current physical activity recommendations.

ANOVA (Analysis of Variance): a statistical test used to compare the means of three or more groups and determine whether there are significant differences among them.

Anxiety: an emotion characterized by apprehension and somatic symptoms of tension in which an individual anticipates impending danger, catastrophe, or misfortune.

Basic Psychological Needs (BPN): according to Self-Determination Theory, innate and universal psychological needs that support well-being and healthy functioning, including autonomy, competence, and relatedness. Autonomy refers to the experience of volition and self-endorsement in an individual's actions, competence to the feeling of being effective and capable of mastering challenges, and relatedness to experiencing meaningful connection and belonging with others.

Chi-square test: a statistical test used to examine whether there is an association between two categorical variables by comparing observed frequencies with the frequencies expected by chance.

Cross-sectional study: an observational study that collects data at a single point in time to examine characteristics or relationships among variables within a population.

Depression: a negative affective state characterized by low mood, pessimism, and loss of interest or pleasure in daily activities. Various physical, cognitive, and social changes also tend to co-occur, including altered eating or sleeping habits, lack of energy or motivation, difficulty concentrating or making decisions, and withdrawal from social activities.

Leisure screen time: the total time spent using electronic devices (like smartphones, TVs, computers, or gaming consoles) for entertainment or relaxation, rather than for work, school, or education.

Mental health: a multidimensional construct that refers to an individual's psychological, emotional, and social functioning. It encompasses both positive and negative aspects of psychological experiences and functioning.

MVPA (moderate to vigorous physical activity): any activity that significantly increases heart rate, breathing rate, and body temperature. It combines moderate-intensity exercise (3–6 times the resting metabolic rate) and vigorous-intensity exercise (more than 6 times the resting metabolic rate).

Physical activity: any bodily movement produced by skeletal muscles that results in energy expenditure.

Sedentary time: the amount of time spent sitting or lying with low energy expenditure.

Stress: a psychological and physiological response that occurs when individuals encounter demands, challenges, or changes that require adaptation or adjustment.

t-test: a statistical test used to compare the means of two groups and determine whether the observed difference is statistically significant.

Vitality: a subjective feeling of energy, aliveness, and mental and physical vigor available for daily activities.

Wellbeing: a general state of positive functioning that encompasses psychological, emotional, and social aspects of an individual's life.

24h movement behaviours: the combination of movement behaviours that occur over a 24-hour period, including physical activity, sedentary behaviour (including screen time), and sleep. These behaviours are considered collectively rather than in isolation, as time allocated to one behaviour is necessarily taken from the others.

24h movement behaviour recommendations: recommendations introduced by the Canadian 24-Hour Movement Guidelines that integrate physical activity, sedentary behaviour (including sedentary and leisure screen time), and sleep within a 24-hour period to promote optimal health (<https://csepguidelines.ca/>).

The 24h Movement Behaviour Guidelines for adults (aged 18-64) recommend:

- **Physical activity recommendations:** performing a variety of types and intensities of physical activity, which includes at least 150 min/week of moderate to vigorous aerobic physical activity, plus muscle strengthening activities using major muscle groups at least twice a week, and several hours of light physical activities, including standing.
- **Sedentary time recommendations:** limiting sedentary time to 8 hours or less, which includes no more than 3 hours of recreational screen time, and breaking up long periods of sitting as often as possible.
- **Sleep recommendations:** getting 7 to 9 hours of good-quality sleep on a regular basis, with consistent bed and wake-up times.