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The emotional state of young people in northern Spain after one year and a half of the COVID-19 pandemic

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The emotional state of young people in northern Spain after one year and a half of the COVID-19 pandemic

Background and objectives: Since the beginning of the COVID-19 pandemic, the young population has been suffering from an accumulation of psychological symptoms in northern Spain. The main objectives of this study were (1) to assess whether psychological symptoms persisted after one year and a half of the COVID-19 pandemic in northern Spain sample of young people, and (2) to analyze whether pandemic-specific variables (having a chronic illness, living with a person who has a chronic illness, having been infected with COVID-19, having a close person who has died or believing that people are respecting the measures imposed) are related to psychological symptomatology. **Methods:** Symptoms of stress, anxiety, and depression were measured using the Depression and Stress Anxiety Scale-21 (DASS-21). An *ad hoc* online questionnaire was used to collect socio-demographical information related to chronic illnesses of the participants, living with a chronically ill person, contact with a person diagnosed with COVID-19, having people close to them who have died of COVID-19, and their perception of whether or not people respect the health measures. **Results:** Young people have suffered higher stress, anxiety, and depression levels than at the beginning of the pandemic. **Conclusions:** The present study highlights the importance of addressing young people's mental health, and ensure that future adults emerge from the COVID-19 pandemic in a psychologically strong state.

Keywords: stress, anxiety, depression, young people, COVID-19.

1. Introduction

Since the official declaration of the COVID-19 crisis as a pandemic by the World Health Organization (WHO), in March 2020 [1], profound changes at physical, emotional, political, economic, and social health levels have been experienced worldwide [2,3]. In addition, some studies report that depressive symptoms may occur after suffering COVID-19[2]. According to different studies carried out in different countries, measures such as social distancing, lockdown and the use of masks have affected the mental health of the population[3-5]. Yet, even though these measures have created psychological symptomatology, the prevalence of clinically significant depressive symptoms has been found to be significantly lower in countries where governments applied strict policies promptly [6].

Several population-based studies have observed that young people are the most affected by the pandemic[7-9]. Moreover, university closures may also have had a strong influence on the emotional state of young people[10, 11]. Moreover, young people have been the most targeted and criminalized population since some groups have broken the rules to stay with their peers[12].

An increase in the use of new technologies, internet, gambling, substance consumption and inadequate nutrition has been observed among youths. The increase in the use of screens and online games is worrying [13]. Internet addiction is an important topic to study as it is significantly associated with alcohol abuse, attention deficit hyperactivity disorder, self-care problems, pain, discomfort, sleep problems, depression and anxiety [14, 15]. A study comparing the Asian countries China, Hong Kong, Japan, South Korea, Malaysia and the Philippines found that Hong Kong had the highest number of adolescents who report using the Internet on a daily basis (68%) and that Internet addiction is highest in the Philippines (21%)[16].

Additionally, young people are more likely to experience job insecurity, worse working conditions and have lower salaries compared to previous generations and this influences their mental health [17, 18].

At the beginning of the pandemic, the predominant stress and anxiety symptomatology, the long periods of lockdown, and the continuous changes of the measures to stop the spread of the virus was associated with high levels of uncertainty among young people [19, 20]. In general, the uncertainty about the pandemic has been prolonged over time, and the psychological symptomatology seems to increase in parallel [21, 22].

In addition to factors associated with the pandemic, several sociodemographic variables might also influence the psychological impact of the pandemic. For example, the youngest people and women seem to be the groups most affected by psychological symptoms [7-9].

Our research group have previously reported the psychological impact of COVID-19 pandemic in Spanish health professionals[23, 24], the elderly[25], university students[26, 27], children [28] and the general population[28]. However, to date, no studies have reported the levels of stress, anxiety, and depression among young Spanish people after lockdown. Thus, main objectives of this study were (1) to assess whether psychological symptoms persisted after one year and a half of the COVID-19 pandemic in northern Spain sample of young people; specifically, we aimed to determine whether there were significant differences between age groups (under 25 and over 25) and gender, (2) to analyze whether pandemic-specific variables (having a chronic illness, living with a person who has a chronic illness, having been infected with COVID-19, having a close person who has died or believing that people are respecting the measures imposed) are related to psychological symptomatology and (3) to research on the differences in symptomatology according to COVID-related variables and age.

