Ansiedad y Estrés 28(2) (2022) 100-107

Ansiedad y Estrés

https://www.ansiedadyestres.es

Original

Psychological impact of COVID-19 pandemic: Effects of optimism and uncertainty on distress during the lockdown in Spain

Jordi Fernández-Castro[a*], Ramon Cladellas[a], María José Gómez-Romero[a,b], Auri García[c,d], Itziar Iruarrizaga[e], Joaquín T. Limonero[a*]

[a] *Faculty of Psychology. Stress and Health Research Group, Universitat Autonòma de Barcelona, Bellaterra (Barcelona), Spain.*
[b] *Psychology Unit, Egarsat, Barcelona, Spain.*
[c] *Diari ARA, Barcelona, Spain.*
[d] *Faculty of Business and Communication of the University of Vic-Universiat Central de Catalunya, Barcelona, Spain.*
[e] *Faculty of Social Work, Complutense University of Madrid, Madrid, Spain.*
[*] *These authors share senior authorship*

ARTICLE INFO

Article history:
Received 30 November 2021
Accepted 26 January 2022
Available online 12 April 2022

Keywords:
COVID-19 pandemic
Emotional distress
Optimism
Uncertainty
Self-efficacy
Perceived competence

A B S T R A C T

The objective of this study is to make a quick assessment of the psychological resources and emotional distress of the general population locked down during the COVID-19 pandemic (in Catalonia, Spain), and to observe their evolution over the course of two waves during lockdown: at two weeks and at one month (April 1th to 3th and April 17th to 19th). The longitudinal study collected data from 29,231 participants aged 18 or older through an online platform who answered questions which evaluated: optimism, uncertainty, perceived competence, self-efficacy, emotional distress, current job situation, sadness and anger in conjunction with sociodemographic variables. The main results indicated that general beliefs about the future, uncertainty, and optimism, together with beliefs about one's own conduct, such as perceived competence when facing the situation or self-efficacy to maintain routines, could predict the emotional distress experienced by an individual. A clear gender pattern was found. Between the two waves, optimism, perceived competence to manage the situation and self-efficacy to maintain routines decrease, uncertainty grows, and emotional distress remains. Taking these results into account we can prevent possible emotional scars and offer coping strategies to overcome the pandemic and the future situations of confinement in a more efficient way.

Impacto psicológico de la pandemia de COVID-19: efectos del optimismo y la incertidumbre sobre el malestar emocional durante el confinamiento en España

Palabras clave:
Pandemia de COVID-19
Malestar emocional
Optimismo
Incertidumbre
Autoeficacia
Competencia percibida

R E S U M E N

El objetivo de este estudio es realizar una valoración rápida de los recursos psicológicos y y el malestar emocional de la población general durante el encierro por la pandemia de COVID-19 (en Cataluña, España), y observar su evolución a lo largo de dos oleadas durante el confinamiento: a las dos semanas y al mes (del 1 al 3 de abril y del 17 al 19 de abril). El estudio longitudinal recopiló datos de 29.231 participantes de 18 años o más a través de una plataforma en línea que respondieron preguntas que evaluaban: optimismo, incertidumbre, competencia percibida, autoeficacia, malestar emoción, situación laboral actual, tristeza e ira y variables sociodemográficas. Los principales resultados indicaron que las creencias generales sobre el futuro, la incertidumbre y el optimismo, junto con las creencias sobre la propia conducta, como la competencia percibida ante la situación o la autoeficacia para mantener las rutinas, pueden predecir el malestar emocional que experimenta un individuo. Se encontró un patrón de género claro.

* Corresponding author.
E-mail address: ramon.cladellas@uab.cat (R. Cladellas), Jordi.fernandez@uab.cat (J.Fernández-Castro) y joaquin.limonero@uab.cat (J. T. Limonero).

https://doi.org/10.5093/anyes2022a11

Entre las dos olas, el optimismo, la competencia percibida para manejar la situación y la autoeficacia para mantener las rutinas disminuyen, creciendo la incertidumbre y persistiendo el malestar emocional. Teniendo en cuenta estos resultados podemos prevenir posibles secuelas emocionales y ofrecer estrategias de afrontamiento para superar la pandemia y las futuras situaciones de confinamiento de una forma más eficiente.

