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The Psychological Vulnerability of French University Students to the COVID-19 Confinement

Sarah Le Vigouroux, Aurélie Goncalves, Elodie Charbonnier

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HAL Authorization

1 **Title** Psychological vulnerability of French university students during COVID-19 lockdown

2 **Authors:**

3 Sarah Le Vigouroux[§]; Aurélie Goncalves^{*§}; Elodie Charbonnier

4

5 **Affiliation**

6 UNIV. NIMES, EA7352 CHROME / APSY^V, F-30021 Nîmes Cedex, France

7 [§] Co-first author

8

9 **Abstract:** Even before the current pandemic, university students were known to have high
10 levels of hassles, anxiety, and depressive symptoms. In all probability, the advent of COVID-
11 19 has substantially raised these levels. The present study measured the emotional state of
12 university students during lockdown, and identified the relevant situational and psychological
13 factors. To this end, 1297 French university students were assessed during lockdown, which
14 lasted from 16 March to 11 May in France. Situational factors included the belief that lockdown
15 was compromising their future job prospects, COVID-19 symptoms, and health concerns.
16 Psychological factors included students' implicit theory of emotion, and the coping strategies
17 they used during lockdown. We explored the extent to which these factors were associated with
18 levels of hassles, anxiety, and depressive symptoms. Results indicated that students' belief that
19 lockdown was compromising their future job prospects was positively related to hassles ($r =$
20 $.34, p < .001$), while concerns about their own health and that of relatives were positively
21 associated with anxiety ($r = .37$ and $.34; p < .001$). In addition, use of the positive reframing
22 coping strategy mediated the effect of students' implicit theory of emotion on their depressive
23 symptoms. Even though the national lockdown is now over, the pandemic will continue to have
24 a major impact on university students over the coming months. It is therefore essential for
25 universities to provide them with adequate psychological support.

26 **Keywords:** coronavirus; university students; depression; anxiety; hassles; lockdown;
27 pandemic

28 **1. Introduction**

29 On 12 March 2020, the French Government introduced a series of unprecedented
30 measures designed to combat the spread of coronavirus (COVID-19), and on 16 March, the
31 entire population of France was placed under lockdown. Universities were immediately closed,
32 leading to urgent changes in learning habits and exams, generating considerable uncertainty,
33 and massively reducing social contacts, especially for students living alone. Even before the
34 pandemic, university students had been identified as having poorer mental health than their
35 nonstudent peers (Stanley & Manthorpe, 2001). For example, a study conducted in 21 countries
36 worldwide found that 18.5% of university students had had a least one major depressive
37 episode, and 16.7% displayed a generalized anxiety disorder (Auerbach et al., 2018). Ibrahim
38 et al. (2013)'s literature review including 24 studies found that the prevalence of depression
39 among university students was 30.6%. In addition, a recent systematic review including 48
40 articles from different parts of the world showed a prevalence of 26.1% for depressive
41 symptoms and 24.5% for anxiety among 56,816 students (de Paula et al., 2020). However, both
42 reviews highlighted substantial disparities between countries and studies, in terms of education
43 level, subject, or measures used. For example, 30% of Japanese students were found to have
44 probable anxiety and depressive symptoms (Matsudaira et al., 2009), compared with only 13%
45 of students in Lithuania (Bunevicius et al., 2008). Despite these disparities in prevalence, there
46 is a consensus that university students worldwide are vulnerable to anxiety and depressive
47 symptoms.

48 Ordinarily, students' poor mental health stems partly from the need to deal with an
49 accumulation of hassles, in the shape of university pressure, schedule changes, material tasks,
50 paid work activities, financial difficulties, and isolation (Réveillère et al., 2001). Coping
51 strategies therefore play a central role. These strategies, and thus emotional experience, are
52 influenced by beliefs about emotions (Tamir et al., 2007). Some individuals see emotions as the
53 direct and uncontrollable consequences of events or contexts (i.e., static implicit theory).

54 Others, however, consider them to be malleable, and have a clearer sense of being able to act
55 upon their emotional experience (i.e., dynamic implicit theory). Endorsement of a dynamic
56 implicit theory of emotion is associated with less anxiety (De Castella et al., 2014), through
57 better use of strategies such as cognitive reappraisal (Tamir et al., 2007). We can therefore
58 hypothesize that implicit theory of emotion played a role in the coping strategies used by
59 university students during COVID-19 lockdown, and thus in their emotional state. In Europe,
60 there have only been four studies-all descriptive-of the impact of COVID-19 on students. These
61 highlighted high levels of anxiety and depressive symptoms (Essadek & Rabeyron, 2020;
62 Husky et al., 2020; Kaparounaki et al., 2020; Odriozola-González et al., 2020). To date, the
63 factors involved in the expression of these symptoms during lockdown have mostly been
64 overlooked. More specifically, no studies have evaluated the reciprocal influences of situational
65 factors (e.g., COVID-19 symptoms, health concerns), and psychological factors (e.g., coping,
66 implicit theory of emotions), on students' emotional states (e.g., anxiety, depression, hassles).

67 The purpose of the present study was thus to assess the emotional state of French
68 university students during lockdown, and the psychological and situational factors involved.
69 More specifically, the objectives of the present study were to (a) investigate the links between
70 situational factors and students' emotional state, (b) investigate the links between psychological
71 factors and their emotional state, and (c) explore the possible reciprocal influence of
72 dispositional and situational factors on their emotional state.

