Supplementary Materials

Table S1. Tools description.

	Number of items	Type of response	Score	Reliability
General Health Questionnaire (GHQ-12)	12	4-point Likert scale from 0 (Much less than usual) to 3 (More than usual).	A score of 0 was assigned to the first two low-stress alternatives and a score of 1 was given to the two high-stress alternatives. The total score ranges from 0 to 12 (cut-off >3).	Cronbach's alpha of 0.81
University Stress Scale (USS)	21	4-point Likert scale from 0 (Not at all) to 3 (Constantly).	The total score ranges from 0 to 63 (cut-off ≥ 13).	Cronbach's alpha of .83
University Connectedness Scale (UCS)	18	7-point Likert scale, from 1 (Not at all) to 7 (All the time).	The total score ranges from 18 to 126 (no cut-off).	Cronbach's alpha of .88
Brief COPE Inventory	28	4-point Likert scale from 1 (I haven't been doing this at all) to 4 (I've been doing this a lot).	14 sub-scales. Each sub-scale score ranges from 2 to 8 (no cut-off).	Cronbach's alpha values ranging from .50 to .90
Modified version of World Health Organization-ASSIST v3.0	8 questions about the use of 10 types of substances (tobacco, alcohol, marijuana, cocaine, stimulants, sedatives, inhalants, hallucinogens, opioids, and other drugs).	The 8 questions address: the frequency of lifetime use, and in the past three months; feelings of compulsion; drug-related problems; inability to perform expected tasks; concern by family/ friends; unsuccessful attempts to stop or reduce use; injection use.	Each response corresponds to a score, ranging from 0 to 6, with the total score summation ranging from 0 to 39 for each substance. Total scores between 0 and 3 (0–10 for alcohol) are considered low risk (occasional or non-harmful use), 4 and 26 (11–26 for alcohol) indicate moderate risk (more regular use or harmful/hazardous use), and scores higher than 26 indicate high risk (frequent high-risk use or suggestive of dependence)	Cronbach's alpha values ranging from .71 to .90.

P4 Screener	4	If a positive answer is given to the pre-screening question about thoughts of self-harming, there are subsequent questions on: Past suicide attempts, Plan, Probability of completing suicide, and Preventive factors.	*Minimal risk*= no past history, no suicide plan, and no probability of an attempt. *Lower risk*= a plan and/or past history, but no probability of an attempt; presence of preventive factors. *Higher risk*= probability of a suicide attempt; absence of preventive factors.	NA
Academic Motivation Scale (AMS)	20	11-point Likert scale from 0 (Not at all true) to 10 (Completely true).	5 sub-scales Each sub-scale score ranges from 0 to 40 (no cut-off).	Cronbach's alpha values ranging from .73 to .91
Perceived School Self-Efficacy Scale (PSSES)	9	5-point Likert scale from 1 (Not capable at all) to 5 (Fully capable).	The total score ranges from 9 to 45 (no cut-off).	Cronbach's alpha values ranging from .83 to .87.
Self-Regulated Knowledge Scale-University (SRKS-U)	15	5-point Likert scale from 1 (Never) to 5 (Always or nearly always).	5 sub-scales Each sub-scale score ranges from 3 to 15 (no cut-off).	Cronbach's alpha values ranging from .70 to .80
Shortened Achievement Emotion Questionnaire (AEQ-S)	32 item for the sub-scale "Learning-related Emotions"	5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree).	The sub-scale is computed by summing the items and taking the mean (no cut-off).	Cronbach's alpha values ranging from .75 to .93.
South Oaks Gambling Screen (SOGS)	20	The response options for items are dichotomous (Yes or No).	Scores on the SOGS are determined by scoring one point for each question that shows the "at risk" response indicated and adding the total points. The maximum score is 20 (cut-off ≥ 5)	Cronbach's alpha of .97.

Note. NA: Not Applicable.

Table S2. Descriptive statistics and comparison of the socio-demographic and clinical features between the two survey samples.

