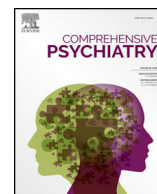




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Stress and anxiety among university students in France during Covid-19 mandatory confinement

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ARTICLE INFO

Keywords:
Covid-19
Confinement
Stress

ABSTRACT

While necessary from a public health standpoint, Covid-19 confinement strategies are often contrary to evidence-based therapies used to treat mental disorders. University students may be particularly vulnerable to mental health problems, but recent studies have indicated only a negligible impact of confinement strategies. French respondents to a World Mental Health survey of university students completed questions concerning Covid-19 confinement. The sample experienced increased anxiety as well as moderate to severe stress during confinement. Respondents who did not relocate to live with parents were disproportionately affected. Knowledge of confinement effects may be used to reduce its negative impact in vulnerable populations.

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1. Introduction

On March 16th, 2020, the French president Emmanuel Macron announced that a two-week confinement period would begin the following day in response to the Covid-19 pandemic. As the part of the population struggled to assure functional work-at-home conditions or stock food before the confinement deadline, others were also faced with the choice of whether to quickly change their place of residence. University students were disproportionately present among the latter individuals, as many lived in temporary housing and had the option of leaving the city and returning to live with parents or family. However, the time window for such decisions closed rapidly, and what was originally hoped to be a brief period of home confinement was eventually prolonged to last two full months.

There are limited data concerning the mental health consequences of home confinement or social isolation imposed by societal-level threats, although very recent reports suggest that home confinement has an initial impact on mental health which weakens four weeks later [14,15]. Due to the recency of Covid-19, the majority of published findings to date concerning the effects of epidemics on the onset or severity of mental disorders were conducted on other infection diseases. Studies during the Severe Acute Respiratory Syndrome (SARS) epidemic demonstrated increases in stress, PTSD, and global psychological

distress among both patients and healthcare workers [10]. Data on the Covid-19 pandemic are nonetheless emerging rapidly, with studies conducted in Chinese university students [2], the general population [7], healthcare workers [9] and people with mental disorders [5]. Taken together, these studies confirm the negative impact of the Covid-19 crisis on mental health and particularly with regard to anxiety, stress, and depression [12].

University students may constitute a particularly vulnerable population for mental health problems in light of challenges commonly associated with transitions to adulthood and the frequent economic and material difficulties of this population [1,13]. However, very recent research conducted in China among medical school undergraduates demonstrated that only a minority of students reported moderate (2.7%) or severe anxiety (0.9%), although the specific timing of data collection is unclear [2]. This latter study further reported that living with parents was associated with significantly lower rates of severe anxiety in students, while living in rural areas, not having a steady income and knowing someone infected with Covid-19 increased the risk of severe anxiety. However, the important differences between the cultural and political characteristics of China compared with those of western nations requires information concerning country-specific data addressing this question. The objectives of the present study are to compare French university students who relocated to another residence for the Covid-19 confinement period and those who did not with regard anxiety and other indicators of psychological distress.

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2. Methods

2.1. Participants and procedure

Data were drawn from an ongoing online survey among first-year university students in the French portion of the World Mental Health International College Student surveys. All incoming students received an e-mail inviting them to take part in the survey during the 2019 and 2020 academic year. Participants were provided with a description of the study and informed consent was obtained prior to starting the survey. Only respondents who were 18 years old or older at the time they completed the consent form were eligible. Recruitment and consent procedures were approved by an ethics committee and by the national data protection authority. A brief section that was specific to Covid-19 was added to the survey while French residents were under mandatory confinement. The present study focuses on respondents who completed the survey during that time frame ($n = 291$). The sample was 73.5% female, mean age 19.07 (SD = 1.70) and included students from the Social Sciences (16.2%), Health Sciences (26.1%), Technology (32.6%) and Law and Economics (25.1%).

2.2. Measures

2.2.1. Characteristics of residence during confinement

Respondents were asked whether they were currently staying at their usual residence or whether they had relocated specifically for the confinement period. In addition, respondents indicated whether they were currently in a rural vs urban area, specified the type of housing as well as its size (m^2), who they were currently staying with and whether they had access to a yard.