73 **2. Method**

74 **2.1. Sample and procedure**

75 Data were collected anonymously between 23 April and 8 May (i.e., after 1 month of
76 lockdown), via an online survey designed with Qualtrics software. A link to the survey was sent
77 by e-mail to teachers in different faculties (Sciences, Sport Sciences, Psychology, Art, etc.) at
78 four French universities (Nimes, Lorraine, Strasbourg, and Catholic University of the West),
79 who forwarded it to their students, using either the university's mailing lists or the students'

80 social media groups. The link to the survey was also distributed via social media by the students
81 who responded, thereby allowing students from other universities to respond. A total of 2153
82 people initially clicked on the link, but 11 refused to give their consent and were therefore not
83 given access to the survey. Another 11 were excluded, because they mentioned that they were
84 not students, while 833 people started but did not complete all the questionnaire. Finally, one
85 person was excluded from the study by the investigators because of inconsistent responses. Our
86 final sample therefore comprised 1297 students from different French universities, mainly in
87 the south east, north west and north east (region particularly badly affected by COVID-19).
88 Participants were aged 17-75 years ($M = 21.27$, $SD = 4.72$). Participants' characteristics are set
89 out in Table 1. About 38.32% of students reported that, on average, more than two relatives (M
90 $= 2.43$, $SD = 2.08$) in their environment had exhibited COVID-19 symptoms.

91 INSERT TABLE 1 ABOUT HERE

92 **2.2. Measures**

93 **2.2.1. Hassles**

94 We measured students' level of hassles with items taken from the Revised University
95 Student Hassles Scale (RUSHS; Pett & Johnson, 2005). We included items ($N = 22$) belonging
96 to the Time pressures, Friendships, and Physical appearance subscales in the questionnaire, as
97 these appeared to be the most relevant in the specific context of lockdown. Participants
98 indicated the severity of each type of hassle since lockdown on a 5-point scale ranging from 1
99 (*Not at all severe*) to 5 (*Extremely severe*). Higher scores reflected higher levels of hassles.
100 Cronbach's alphas were satisfactory: .89 for Time pressures, .74 for Friendships, .80 for
101 Physical appearance, and .88 for Total hassles.

102 **2.2.2. Anxiety and depressive symptoms**

103 Anxiety and depressive symptoms were assessed using a French version of the Hospital
104 Anxiety and Depression Scale (HADS; Lepine et al., 1985). This 14-item self-report
105 questionnaire assesses anxiety symptoms (7 items) and depressive symptoms (7 items) with

106 labels varying from one item to the next. Scores range from 0 to 21 for each dimension, with
107 higher scores reflecting higher levels of anxiety or depressive symptoms.

108 **2.2.3. Implicit theory of emotions**

109 Students' implicit theory of emotion was assessed using a French translation of the
110 Implicit Theories of Emotion Scale (Tamir et al., 2007), based on the procedure used by
111 Vallerand (1989). This 4-item self-report measure assesses dynamic implicit theory (2 items; r
112 = .50, $p < .001$) and static implicit theory (2 items; $r = .68$, $p < .001$). Scores on the latter were
113 reversed to calculate a composite dynamic implicit emotion score ($\alpha = .80$). Participants
114 answered on a 6-point Likert scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*).

115 **2.2.4. Strategies used to cope with lockdown**

116 Coping strategies were assessed using a French version of the situational version of the
117 Brief-COPE (Muller & Spitz, 2003). Students were instructed to refer to a stressful situation
118 related to lockdown. This self-report scale assesses 14 coping strategies (2 items per strategy):
119 active coping, planning, instrumental support, use of emotional support, venting, behavioral
120 disengagement, self-distraction, self-blame, positive reframing, humor, denial, acceptance,
121 religion, and substance use. Participants rated each of the 28 items on a 4-point Likert scale
122 ranging from *Never* to *Always*. Higher scores reflected higher levels of strategy use.

123 **2.2.5. Situational factors**

124 We considered six situational factors: (a) the extent to which participants felt that
125 lockdown was compromising their future job prospects (scale ranging from 0 to 100); (b) the
126 extent to which university studies were essential to participants (scale ranging from 0 to 100);
127 (c) the presence or absence of COVID symptoms; (d) the presence or absence of COVID
128 symptoms in their relatives; (e) participants' level of concern about their health owing to the
129 COVID-19 crisis (scale ranging from 0 to 100); and (f) participants' level of concern about their
130 relatives' health owing to the COVID-19 crisis (scale ranging from 0 to 100).

131 **2.3. Statistical analyses**

132 First, correlations were calculated to examine the associations between all numerical
133 variables (i.e., essential nature of university studies, belief that lockdown was compromising
134 students' future job prospects, concerns about students' own health and that of their relatives,
135 anxiety and depressive symptoms, hassles, implicit theory of emotion, and coping strategies).
136 Second, mean comparisons (with Student's *t* tests or analyses of variance, ANOVAs) were
137 conducted to examine differences in psychological experiences as a function of categorical
138 variables (i.e., paid work activity, lockdown with parents, COVID-19 symptoms). Finally, a
139 network analysis based on partial correlations was carried out to study all the relationships.

140 **3. Results**

141 **3.1. Links between emotional state and situational factors**

142 Our first objective was to investigate the links between the situational factors and
143 hassles, anxiety, and depressive symptoms. Results showed that 42.48% of participants had
144 possible depressive symptoms ($HADS-D \geq 8$), and 33.38% had probable anxiety ($HADS-A \geq$
145 11). Our correlational analyses (Table 2) showed that the more university students worried
146 about their health, the more they worried about the health of their loved ones ($r = .50, p < .001$).
147 In addition, these two variables were positively associated with hassles, depressive symptoms,
148 and above all anxiety ($r = .37, p < .001$ and $r = .34, p < .001$). Similarly, the more university
149 students considered that lockdown was compromising their future job prospects, the higher their
150 levels of hassles, anxiety, and depressive symptoms. However, the notion that university studies
151 are essential was not related to psychological issues, and was only weakly related to the belief
152 that lockdown was compromising students' future job prospects. Finally, university students
153 who had symptoms of COVID-19, and/or who had relatives with COVID-19 symptoms, had
154 higher levels of hassles, anxiety and depressive symptoms, compared with participants who had
155 no symptoms (Table 3). However, they were no more concerned about either their own health

156 or that of their relatives. In addition, differences in emotional state were not explained either by
157 paid work activity or by lockdown with parents.