Introduction

Due to the spread of the COVID-19 pandemic, total confinement was decreed in Spain on March 14, 2020 (Government of Spain, 2020). The population was compelled to stay home, only being allowed to go shopping for basic groceries or to go to work in cases where working from home was not possible.

At that moment there were already 5,753 confirmed cases and 136 deaths (Department of National Security. Government of Spain, 2020). On March 29 the confinement stiffened and all workers who were not carrying out essential activity had to remain at home for 14 days on paid leave. After 17 days of confinement, on March 31, the highest number of cases was recorded, 9,222. On April 2, 19 days after the beginning of the confinement, 950 people died from the virus within 24 hours, which was the highest number of deaths in a country in one day, although this figure has been exceeded later in other countries. These figures indicate that the pandemic spread had peaked (Güell & Linde, 2020; Llaneras, 2020).

Many experts in mental health, including the Mental Health Division of the World Health Organization (WHO, 2020), have expressed that this pandemic, together with the unexpected total confinement, could have serious consequences on the mental health of the population. These assumptions do not have scientific evidence yet, because there has not been a precedent of a similar magnitude. However, the SARS pandemic, which took place between 2002 and 2003 and had much lower infection rates, had a clear impact on the mental health of the community, and especially among mental health workers and their families (Sim & Chua, 2004).

The accumulated evidence on post-traumatic stress (Bonanno et al., 2007) might suggest some hypotheses about the evolution of the anxiety symptoms caused by the current situation. However, in the case of confinement, there is no acute exposure to trauma, instead, there is a continuous defenselessness and uncertainty about what could happen in the following days. This characteristic of the stress caused by confinement has been revealed in a recent study (Brooks et al., 2020) of the available evidence about the psychological effects of quarantines, which include fear of being infected, boredom, inadequate information, the length of the quarantine and stigma.

We must highlight that the quarantines of the studies reviewed in this article were before COVID-19 and none of them were so prolonged.

In summary, the stress provoked by lockdown appears more related to the duration of uncertainty about the future in contrast with stress evoked by acute, physical threats, as in cases of natural disasters, accidents, or massive terrorist attacks.

It has been demonstrated that uncertainty about the future is a potent factor that produces stress, especially if it is related to health or economic problems (Grupe & Nitschke, 2013; Peters et al., 2017; Wu et al., 2020). On the other hand, optimism is a factor that protects individuals facing traumatic situations, not only because their emotional reactions are less intense, but because people with more optimism take actions to confront adverse situations (Carbone & Echols, 2017; Chang & Sanna, 2003; Scheier et al., 2001). Furthermore, it has been found that social support was responsible for better mental health in survivors of SARS, because it facilitates a better perception of self-efficacy (Mak et al., 2009).

Taking these observations into account, we hypothesize that there are two types of factors that could predict the presence or absence of consequences in the COVID-19 confinement: first, the perceived competence to manage the situation in general, together with the self-efficacy to maintain routines and take care of oneself during the lockdown; and second, general beliefs about the future, such as optimism and uncertainty (Fernández-Castro et al., 2009; Vera-Villarroel & Celis-Atenas, 2014).

There are various international initiatives to carry out longitudinal studies on the effects of this pandemic on survivors, healthcare personnel, and the general population (McBride et al., 2020; Muñoz-Navarro et al., 2020; Sanz, 2020). However, the present study addresses a brief evaluation of the distress and the perceived competence, optimism, and uncertainty at the peak of the pandemic and the most severe lockdown restrictions in Catalonia, which, together with Madrid, was one of the most intense foci of COVID-19 infections. To be able to evaluate the resulting changes, there were two measurements made within a period of 15 days during the first month of lockdown. The specific objectives of this study were to: 1) Evaluate the degree of distress and its evolution during the lockdown; 2) Test the predictive value of perceived competence for adaptive behaviors and beliefs about the future for Emotional distress, and 3) Identify the psychological profile of the people with the highest levels of distress.