2. Materials and Methods

2.1. Participants and Procedure

An anonymous online survey was administered to young people aged between 18 and 35 years from the Basque Autonomous Community (Northern Spain) after one year and a half of the pandemic (from July to August 2021) through the Google Form platform. The sample was recruited using a non-probabilistic sampling procedure. The dissemination of the research was done through social networks, universities, educational centers and youth leisure centers. This study recruited a total sample of 479 participants (mean age = 21.65; SD=4.39 y). Of the participants, 17.7% (n=85) were male, 81.6% (n= 391) were female and 0.6% (n=3) were considered non-binary.

The Ethics Committee of the University of the Basque Country (code M10/2020/070) approved the study. All the canons established by Organic Law 15/99 on Personal Data Protection were followed for data collection. Therefore, the procedures followed were in accordance with the Declaration of Helsinki of the World Medical Association.

2.2. Measures and instruments

An *ad hoc* questionnaire in Spanish was used to collect information related to chronic illness, living with a chronically ill person, having been infected by COVID-19, having a close person or family member who has died from COVID-19, and their perception of whether or not people are respecting the health measures.

Stress, anxiety, and depression symptoms were measured using the Depression and Anxiety Stress Scale-21 (DASS-21)[29]. The DASS-21 scale is composed of 21 items. These

are scored on a Likert-type scale with scores ranging from (0 = It has not happened to me) to (3 = It has happened to me a lot or almost always). The three subscales of the DASS-21 have seven items for depression, seven for anxiety, and seven for stress. Each subscale is scored from 0 to 21. To categorize the symptoms of stress, anxiety, and depression, the cut-off points analyzed by Antony et al. [30] were used: no symptoms, mild, moderate, severe, and extremely severe. The DASS-21 has acceptable reliability and good validity [31]. Regarding reliability in our study, the total Cronbach's alpha coefficient was = 0.93 for the depression scale = 0.90 for the anxiety scale = 0.92 and the stress scale = 0.82 [32]. In addition, the DASS-21 has been a validated measurement instrument during the COVID-19 pandemic in different countries [32-34].

2.4. Data Analysis

Statistical analyses were performed using the SPSS statistics software (version 26.0, IBM Corp., Armonk, NY, USA). The data were checked for compliance with the assumptions of normality and homoscedasticity of variances. The Kolmogorov-Smirnov statistics indicates that the data do not follow a normal distribution; however, taking into account the skewness and kurtosis, which in most of the variables does not exceed 1, allowed us to use parametric tests for the analysis of the results. At this point, it is worth considering that there is support in the scientific literature on the robustness of parametric tests even when there is a violation of the assumptions of normality and homoscedasticity [33, 35-37].

First, the relationship between psychological symptomatology and sociodemographic characteristics were analyzed using T-tests. Cohen's *d* was calculated to document differences between those adolescents adhering, and those not-adhering, to dietary compliance criteria. This coefficient measures the effect size, and may be especially relevant in cases of small samples, when the differences found do not reach statistical significance. The effect size (Cohen's *d*) was classified as 'small' (~0.2), 'medium' (~0.5) or 'large' (~0.8). Second, frequencies and percentages of presence of anxiety, depression and stress were described according to the variables specifically related to the pandemic. To study the association between psychological symptomatology and pandemic variables, the chi-square statistics was used. Subsequently, the analyses were stratified according to the two age groups (18-25 and 26 to 35 years) and gender (male vs female).

3. Results

3.1. Prevalence of psychological symptomatology.

From the sample 69.3% (n=322) young people have some depression symptomatology (12.1% mild, 27.1% moderated, 13.6% severe and 16.5% extremely severe depression), 55.5% (n=266) some anxiety symptomatology (9.6% mild, 22.5% moderated, 8.6% severe and 14.8% extremely severe anxiety) and 62.2% (n=298) some stress symptomatology (20.5% mild, 17.1% moderated, 16.5% severe and 8.1% extremely severe stress).