158 INSERT TABLES 2 & 3 ABOUT HERE

159 **3.2. Links between emotional state and psychological factors**

160 Our second objective was to evaluate the associations between psychological factors
161 (coping strategies and implicit theory of emotion) and students' emotional state. The first
162 observation yielded by the descriptive data (Table 2) was that participants had quite low mean
163 levels of use of coping strategies, except for acceptance and positive reframing. The five coping
164 strategies most commonly used by our participants were acceptance, positive reframing,
165 planning, self-distraction, and venting. Our correlational analyses (Table 2) showed that
166 hassles, anxiety, and depressive symptoms were related to all the coping strategies, except for
167 religion, venting, and self-distraction. More specifically, hassles, anxiety, and depressive
168 symptoms were positively correlated with behavioral disengagement ($r = .30$, $r = .32$, and $r =$
169 $.41$; $ps < .001$), self-blame ($r = .46$, $r = .51$, and $r = .44$; $ps < .001$), and were negatively
170 correlated with acceptance ($r = -.30$, $r = -.41$, and $r = -.46$; $ps < .001$), and positive reframing
171 ($r = -.25$, $r = -.37$, and $r = -.50$; $ps < .001$). Similar associations were observed between these
172 strategies and implicit theory of emotion (behavioral disengagement: $r = -.22$; self-blame: $r = -$
173 $.19$; acceptance: $r = .23$; and positive reframing $r = .32$; all $ps < .001$). In other words,
174 participants who above all endorsed an entity theory of emotion (i.e., belief that even with
175 effort, it is impossible to change the emotions one feels), exhibited poorer adjustment to
176 lockdown and higher levels of stress, anxiety, and depressive symptoms.

177 **3.3. Reciprocal influence of dispositional and situational factors on emotional state**

178 Finally, our third objective was to explore the reciprocal influence of dispositional and
179 situational factors on students' emotional state. A network analysis based on partial correlations
180 (Fig. 1) highlighted the centrality of anxiety and depressive symptoms in the psychological

181 functioning of university students during lockdown. Our results indicated that the belief that
182 lockdown was compromising their future job prospects was related to more hassles, while
183 concerns about their own and relatives' health were related to anxiety. As expected, implicit
184 theory of emotion was indirectly associated with depressive symptoms, via positive reframing.

185 INSERT FIGURE 1 ABOUT HERE

186 4. Discussion

187 According to UNESCO, on 1 April 2020, schools and universities were closed in 185
188 countries around the world, affecting 1 542 412 000 learners (i.e., nearly 89.4% of the world's
189 enrolled learners). In France, a total lockdown was imposed on 16 March, and all universities were
190 closed. On 18 May, the lockdown started to be lifted, but French universities remained closed
191 to students until September 2020. Unfortunately, even if the virus is partially under control, it
192 is likely to have a lasting impact on universities. Since universities reopened, social distancing
193 rules and the wearing of masks have led to many changes in the way they operate. To reduce
194 the number of students on campus, hybrid learning or e-learning is being heavily promoted. In
195 addition, the threat of a further spread of the pandemic and full closure of universities continues
196 to hang over students. By 14 September, several French universities (e.g., Montpellier School
197 of Medicine, Political Science Institute in Reims) had already had to close again, owing to the
198 high prevalence of the virus (*Le Monde*¹). In this context, identifying the emotional state of
199 French university students during the spring lockdown, as well as the psychological and
200 situational factors involved, could help the authorities anticipate potential difficulties during
201 the 2020-2021 academic year.

¹ *Le Monde* (15 September 2020). Covid-19: pour les étudiants, rentrée universitaire, premiers clusters et séances de sensibilisation.

202 Our results showed that during lockdown, 42.48% of our participants displayed possible
203 depressive symptoms, whereas depressive symptoms usually affect about 30% of students in
204 France (Boujut et al., 2009). This also seems to have been the case in other countries. For
205 instance, a rate of 31.9% was found in Nigerian students during their lockdown (Ojewale,
206 2020), whereas the pre-COVID rate was 12.7% (Seun-Fadipe & Mosaku, 2017). Concerning
207 anxiety, our results showed that during lockdown, 33.38% of our participants had probable
208 anxiety. This is also a higher rate than the one that is usually observed for students in France
209 (24.2%; Balayssac et al., 2018). In addition, this rate is higher than the rate (22.5%) for French
210 nonstudent youth (18-24 years) 2 weeks after the start of lockdown (Chan-Chee et al., 2020).
211 These results reflect the high levels of anxiety among French university students during
212 lockdown. Taken together, our results suggest that students, known to constitute a *vulnerable*
213 population (see systematic reviews by Ibrahim et al., 2013; de Paula et al., 2020), could become
214 even more vulnerable during the 2020-2021 academic year, meaning that universities will have
215 to be extremely vigilant. This vigilance will be all the more necessary, given that studies that
216 have tracked the long-term consequences of previous pandemics suggest that psychological
217 problems (including anxiety and depressive symptoms) may persist for months and even years
218 after the event (e.g., Bonanno et al., 2008; Lee et al., 2007; Liu et al., 2012).