2.2.2. Anxiety, alcohol use and stress levels during the confinement period

Respondents were asked to specify if, since the beginning of the confinement period, their level of anxiety (or use of alcohol) "stayed the same", "increased", "decreased", or whether the question was not applicable to them. Respondents were also asked how much stress they currently experienced in each of the following domains: finances, health, romantic relationships, relationships with family, relationships with work colleagues or other students, the health and problems experienced by significant others, and overall life stress. Respondents were invited to respond on a scale from "none" to "very severe" on a 5-point Likert scale.

2.3. Data analysis

For the present study, respondents who endorsed "not applicable" were removed from analyses for anxiety and alcohol questions, and each stress variable was recoded to reflect 'moderate' or 'very severe' stress (coded as 1) versus 'no stress' or 'mild stress' (coded as 0). Between-group comparisons of those who relocated during the confinement period and those who did not were conducted using chi-squared tests in SPSS.

3. Results

University students who did not relocate were more likely to endure confinement months in a residence where they lived alone, $X^2(1) = 10.02$, $p < .01$, or with roommates, $X^2(1) = 7.34$, $p < .01$. Those who relocated were most often living in rural areas $X^2(1) = 64.0$, $p < .001$, in a house with their parents, $X^2(1) = 13.09$, $p < .001$, and with access to an external space such as a yard or garden, $X^2(1) = 22.81$, $p < .001$. While a majority (60.2%) of the sample indicated that their level of anxiety had increased since the beginning of the confinement period, those who remained in their usual residence were more likely to report such increases as compared to those who relocated, $X^2(1) = 4.32$, $p < .05$. There were no reported changes in alcohol use for either group. The experience of moderate to severe life stress was elevated in the overall

sample (61.6%), but a particularly high percentage of students who did not change residences (71.6%) reported general stress at moderate or severe levels compared to those who relocated (50.5%), $X^2(1) = 10.24$, $p < .001$. Concerning specific life domains, university students who did not relocate also reported higher stress levels in the financial $X^2(1) = 6.03$, $p < .05$, and personal health domains, $X^2(1) = 5.60$, $p < .05$. When stress was recoded to reflect severe to very severe stress vs moderate, mild, or no stress, the findings indicated those who did not relocate had significant higher levels of severe overall stress (27.6% vs 15.5%, $X^2(1) = 7.67$, $p = .031$) and levels of stress regarding the health of loved ones (32.5% vs 16.3%, $X^2(1) = 7.67$, $p = .006$).

4. Discussion

While still largely undocumented, the Covid-19 pandemic may impact mental health through direct threats to the individual's health but also through the indirect effects of public health policies and containment efforts. It is important to note that the most common strategies applied to combat the spread of Covid-19 involve travel restrictions, social distancing and confinement to one's residence. While necessary from a public health standpoint, understanding their impact on vulnerable individuals requires extensive investigation. The present study contributes to this issue by examining the psychological impact of confinement among French university students relative to their living conditions.

Nearly half of the present student sample relocated from their usual place of residence to more rural areas immediately before confinement began. Individuals who changed residences were more likely to be living in a house, to share their living quarters with their parents, and to have access to an exterior space such as a yard or garden compared to students who did not exhibit mobility. The overall sample also experienced significant psychological distress, with the majority of participants reporting that an increase in anxiety since the beginning of the confinement period as well as moderate to severe levels of stress. These findings are in stark contrast with the recent statistics reported for medical school students in China [2] where less than 4% reported at least moderate levels of anxiety during the Covid-19 pandemic. While methodological and cultural factors may explain a portion of differences relative to the current findings, it is notable that these reported rates for psychological distress in Chinese university students are also far below estimates for this same population observed just before the pandemic began [3,11]. No differences in alcohol use were noted, consistent with prior reports that invoked restrictions in the access to alcohol during quarantine as one possible explanation [5]. However, it remained possible in France to purchase alcohol at any supermarket or liquor store for the duration of confinement, although restaurants, bars, and nightclubs were closed (Table 1).