3.1.1. Description of psychological symptomatology according to sociodemographic characteristics.

Table 1 shows the association between psychological symptoms (depression, anxiety and stress) and sociodemographic characteristics (gender and age). Females had significantly higher depression level [$p=0.005$, *Cohen's d* = 0.34], and anxiety [$p=0.007$, *Cohen's d* = 0.32], compared to male, both with a small effect size. The symptomatology levels had a similar age distribution.

Table 1. Psychological symptomatology scores according to sociodemographic characteristics.

	<i>Depression</i>	<i>Anxiety</i>	<i>Stress</i>
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	<i>Mean ± SD</i>	<i>p</i>	<i>d</i>	<i>Mean ± SD</i>	<i>p</i>	<i>d</i>	<i>Mean ± SD</i>	<i>p</i>	<i>d</i>
Gender*									
Female (n=391)	8.29 ± 5.34	0.005	0.34	5.40 ± 4.55	0.007	0.32	0.32 ± 9.07	0.53	
Male (n=85)	6.49 ± 5.21			3.94 ± 4.16			8.71 ± 5.14		
Age									
18-25 (n= 385)	8.08 ± 5.43	0.46		5.20 ± 4.67	0.70		8.96 ± 4.91	0.42	
26-35 (n=94)	7.63 ± 5.04			5.00 ± 4.07			9.40 ± 4.35		

Note. The bold values in the table represent the values reaching statistical significance (p -value < 0.05); d : Cohen's d (Only when significant); SD : Standard deviation. The "non-binary" group has been excluded as they represent only 0.6% of the sample.

3.2. Descriptive analysis of the pandemic related variables.

Of the whole sample, 10.2% (n=49) reported having a chronic illness, 20.9% (n=100) reported living with a person with a chronic disease. In relation with COVID-19, 59.3% (n=284) reported having been in contact with a COVID-infected person, 13.5% (n=46) indicated having been infected by COVID-19, and 9.4% (n=32) responded that they had lost a person close to them to COVID-19 during this time. Finally, 50.9% (n=244) of the participants believed that the measures imposed to stop the spread of the virus were generally respected, although 49.1% (n=235) believed that they were not being respected.

3.2.1. Distribution of symptoms according to socio -personal variables

Table 2 and 3 shows the distribution of symptomatology levels according to socio-personal characteristics. Only having a chronic disease was associated with the presence of stress and someone close to you has died of COVID with stress and anxiety ($p < 0.05$).

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Table 2. Frequencies and percentages of different symptoms shown by youths (mild, moderate, severe, and highly severe) according to pandemic related variables

		Chronically ill n (%)		Living with a chronically ill person n (%)		Contact with COVID-infected persons n (%)	
		Yes	No	Yes	No	Yes	No
Depression	No-depression	29 (40.8%)	127 (29.5%)	28 (28%)	119 (31.3)	87 (30.7%)	60 (30.8%)
	Mild	5 (10.2%)	53 (12.3%)	11 (11%)	47 (12.4%)	32 (11.3%)	26 (13.3%)
	Moderated	14 (28.6%)	116 (27%)	32 (32%)	98 (25.9%)	77 (27.1%)	53 (27.2%)
	Severe	1 (2%)	64 (14.9%)	14 (14%)	51 (13.5%)	41 (14.4%)	24 (12.3%)
	Extremely severe	9 (18.4%)	70 (16.3%)	15 (15%)	64 (16.9%)	47 (16.5%)	32 (16.4%)
Anxiety	No-anxiety	22 (44.9%)	161 (37.4%)	38 (38%)	175 (46.2%)	124 (43.7%)	89 (45.7%)
	Mild	3 (6.1%)	43 (10%)	16 (16%)	30 (7.9%)	28 (9.9%)	18 (9.2%)
	Moderated	12 (24.5%)	96 (22.3%)	25 (25%)	83 (21.9%)	62 (21.8%)	46 (23.6%)
	Severe	4 (8.2%)	37 (8.6%)	6 (6%)	35 (9.2%)	25 (8.8%)	16 (8.2%)
	Extremely severe	8 (16.3%)	63 (14.7%)	15 (15%)	56 (14.8%)	45 (15.8%)	26 (13.3)
Stress	No-stress	18 (36.7%)	163 (38%)	43 (43%)	138 (36.4%)	102 (35.9%)	79 (40.5%)
	Mild	14 (28.6%)	84 (19.5%)	19 (19%)	79 (20.8%)	60 (21.1%)	38 (19.5%)
	Moderated	4 (8.2%)	78 (18.1%)	15 (15%)	67 (17.7%)	47 (16.5%)	35 (17.9%)
	Severe	8 (16.3%)	71 (16.5%)	13 (13%)	66 (17.4%)	49 (17.3%)	30 (15.4%)
	Extremely severe	5 (10.2%)	34 (7.9%)	10 (10%)	29 (7.7%)	26 (9.2%)	13 (6.7%)