219 Our results showed that anxiety and depressive symptoms were strongly related to the
220 types of coping strategies used during lockdown, especially avoidance strategies (i.e., self-
221 distraction, denial, substance use, behavioral disengagement, venting, and self-blaming). This
222 finding is consistent with studies conducted during the lockdown in the United Kingdom
223 (Dawson & Golijani-Moghaddam, 2020), but also prior to the pandemic (Garnefski et al., 2002;
224 Whatley et al., 1998). In addition, it is interesting to note that participants' mean scores were
225 quite low for most of the coping strategies we measured. According to Dawson and Golijani-
226 Moghaddam (2020), the isolating and restrictive pandemic context may mean that some
227 individuals can no longer successfully use their normal ways of coping. It may be that our

228 participants had difficulty finding ways to cope with lockdown, and therefore resorted less to
229 coping strategies. However, it is also important to point out that approach coping, and more
230 specifically acceptance and positive reframing, were the strategies our participants used the
231 most, and these strategies played a generally protective role against anxiety and depressive
232 symptoms. In summary, our study showed that university students had difficulty diversifying
233 their coping strategies during lockdown, but were nonetheless able to implement several
234 effective strategies, such as positive reframing, planning, and acceptance. It is possible that
235 those who had difficulty implementing these strategies were also those who expressed the
236 highest levels of anxiety and depressive symptoms.

237 Beyond the importance of selecting and using effective coping strategies for reducing the
238 anxiety associated with the pandemic and lockdown, our study highlighted the importance of
239 students' beliefs about the capacity for emotional regulation, and more specifically their
240 implicit theory of emotions. Our results showed that the more students adhered to an implicit
241 static theory of emotions (i.e. belief that even with effort, it is impossible to change the emotions
242 they feel), the poorer their adjustment to lockdown and the higher their levels of hassles, anxiety
243 and depressive symptoms. The links between students' adjustment and their implicit theory of
244 emotion are consistent with previous studies (e.g., Tamir et al., 2007), and support the idea that
245 interventions aimed at developing students' emotion regulation skills could help to prevent them
246 developing anxiety and depressive symptoms, and improve their ability to cope with stress. To
247 this end, it seems appropriate to encourage their adhesion to a dynamic theory of emotion.

248 Our results also showed that situational variables played a central role in students'
249 emotional state during lockdown. More specifically, the belief that lockdown was
250 compromising their future prospects was positively associated with hassles, anxiety, and
251 depressive symptoms. This finding is consistent with a previous study (Hasan & Bao, 2020)
252 that showed that fear of losing an academic year was the concern that most exacerbated
253 students' psychological anxiety in Bangladesh during lockdown. In the same way, our results

254 showed that the more students worried about their own health than that of their loved ones, the higher
255 their levels of hassles, anxiety and depressive symptoms. All these associations can be
256 explained by the uncertainty (about health and the future) generated by COVID-19, a central
257 concept in the fear of this virus (Schimmenti et al., 2020). In support of this argument, Satici et
258 al. (2020) demonstrated that the inability to tolerate uncertainty in the COVID-19 pandemic
259 can trigger fear of virus and impact negatively on psychological wellbeing.

260 COVID-19 has brought about a digital revolution in higher education (e.g., use of
261 videoconferencing, digital open books, online exams, interaction in virtual environments;
262 Strielkowski, 2020). Although e-learning was essential for maintaining education during
263 lockdown, it was not without consequences (e.g., high levels of stress and strain), as illustrated
264 by the global survey of the International Association of Universities (IAU, 2020). According to
265 Baticulon et al. (2020), there can be a number of obstacles to e-learning, including
266 technological, personal, family, institutional, or community barriers. In their study, only 41%
267 of students in the Philippines thought they could physically and mentally participate in this type
268 of education. In addition, 25% of college students in China suffered from severe anxiety due to
269 e-learning crack-up (Cao et al., 2020), and anxiety also appears to be related to a lack of
270 enjoyment in the classroom (Dewaele et al., 2019). Despite the reopening of most universities
271 around the world in September 2020, social distancing rules impose the use of distance and/or
272 hybrid learning, for which students are poorly prepared (especially first-year undergraduates).
273 Some students may be overwhelmed by the increased flow of information and the lack of a
274 regular schedule, which can lead to dropout and university failure. This context may well
275 increase hassles about future job prospects, especially among students for whom university
276 education is essential, further increasing their levels of hassles stress and anxiety. All this
277 suggests that university students, who are already known to be a vulnerable population, may be
278 particularly at risk during the 2020-2021 academic year.

279 It is therefore essential that universities' preventive medicine departments provide
280 adequate psychological support for students. Based on the results of our partial correlation-
281 based network analysis, psychological interventions aimed at reducing depressive symptoms
282 could focus on promoting the use of positive reframing and acceptance, as well as discouraging
283 the use of behavioral disengagement. To reduce hassles and anxiety, it also seems appropriate
284 to limit the use of self-blame, and to analyze students' concerns about their future job prospects,
285 their health, and that of their loved ones. To limit contact and improve coping strategies, *online*
286 *self-help* interventions (e.g., web page, Facebook page, e-learning) could be used more. A pilot
287 study conducted among first-year medical students showed that a stress management
288 intervention based exclusively on Facebook (including educational, information and stress
289 management resources based primarily on original videos) improved their coping strategies
290 (George et al., 2013). As a precautionary measure, at the beginning of the academic year,
291 universities should provide information about COVID-19 and its risks, hybrid education,
292 hassles, anxiety and depressive symptoms, and how to manage it all.