The differences in estimates for university students who relocated versus those who did not suggest how public health crises may magnify inequalities that exist within specific populations, as a function of the individual's financial situation, family resources or other factors. These inequalities, in turn, are well-documented risk factors for mental disorder onset and symptom severity [8]. Importantly, the transition from high school to university is a major life transition in itself and source of stress that can be associated with adjustment problems [4]. However, the present findings should be interpreted in light of several limitations of the methodology, notably the inability to confirm if non-relocating students had the choice of mobility and no information was collected concerning their housing conditions prior to changing locations. The specific nature of the sample may also restrict the generalization of conclusions. The findings nonetheless suggest that public health strategies used to combat Covid-19, as well as specific psychological interventions (e.g. cognitive behavior therapy, mindfulness based therapy) may correlate with mental health indicators [6].

Table 1

Residential characteristics, stress and anxiety among university students who remained in their usual residence and those who relocated for the mandatory Covid-19 confinement period.

	Overall (n = 291)		Remained in usual residence (n = 148)		Relocated for the confinement (n = 143)		Between-group differences	
	n	%	n	%	n	%	chi square test	p value
Age								
18	124	42.6	63	42.6	61	42.7		
19 or older	167	57.4	85	57.4	82	57.3	0.000	0.988
Sex								
Female	219	75.3	115	77.7	104	72.7		
Male	72	24.7	33	22.3	39	27.3	0.967	0.325
Residence characteristics								
Location							63.997	<0.0001
Urban	140	48.3	105	71.4	35	24.5		
Rural or semi-rural	150	51.7	42	28.6	108	75.5		
Type of residence								
Apartment	61	21.0	48	32.7	13	9.1	28.709	<0.0001
Student dorm or rented room	16	5.5	11	7.5	5	3.5		
Individual house	213	73.4	88	59.9	125	87.4		
Size of the residence in square meters								
Less than 30m ²	31	10.7	25	17.0	6	4.2	18.881	<0.0001
31 to 50m ²	18	6.2	12	8.2	6	4.2		
51 to 100m ²	104	36.0	55	37.4	49	34.5		
101m ² or more	136	47.1	55	37.4	81	57.0		
Access to a yard	210	72.4	89	60.1	121	85.2	22.812	<0.0001
Persons in the residence								
With one parent or both	231	79.4	105	70.9	126	88.1	13.094	<0.001
With one or more roommates	11	3.8	10	6.8	1	0.7	7.337	0.007
With your romantic partner	25	8.6	14	9.5	11	7.7	0.289	0.591
No one	20	6.9	17	11.5	3	2.1	10.016	0.002
Since the start of the confinement:								
Increase in general level of anxiety								
Yes	168	60.2	94	66.2	74	54.0	4.320	0.038
No	111	39.8	48	33.8	63	46.0		
Increase in the use of alcohol among users								
Yes	16	9.8	9	11.7	7	8.0	0.616	0.433
No	148	90.2	68	88.3	80	92.0		
Moderate to very severe current level of stress in the following areas								
Your life overall	135	61.6	83	71.6	52	50.5	10.240	0.001
Your financial situation	78	35.3	50	42.7	28	26.9	6.028	0.014
Your health	59	26.7	39	33.3	20	19.2	5.596	0.018
Your love life	71	32.4	39	33.9	32	30.8	0.246	0.620
Your relationships with your family	58	26.4	30	25.9	28	26.9	0.032	0.858
Problems getting along with people at work or school	41	18.6	23	19.7	18	17.3	0.201	0.654
The health of your loved ones	139	62.9	78	66.7	61	58.7	1.515	0.218
Other problems experienced by your loved ones	82	37.1	44	37.6	38	36.5	0.027	0.870

Bold signifies significant between-group differences at p<.05.

Funding

Support from the Institut Universitaire de France (M. Husky) was used to fund the study.

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