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Table 3. Frequencies and percentages of different symptoms shown by youths (mild, moderate, severe, and highly severe) according to pandemic related variables

		Infected by COVID n (%)		Death of someone close due to COVID-19 n (%)		Respect for the measures imposed n (%)	
		Yes	No	Yes	No	Yes	No
Depression	No-depression	13 (28.3%)	226 (52.19%)	5(15.6%)	234 (52.3%)	72 (29.5%)	75 (31.9%)
	Mild	9 (19.6%)	37 (8.5%)	4 (12.5%)	42 (9.4%)	32 (13.1%)	26 (11.1%)
	Moderated	11 (23.9%)	79 (18.2%)	8 (25%)	82 (218.3%)	67 (27.3%)	63 (26.9%)
	Severe	7 (15.2%)	39 (19.0%)	7 (21.9%)	39 (8.7%)	33 (13.5%)	32 (13.7%)
	Extremely severe	6 (13%)	52 (12.0%)	8 (25%)	50 (11.2%)	40 (16.3%)	39 (16.7%)
Anxiety	No-anxiety	19 (41.3%)	280 (64.7%)	6 (18.8%)	293 (65.5%)	115 (47.13%)	98 (41.7%)
	Mild	5 (10.9%)	28 (6.4%)	1 (3.1%)	32 (7.2%)	25 (10.2%)	21 (9%)
	Moderated	12 (26.1%)	61 (14.08%)	11 (34.4%)	62 (13.9%)	49 (20%)	59 (25.2)
	Severe	3 (6.5%)	21 (4.8%)	4 (12.5%)	20 (4.5%)	21 (8.6%)	20 (8.5%)
	Extremely severe	7 (15.2%)	43 (9.9%)	10 (31.3%)	40 (8.9%)	34 (13.9%)	37 (15.8%)
Stress	No-stress	18 (39.2%)	249 (57.5%)	4 (12.5%)	263 (58.8%)	92 (37.7%)	89 (37.9%)
	Mild	10 (21.7%)	62 (14.3%)	8 (25%)	64 (14.31%)	53 (21.6%)	45 (19.2%)
	Moderated	7 (15.2%)	50 (11.5%)	10 (31.3%)	47 (10.5%)	40 (16.3%)	42 (17.9%)
	Severe	9 (19.6%)	46 (10.6%)	9 (28.1%)	46 (10.39%)	43 (17.6%)	36 (15.4%)
	Extremely severe	2 (4.3%)	26 (6.0%)	1 (3.1%)	27 (6.0%)	16 (6.5%)	23 (9.8%)