293 The present results need to be interpreted with caution. First, although our sample size
294 was large, we cannot be sure that it was representative of all students in France. Although our
295 survey was made available to students in several universities, there was a low response
296 rate-possibly because students were more interested in learning about their courses, and less
297 available to take part in a survey. Nevertheless, students from different subjects and different
298 levels of education were included, leading us to believe that our results reflect French students'
299 emotional state during lockdown rather well. Second, these results exclusively concerned
300 French university students, thus limiting their generalizability. However, the few studies
301 conducted in other countries thus far have also reported increased anxiety and depressive
302 symptoms among university students during lockdown. The impact of fear of COVID-19,
303 academic failure and coping strategies on these symptoms has also been highlighted in research

304 in other countries. These data suggest that our results could also inform the dynamics in other
305 countries, although further research is warranted at this stage. Third, the cross-sectional design
306 of our study did not allow us to state that our participants' symptoms were lower before
307 lockdown. Based on previous studies demonstrating that the psychological consequences of
308 pandemics can last for several months, it is essential for future studies to conduct longitudinal
309 assessments of students' emotional state throughout the 2020-2021 academic year.

310 **5. Conclusion**

311 In conclusion, our study highlighted high levels of hassle, probable anxiety, and/or
312 probable depressive symptoms among university students during France's COVID-19
313 lockdown. Results showed that the students most at risk were those who thought that lockdown
314 would have a detrimental effect on their future job prospects, worried about their health and
315 that of their loved ones, believed that emotions are fixed, favored the use of avoidance strategies
316 (e.g., behavioral disengagement, denial), and made little use of positive reframing or
317 acceptance. These results are all the more important given that the threat of a so-called *second*
318 *wave* and closure of the universities, and even a new lockdown, may maintain or even increase
319 students' concerns for their health and that of their loved ones, as well as their anxiety.

320

321 **6. References**

- 322 Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P.,
323 Demyttenaere, K., Ebert, D. D., Green, J. G., Hasking, P., Murray, E., Nock, M. K.,
324 Pinder-Amaker, S., Sampson, N. A., Stein, D. J., Vilagut, G., Zaslavsky, A. M., &
325 Kessler, R. C. (2018). WHO world mental health surveys international college student
326 project: Prevalence and distribution of mental disorders. *Journal of Abnormal*
327 *Psychology, 127*(7), 623–638. <https://doi.org/10.1037/abn0000362>
- 328 Balayssac, D., Pereira, B., Darfeuille, M., Cuq, P., Vernhet, L., Collin, A., Vennat, B., &
329 Authier, N. (2018). Use of psychotropic medications and illegal drugs, and related
330 consequences among French pharmacy students - SCEP study: A nationwide cross-
331 sectional study. *Frontiers in Pharmacology, 9*(July), 1–12.
332 <https://doi.org/10.3389/fphar.2018.00725>
- 333 Baticulon, R. E., Rose Alberto, N. I., Beatriz Baron, M. C., Earl Mabulay, R. C., Gabriel

- 334 Rizada, L. T., Jenkin Sy, J., Jan Tiu, C. S., Clarion, C. A., & Carlo Reyes, J. B. (2020).
 335 Barriers to online learning in the time of COVID-19: A national survey of medical
 336 students in the Philippines. *MedRxiv*, 2020.07.16.20155747.
 337 <https://doi.org/10.1101/2020.07.16.20155747>
- 338 Bonanno, G., Ho, S. M., Wong, C. P., Chan, J. C., Kwong, R. S., Cheung, C. K., & Wong, V.
 339 C. (2008). Psychological resilience and dysfunction among hospitalized survivors of the
 340 SARS epidemic in Hong Kong: A latent class approach. *Health Psychology*, 27(5), 659-
 341 667. <https://doi.org/10.1037/0278-6133.27.5.659>
- 342 Boujut, E., Koleck, M., Bruchon-Schweitzer, M., & Bourgeois, M. L. (2009). Mental health
 343 among students: A study among a cohort of freshmen. *Annales Medico-Psychologiques*,
 344 167(9), 662–668. <https://doi.org/10.1016/j.amp.2008.05.020>
- 345 Bunevicius, A., Katkute, A., & Bunevicius, R. (2008). Symptoms of anxiety and depression in
 346 medical students and in humanities students: Relationship with big-five personality
 347 dimensions and vulnerability to stress. *International Journal of Social Psychiatry*,
 348 54(6), 494–501. <https://doi.org/10.1177/0020764008090843>
- 349 Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological
 350 impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*,
 351 287. <https://doi.org/10.1016/j.psychres.2020.112934>
- 352 Chan-Chee, C., Léon, C., Lasbeur, L., Lecrique, J., Raude, J., Arwidson, P., & du Roscoät, E.
 353 (2020). La santé mentale des Français face au Covid-19: Prévalences, évolutions et
 354 déterminants de l’anxiété au cours des deux premières semaines de confinement
 355 (Enquête CoviPrev 23-25 mars et 30 mars-1er avril 2020). *Bulletin Épidémiologique*
 356 *Hebdomadaire*, 13, 260–269.
- 357 Dawson, D. L., & Golijani-Moghaddam, N. (2020). COVID-19: Psychological flexibility,
 358 coping, mental health, and wellbeing in the UK during the pandemic. *Journal of*
 359 *Contextual Behavioral Science*, 17(June), 126–134.
 360 <https://doi.org/10.1016/j.jcbs.2020.07.010>
- 361 de Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Heimberg, R. G., & Gross, J. J. (2014).
 362 Emotion beliefs in social anxiety disorder: Associations with stress, anxiety, and well-
 363 being. *Australian Journal of Psychology*, 66(2), 139–148.
 364 <https://doi.org/10.1111/ajpy.12053>
- 365 de Paula, W., Breguez, G. S., Machado, E. L., & Meireles, A. L. (2020). Prevalence of
 366 anxiety, depression, and suicidal ideation symptoms among university students: A
 367 systematic review. *Brazilian Journal of Health Review*, 3(4), 8739–8756.
 368 <https://doi.org/10.34119/bjhvr3n4-119>
- 369 Dewaele, J., Magdalena, A. F., & Saito, K. (2019). The effect of perception of teacher
 370 characteristics on Spanish EFL learners’ anxiety and enjoyment. *Modern Language*
 371 *Journal*, 103(2), 412–427. <https://doi.org/10.1111/modl.12555>
- 372 Essadek, A., & Rabeyron, T. (2020). Mental health of French students during the Covid-19
 373 pandemic. *Journal of Affective Disorders*.
 374 <https://doi.org/https://doi.org/10.1016/j.jad.2020.08.042>
- 375 Garnefski, N., Legerstee, J., Kraaij, V., Van Den Kommer, T., & Teerds, J. (2002). Cognitive
 376 coping strategies and symptoms of depression and anxiety: A comparison between
 377 adolescents and adults. *Journal of Adolescence*. <https://doi.org/10.1006/jado.2002.0507>
- 378 George, D. R., Dellasega, C., Whitehead, M. M., & Bordon, A. (2013). Facebook-based stress
 379 management resources for first-year medical students: A multi-method evaluation.
 380 *Computers in Human Behavior*. <https://doi.org/10.1016/j.chb.2012.12.008>
- 381 Hasan, N., & Bao, Y. (2020). Impact of “ e-Learning crack-up ” perception on psychological
 382 distress among college students during COVID-19 pandemic: A mediating role of “ fear
 383 of academic year loss”. *Children and Youth Services Review*, 118(July), 105355.
 384 <https://doi.org/10.1016/j.childyouth.2020.105355>