	Survey 2019 n=553	Survey 2022 n=721	P value
Gender			
Male	234 (42.3%)	260 (36.1%)	.070

Female	317 (57.3%)	457 (63.4%)	
Other	2 (0.4%)	4 (0.6%)	
Age			
Mean (SD)	22.9 (3.80)	20.8 (3.83)	<.001 (t)
Nationality			
Italian	527 (95.3%)	685 (95.0%)	.914
Other	26 (4.7%)	36 (5.0%)	
Marital status			
Single	257 (46.5%)	407 (56.4%)	<.001
Relationship	296 (53.5%)	314 (43.6%)	
University status			
Student	424 (76.7%)	473 (65.6%)	<.001
Worker	129 (23.3%)	248 (34.4%)	
Living status			
In town	344 (62.2%)	517 (71.7%)	<.001
Out-town	209 (37.8%)	204 (28.3%)	
UCS Total			
Mean (SD)	81.4 (17.6)	83.4 (17.1)	.073
GHQ-12 Total			
Mean (SD)	6.44 (3.00)	6.07 (2.92)	.029
P4 Screener (suicide risk)			
No	463 (83.7%)	610 (84.6%)	.727
Yes	90 (16.3%)	111 (15.4%)	
USS Total			
Mean (SD)	14.3 (7.54)	14.4 (8.39)	.783
Brief COPE Active coping			
Mean (SD)	5.29 (1.39)	5.58 (1.40)	<.001
Brief COPE Planning			
Mean (SD)	5.97 (1.47)	5.64 (1.54)	<.001
Brief COPE Positive reframing			
Mean (SD)	4.81 (1.61)	4.76 (1.55)	.722
Brief COPE Acceptance			
Mean (SD)	5.60 (1.42)	5.44 (1.48)	.035
Brief COPE Humor			
Mean (SD)	3.82 (1.54)	3.97 (1.52)	.0396
Brief COPE Religion			
Mean (SD)	3.03 (1.56)	3.01 (1.55)	.786

Brief COPE Emotional support			
Mean (SD)	4.66 (1.71)	4.62 (1.71)	.765
Brief COPE Instrumental support			
Mean (SD)	4.78 (1.64)	4.73 (1.68)	.488
Brief COPE Self-distraction			
Mean (SD)	5.07 (1.46)	5.03 (1.43)	.747
Brief COPE Denial			
Mean (SD)	2.75 (1.13)	2.83 (1.17)	.291
Brief COPE Venting			
Mean (SD)	4.48 (1.61)	4.37 (1.54)	.343
Brief COPE Substance Use			
Mean (SD)	2.37 (1.01)	2.46 (0.999)	.003
Brief COPE Behavioural disengagement			
Mean (SD)	3.12 (1.28)	3.29 (1.41)	.069
Brief COPE Self-blame			
Mean (SD)	5.84 (1.49)	5.69 (1.56)	.153
ASSIST Tobacco			
Mean (SD)	5.16 (7.28)	3.81 (7.21)	<.001
ASSIST Alcohol			
Mean (SD)	7.11 (5.97)	4.09 (4.16)	<.001
ASSIST Marijuana			
Mean (SD)	1.76 (4.61)	0.638 (2.76)	<.001
ASSIST Cocaine			
Mean (SD)	0.0850 (0.831)	0.0166 (0.380)	.019
ASSIST Stimulants			
Mean (SD)	0.0325 (0.360)	0.0319 (0.587)	.276
ASSIST Inhalants			
Mean (SD)	0.0217 (0.312)	0.0291 (0.583)	.745
ASSIST Sedatives			
Mean (SD)	0.544 (3.07)	0.341 (2.21)	.050
ASSIST Hallucinogens			
Mean (SD)	0.0488 (0.458)	0.0291 (0.538)	.089
ASSIST Opioids			
Mean (SD)	0.0452 (0.876)	0 (0)	.106
ASSIST Other drugs			
Mean (SD)	0.0217 (0.312)	0.0139 (0.247)	.743

Table S3. Distribution of responses to the three main outcomes regarding the effect of pandemic on social relationship and academic life (survey 2022).

Outcome categorical variables	n (%)
Pandemic impact on social relationship [yes *vs* no]	429 (78%)
Yes	124 (22%)
No	
Pandemic impact on academic grade: pandemic improves academic grade [yes *vs* no]	222 (40%)
Yes	331 (60%)
No	
Pandemic impact on academic performances: pandemic worsened academic performances [yes *vs* no]	
Yes	260 (47%)
No	293 (53%)