3.3. Differences in symptomatology according to COVID-related variables and age.

Table 4 shows the symptomatology according to COVID-related variables among the two age groups (18 to 25 and 26-35). Only anxiety symptoms were found to be significantly different between both groups [$p=0.038$, *Cohen's d* =0.60], with an medium effect size. Older youths who lived with a chronically ill family member showed higher rates of anxiety than those who did not. In contrast, for the younger members, there were no differences in symptomatology according to whether they were living with a chronically ill person. The youngest participants who lost a family member or a person close to them due COVID-19, had higher anxiety symptoms [$p=0.04$, *Cohen's d* =0.59], and stress [$p=0.05$, *Cohen's d* =0.39], compared with those who did not lose a family member. The effect sizes were large and medium, respectively. This difference was not observed in the oldest group. Likewise, the youngest participants who indicated that the imposed measures were not being respected showed higher scores of anxiety than others of the same age (18 to 25 years) who indicated that the imposed rules were being respected, with a small effect size [$p=0.05$, *Cohen's d* =0.20] (see Table 4).

Table 4. Differences in symptomatology (controlling for age) according to COVID-related variables.

<i>Depression</i>	<i>Mea</i>	<i>SD</i>	<i>n</i>	<i>t</i>	<i>p</i>	<i>d</i>	<i>Anxiety</i>	<i>Mea</i>	<i>SD</i>	<i>n</i>	<i>t</i>	<i>p</i>	<i>d</i>	<i>Stress</i>	<i>Mean</i>	<i>SD</i>	<i>n</i>	<i>t</i>	<i>p</i>	<i>d</i>	
	<i>n</i>							<i>n</i>													
<i>living with a chronically ill person-18-25 age</i>																					
Yes	7.85	4.87	85	-4.31	.667		5.19	4.57	85	-.032	.974			8.50	4.98	391	-.973	.331			
No	8.14	5.58	300				5.20	4.70	300					9.09	4.89	85					
<i>living with a chronically ill person- 26-35 age</i>																					
Yes	8.93	6.01	15	1.09	.276		7.01	5.31	15	2.11	.038*	.60		9.60	4.95	15	.189	.850			
No	7.37	4.84	79				4.62	3.71	79					9.36	4.25	79					
<i>Death of someone close due to COVID-18-25 age</i>																					
Yes	9.56	5.39	27	1.26	.209		7.70	5.01	27	2.94	.004**	.59		10.67	4.01	27	1.91	.05*	.39		
No	8.13	5.56	247				4.87	4.71	247					8.75	5.09	247					
<i>Death of someone close due to COVID-26-35 age</i>																					
Yes	8.40	4.21	5	.605	.547		7.40	6.06	5	1.60	.095			11.20	3.90	5	1.07	.208			
No	7.06	4.77	62				4.30	3.77	62					9.06	4.31	62					
<i>Compliance with the measures imposed-18-25 age</i>																					
Yes	8.14	5.47	189	-.193	.847		4.73	4.26	189	1.94	.05*	.20		8.53	4.78	189	1.48	.092			
No	8.03	5.41	196				5.65	5.01	196					9.37	5.01	196					
<i>Compliance with the measures imposed -26-35 age</i>																					
Yes	7.42	5.02	56	.463	.645		4.89	3.83	56	.308	.759			10.01	4.05	56	-1.68	.097			
No	7.92	5.13	38				5.15	4.45	38					8.50	4.65	38					

*** $p < 0.001$; $p < 0.01$ **; $p < 0.05$ *

Note: SD= Standard Deviation; n= number of participants; d= Cohen's effect size

4. Discussion

The main objective of this study was to analyze the levels of stress, anxiety, and depression among young Spanish people during the COVID-19 pandemic. Our results show that 62.2%, 55.5%, and 69.3% presented high levels of stress, anxiety, and depression, respectively. A previous population-based study conducted in the same Spanish region at the beginning of the pandemic showed lower proportions of mental health symptomatology [28], suggesting an increment after one year and a half. More than half of the young people (59.3%) reported having been in contact with a person infected by COVID-19 and 9.4% had lost someone close. The proportion of young people who have lost someone close due to COVID-19 (9.4%) is relatively high considering the number of deaths in the Basque Autonomous Community from COVID-19, so it could be said that there is a high proportion of young people who have lost a close person in the present sample [38]. The increment of anxiety symptoms could be due to the fact that the state of alarm has continued during the pandemic, something that has not ceased, and the fear and suffering are increasing as time goes by. The lack of controllability in the current situation, and the uncertainty sustained over time, has led to an increase in stress symptoms among the young population. Finally, levels of depression may have also increased due to generalized hopelessness and sadness that will increase as long as there is no end in sight to the pandemic. This increase in symptomatology is worrying, as in some cases, depressive symptomatology has even led to suicide [19, 20].