- 385 Husky, M. M., Kovess-Masfety, V., & Swendsen, J. D. (2020). Stress and anxiety among
386 university students in France during Covid-19 mandatory confinement. *Comprehensive*
387 *Psychiatry*, *102*, 152191. <https://doi.org/10.1016/j.comppsy.2020.152191>
- 388 IAU. (2020). *Covid-19: Higher education challenges and responses*. The Global Voice of
389 Higher Education. [https://www.iau-aiu.net/COVID-19-Higher-Education-challenges-](https://www.iau-aiu.net/COVID-19-Higher-Education-challenges-and-responses)
390 [and-responses](https://www.iau-aiu.net/COVID-19-Higher-Education-challenges-and-responses)
- 391 Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of
392 studies of depression prevalence in university students. *Journal of Psychiatric*
393 *Research*, *47*(3), 391–400. <https://doi.org/10.1016/j.jpsychires.2012.11.015>
- 394 Kaparounaki, C. K., Patsali, M. E., Mousa, D.-P. V., Papadopoulou, E. V. K., Papadopoulou,
395 K. K. K., & Fountoulakis, K. N. (2020). University students' mental health amidst the
396 COVID-19 quarantine in Greece. *Psychiatry Research*, *290*, 113111.
397 <https://doi.org/10.1016/j.psychres.2020.113111>
- 398 Lee, A. M., Wong, J. G. W. S., McAlonan, G. M., Cheung, V., Cheung, C., Sham, P. C., Chu,
399 N. M., Wong, P. C., Tsang, K. W. T., & Chua, S. E. (2007). Stress and psychological
400 distress among SARS survivors 1 year after the outbreak. *Canadian Journal of*
401 *Psychiatry*. <https://doi.org/10.1177/070674370705200405>
- 402 Lepine, J. P., Godchau, M., & Brun, P. (1985). Anxiety and depression in inpatients. In *The*
403 *Lancet*. [https://doi.org/10.1016/S0140-6736\(85\)92589-9](https://doi.org/10.1016/S0140-6736(85)92589-9)
- 404 Liu, X., Kakade, M., Fuller, C. J., Fan, B., Fang, Y., Kong, J., Guan, Z., & Wu, P. (2012).
405 Depression after exposure to stressful events: Lessons learned from the severe acute
406 respiratory syndrome epidemic. *Comprehensive Psychiatry*.
407 <https://doi.org/10.1016/j.comppsy.2011.02.003>
- 408 Matsudaira, T., Igarashi, H., Kikuchi, H., Kano, R., Mitoma, H., Ohuchi, K., & Kitamura, T.
409 (2009). Factor structure of the Hospital Anxiety and Depression Scale in Japanese
410 psychiatric outpatient and student populations. *Health and Quality of Life Outcomes*, *7*,
411 1–9. <https://doi.org/10.1186/1477-7525-7-42>
- 412 Muller, L., & Spitz, E. (2003). Évaluation multidimensionnelle du coping: Validation du Brief
413 COPE sur une population française. *Encephale*, *29*(6 I), 507–518.
- 414 Odriozola-González, P., Planchuelo-Gómez, Á., Iruiria, M. J., & de Luis-García, R. (2020).
415 Psychological effects of the COVID-19 outbreak and lockdown among students and
416 workers of a Spanish university. *Psychiatry Research*, *290*, 113108.
417 <https://doi.org/10.1016/j.psychres.2020.113108>
- 418 Ojewale, L. Y. (2020). Psychological state and family functioning of University of Ibadan
419 students during the COVID-19 lockdown. <https://doi.org/10.1101/2020.07.09.20149997>
- 420 Pett, M. A., & Johnson, M. J. M. (2005). Development and psychometric evaluation of the
421 Revised University Student Hassles Scale. *Educational and Psychological*
422 *Measurement*, *65*(6), 984–1010. <https://doi.org/10.1177/0013164405275661>
- 423 Réveillère, C., Nandrino, J. ., Saily, F., Mercier, C., & Moreel, V. (2001). Étude des tracas
424 quotidiens des étudiants: Liens avec la santé perçue. *Annales Médico-Psychologiques,*
425 *Revue Psychiatrique*, *159*(6), 460–465. [https://doi.org/10.1016/S0003-4487\(01\)00070-1](https://doi.org/10.1016/S0003-4487(01)00070-1)
- 426 Sarmiento, M. (2015). A “mental health profile” of higher education students. *Procedia -*
427 *Social and Behavioral Sciences*, *191*, 12–20.
428 <https://doi.org/10.1016/j.sbspro.2015.04.606>
- 429 Satıcı, B., Saricali, M., Satıcı, S. A., & Griffiths, M. D. (2020). Intolerance of uncertainty and
430 mental wellbeing: Serial mediation by rumination and fear of COVID-19. *International*
431 *Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-020-00305-0>
- 432 Schimmenti, A., Billieux, J., & Starcevic, V. (2020). The four horsemen of fear during the
433 COVID pandemic. *Clinical Neuropsychiatry*, *17*(2), 41–45.
- 434 Seun-Fadipe, C. T., & Mosaku, K. S. (2017). Sleep quality and psychological distress among
435 undergraduate students of a Nigerian university. *Sleep Health*, *3*(3), 190–194.

436 <https://doi.org/10.1016/j.sleh.2017.02.004>
437 Stanley, N., & Manthorpe, J. (2001). Responding to students' mental health needs:
438 Impermeable systems and diverse users. *Journal of Mental Health, 10*(1), 41–52.
439 Strielkowski, W. (2020). COVID-19 pandemic and the digital revolution in academia and
440 higher education. *Preprints*. <https://doi.org/10.20944/preprints202004.0290.v1>
441 Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion:
442 Affective and social outcomes across a major life transition. *Journal of Personality and*
443 *Social Psychology, 92*, 731–744.
444 Vallerand, R. J. (1989). Vers une méthodologie de validation transculturelle de questionnaires
445 psychologiques: Implications pour la recherche en langue française. *Revue Canadienne*
446 *de Psychologie, 30*, 662–680.
447 Whatley, S. L., Foreman, A. C., & Richards, S. (1998). The relationship of coping style to
448 dysphoria, anxiety, and anger. *Psychological Reports*.
449 <https://doi.org/10.2466/pr0.1998.83.3.783>
450

451 **Table 1 Characteristics of survey respondents (*N* = 1297)**

Characteristics	Number	%
Sex		
Female	1009	77.79
Male	268	20.66
Other	20	1.54
University		
Nîmes	560	43.14
Lorraine	370	28.51
Strasbourg	212	16.33
UCO Angers	86	6.63
Others	70	5.39
Level		
Undergraduate	1130	86.86
First year	488	37.51
Second year	314	24.14
Third year	328	25.21
Master's	156	11.99
Fourth year	82	6.30
Fifth year	74	5.69
PhD	11	0.85
Undefined	4	0.31
Subject		
Psychology	473	36.84
Sports science	203	15.81
Languages	159	12.38
History/Geography	99	7.71
Sciences	82	6.39
Art/Design	56	4.36
Law/Economics/Management	48	3.74
French Literature	39	3.04
Lockdown with parents		
Yes	914	70.25
No	387	29.75
Paid work activity during lockdown		
Yes	219	16.86
Contact with the public	45	13.42
No contact with the public	174	3.47
No	1078	83.11
Positive COVID-19 test or symptoms		
Yes	177	13.60
No	1124	86.40
Relative with positive COVID-19 test or symptoms		
Yes	497	38.20
No	804	61.80
Anxiety		
No symptoms (≤ 7)	596	45.95
Possible anxiety (8-10)	268	20.66
Probable anxiety (≥ 11)	433	33.38
Depression		
No symptoms (≤ 7)	759	58.52
Possible depression (8-10)	275	21.20
Probable depression (≥ 11)	263	20.28

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Table 2 Descriptive data (mean, standard deviation, minimum and maximum) and correlations between variables of interest