Similarly to previous studies [39], women seem to bear the greatest emotional impact during this pandemic. In the present study, women reported suffering significantly more anxiety and stress symptoms than men. Young women may have suffered more than men because the sectors in which they work have been more affected, and they may have found it more difficult to separate personal and work life [40-42]. In addition, females were already at risk for depression before the pandemic [43].

When comparing mental health symptoms between people aged 18-25 and 26-35 we did not find significant differences. Young people, irrespectively of the age, have suffered from social distancing [12] and stress caused by screen abuse [13] and online education [10]. However, the oldest group might be the group that has more precarious work and is more fearful of job losses or the uncertain future that awaits them [17, 18].

Contrary to what was expected, we did not find increased levels of symptoms in young people with chronic illnesses. This may be due to the relatively low number of participants with a chronic disease. After all, this is a young population, and even under normal circumstances they have no serious pathologies and generally show better health than older adults [44]. Among participants aged 26-35 years, those living with a chronically ill person show more anxiety compared to those not living with them. These findings indicate that people aged 25-35 might have more care responsibilities for older people than those aged 18-25. It has been shown that young people have a great fear of infecting their family members, as shown by several studies of university students [45-47]. Therefore, considering that an essential component of anxiety is fear, this could explain the higher levels of anxiety found in participants living with a chronically ill person.

Among the 18-25 aged participants, those who had lost a close person due to the COVID-19 have more anxiety than those who have not experienced such a loss. It is common for young people to show an increase in emotional anxiety due to a near-death [48] and even more when they experience unexpected deaths [47, 49]. Young people were

not prepared to experience a near-death, since death is still regarded as something distant, while they live in the moment and do not think about the future [50].

Another finding of the present study is that young people who believe that other people comply with the COVID-19 safety measures have significantly less anxiety than those who believe that people do not comply with the rules. This finding breaks the stigma that young people do not show any concern about the current pandemic [51]. To break this stigma it would also be interesting for future studies to collect young people's opinions about the COVID-19 vaccine among young people as has been done in other studies [52].

Some limitations should be considered when interpreting our results. First, a non-probability sample was used, and therefore the generalizability of the results is limited. Additionally, there might be a certain selection bias, since participation was voluntary, and thus only those who were particularly emotionally affected might have been interested in participating. Moreover, variables related to technology use or the employment situation of participants were not taken into account. Future studies should use a larger and representative sample, including participants from all over Spain. A strength of the present work is that it is the first study carried out in the Basque Autonomous Community to measure the emotional state of young people on the first anniversary of the pandemic. Therefore, the present findings are novel for the scientific community and may lead to new studies in other countries around the world.

5. Conclusions

Our findings suggest that, after one year and a half from the beginning of the COVID-19 pandemic, there is still a significant mental health toll in the young population, and that this impact varies according to their age. Thus, the impact of COVID-19 on young people should not be analyzed as a single set, since each age range have specific characteristics that might affect the impact of the pandemic. Taking into account that these young people will become future adults emerging from the COVID-19 pandemic, measures to improve their mental health and prevent possible psychological illnesses are imperative. As several studies have already shown Online psychotherapy or cognitive-behavioral therapy via the Internet can help improve the mental health of young people [53, 54]. Finally, it is important to approach young people without criminalizing them as they are going through a difficult period, similarly to other age groups.

Ethical considerations: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Ethics Committee of (CEISH) of the University of the Basque Country UPV/EHU [M10/2020/055].

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