	Mean (SD)	Min-Max	1		2		3		4		5		6		7		8	
			r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
1. Essential nature of university studies	79.50 (20.60)	0-100	—															
2. Belief that lockdown is compromising future job prospects	55.77 (30.28)	0-100	.09	.002	—	—												
3. Concerns about own health	32.14 (27.92)	0-100	.17	< .001	.18	< .001	—	—										
4. Concerns about relatives' health	67.84 (27.15)	0-100	.17	< .001	.21	< .001	.50	< .001	—	—								
5. Anxiety	8.76 (4.69)	0-21	.08	.003	.27	< .001	.37	< .001	.34	< .001	—	—						
6. Depressive symptoms	7.01 (4.02)	0-19	.00	.892	.31	< .001	.19	< .001	.15	< .001	.60	< .001	—	—				
7. Hassles	3.09 (.77)	1-5	.08	.006	.34	< .001	.24	< .001	.25	< .001	.57	< .001	.54	< .001	—	—		
8. Implicit theories of emotions	15.08 (4.46)	4-24	.06	.021	-.05	.09	-.03	.33	-.06	.024	-.21	< .001	-.30	< .001	-.17	< .001	—	—
Coping																		
9. Venting	4.24 (1.74)	2-8	.04	.157	.01	.72	.12	< .001	.08	.004	.08	.006	-.08	.005	.05	.065	.10	< .001
10. Using emotional support	4.02 (1.81)	2-8	.06	.04	.13	< .001	.23	< .001	.19	< .001	.37	< .001	.19	< .001	.26	< .001	-.05	.06
11. Using instrumental support	3.77 (1.68)	2-8	.06	.038	.06	.044	.23	< .001	.18	< .001	.22	< .001	.05	.087	.16	< .001	.02	.502
12. Planning	4.48 (1.78)	2-8	.14	< .001	-.09	< .001	.04	.168	.03	.358	-.05	.076	-.20	< .001	-.06	.04	.18	< .001
13. Active coping	3.75 (1.51)	2-8	.16	< .001	-.08	.004	.08	.006	.06	.031	-.05	.071	-.25	< .001	-.09	< .001	.19	< .001
14. Positive reframing	5.23 (1.81)	2-8	.04	.137	-.21	< .001	-.16	< .001	-.09	.001	-.37	< .001	-.50	< .001	-.25	< .001	.32	< .001
15. Humor	3.69 (1.72)	2-8	-.09	.002	-.12	< .001	-.24	< .001	-.20	< .001	-.31	< .001	-.25	< .001	-.16	< .001	.19	< .001
16. Acceptance	6.13 (1.65)	2-8	.01	.709	-.26	< .001	-.21	< .001	-.16	< .001	-.41	< .001	-.46	< .001	-.30	< .001	.23	< .001
17. Denial	3.02 (1.37)	2-8	.05	.099	.17	< .001	.16	< .001	.13	< .001	.27	< .001	.28	< .001	.27	< .001	-.12	< .001
18. Self-blame	3.85 (1.71)	2-8	.00	.958	.23	< .001	.16	< .001	.17	< .001	.51	< .001	.44	< .001	.46	< .001	-.19	< .001
19. Behavioral disengagement	3.76 (1.59)	2-8	-.08	.002	.15	< .001	.08	.004	.04	.112	.32	< .001	.41	< .001	.30	< .001	-.22	< .001
20. Substance use	2.62 (1.39)	2-8	-.07	.011	.17	< .001	.07	.008	.04	.15	.24	< .001	.23	< .001	.21	< .001	-.04	.162
21. Self-distraction	4.82 (1.60)	2-8	.10	< .001	.00	.972	.11	< .001	.13	< .001	.10	< .001	-.06	.04	.07	.013	.05	.083
22. Religion	2.82 (1.52)	2-8	-.02	.428	-.03	.324	.02	.387	.00	.928	.03	.26	-.02	.398	.03	.215	.15	< .001

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Table 3. Means comparisons (standard deviation) of psychological experience of lockdown as a function of living conditions (paid work

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activity, lockdown with parents, symptoms and university)

	Professional activity				Lockdown with parents				COVID-19 symptoms								University					
	Yes	No	<i>t</i>	<i>p</i>	Yes	No	<i>t</i>	<i>p</i>	Student				Relative				Strasbourg	Lorraine	Nîmes	UCO Angers	<i>F</i>	<i>p</i>
									Yes	No	<i>t</i>	<i>p</i>	Yes	No	<i>t</i>	<i>p</i>						
Lockdown is compromising my future job prospects	57.76 (28.11)	55.36 (3.70)	1.07	.285	55.55 (29.55)	56.28 (31.98)	-.39	.695	60.85 (32.54)	54.96 (29.84)	-2.41	.016	57.22 (30.62)	54.86 (30.05)	-1.37	.172	56.18 (29.11)	55.19 (31.44)	55.41 (3.54)	57.44 (25.9)	.16	.922
Concerns about personal health	31.71 (26.60)	32.22 (28.20)	-.25	.805	31.9 (27.64)	32.69 (28.62)	-.47	.642	32.43 (29.53)	32.09 (27.68)	-.15	.881	30.67 (28.31)	33.05 (27.66)	1.49	.137	31.08 (27.13)	31.97 (29.47)	33.39 (28.23)	28.14 (23.22)	1.05	.368
Concerns about relatives' health	69.97 (25.39)	67.40 (27.49)	1.28	.203	68.17 (26.74)	67.04 (28.13)	.68	.495	68.80 (28.98)	67.68 (26.86)	-.51	.611	69.13 (27.31)	67.03 (27.04)	-1.36	.175	67.5 (25.45)	69.17 (27.79)	68.59 (27.72)	60.86 (24.42)	2.32	.073
Anxiety	8.75 (4.83)	8.76 (4.66)	-.03	.979	8.63 (4.61)	9.06 (4.86)	-1.5	.133	9.72 (4.91)	8.61 (4.64)	-2.95	.003	9.31 (4.87)	8.42 (4.54)	-3.31	<.001	8.36 (4.57)	8.85 (4.98)	9.02 (4.69)	7.29 (3.18)	3.97	.008
Depressive symptoms	7.05 (4.03)	7 (4.02)	.16	.876	6.97 (3.93)	7.09 (4.24)	-.46	.646	8.01 (4.38)	6.85 (3.94)	-3.59	<.001	7.44 (4.28)	6.74 (3.83)	-3.06	.002	6.39 (3.93)	7.38 (4.33)	7.01 (.88)	6.69 (3.51)	2.94	.032
Hassles	3.14 (.77)	3.08 (.77)	1.16	.248	3.07 (.77)	3.12 (.78)	-1.15	.252	3.20 (.75)	3.07 (.77)	-2.19	.028	3.17 (.77)	3.03 (.76)	-3.2	.001	2.97 (.77)	3.07 (.80)	3.16 (.75)	2.92 (.71)	4.49	.004

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Note. For the dichotomous variables, we ran Student's *t* tests for independent groups. For the university variable including four modalities, we ran

459

an ANOVA.