Methods

Participants and procedure

This longitudinal, web-based study collected data between April 1st to 3th and April 17th to 19th of 2020, using an online questionnaire spread through a digital newspaper (diari ARA) in Catalonia (Spain) and via social networks using a snowball technique focused on recruiting the general public. Online consent was obtained from the participants. The participants did not receive compensation for participating.

The sampling period corresponded to two-time points or waves related to the days that people were locked down at home during the COVID-19 pandemic. The first one corresponds to the first 15 days of home lockdown after the state of alarm was declared, and the second wave corresponds to approximately one month of confinement. In both cases, there were limitations on personal freedom of movement.

In the first wave, a sample of 15,613 people (45% women) with an average age of 54.27 years (*SD*=13.76) was recruited, and in the second one 14,312 people participated (49.7% women), averaging 55.45 years of age (*SD*=12.96).

Statistical analysis

Descriptive and correlational indices were calculated. To test the results on general function, distress levels, and perceived competence, analyses were conducted using the Student's t-test. Values in the 25th and 75th percentiles of anxiety and perceived competence were used to distribute the participants into two groups

of low and high scores both of anxiety and perceived competence.

The effect sizes were calculated through Cohen's *d*, only for the statistically significant differences. To analyse the predictive value between the variables, Pearson's correlations were calculated; and to analyze the predictive value of the different independent variables on the dependent variable (emotional distress) a stepwise multiple linear regression analysis was performed, controlling the gender variable for each of the waves and considering the two waves in conjunction.

Analyses were conducted in SPSS 26.0 for Windows (IBM SPSS Statistics, New York, United States). Statistical significance was set at $p < .05$, and all tests were 2-tailed.

Measures

In the first wave, single items were used to assess: optimism ("Am I optimistic about the future after the pandemic?"; uncertainty ("Do I feel uncertain about the spread of the pandemic?"); emotional distress ("Do I feel disstressed?"); self-efficacy to maintain daily routines("Do I maintain routines at home?"), and perceived competence on managing lockdown ("Do I feel capable of managing this confinement?" issues measured through a seven-point Likert scale, ranging from 1 (*not at all*) to 7 (*always*). Also, the participants provided demographic information including age, gender, and educational level.

After the first wave, some comments and feedback were received from the participants and were used to expand the questions in the second wave. In this way, three items were added. One assessed working status ("What is your current job situation?" with the following response options: 1 (*I currently telework*); 2 (*I currently alternate telework and working outside of the house*); 3 (*I continue to work outside of the house*); 4 (*I have lost my job*); 5 (*I have been affected by an ERTO*[1]); 6 (*I didn't have a job*).

Two more assessed sadness (Am I sad?) and anger (Am I angry?), with the responses being measured through a seven-point Likert scale, ranging from 1 (*not at all*) to 7 (*always*).

Given that this study aims to evaluate an unexpected phenomenon in the fastest way possible, a short survey was chosen to apply the methodology of Single-Item Measures, which have demonstrated their utility and reliability in numerous and varied studies (Ahmad et al., 2014; Fisher et al., 2016; West et al., 2009). Its objective is facilitating broad user participation, reducing the burden of the survey, given that it is accomplished through online platforms.

Results

A total of 29,925 respondents participated in the study. Of them, 694 respondents' data were not included for being incomplete. The completion rate was 98%. The final sample consisted of 29,231 subjects, 15,119 in the first wave and 14,112 in the second. Of the total sample, most were men (15,433, 52.8%), with a mean age of 54.9% (SD=13.33) and most were university graduates (50.8%) or had a postgraduate educational level (20.5%). Sample characteristics are reported in Table 1.

Results show that males (15,433) were more likely to participate in the survey than females in the two waves (χ^2= 73.1; *d.f.* = 1; p <.001).

If we compare the scores obtained in the first and the second waves using the Student's *t*-test, we observe statistically significant differences in uncertainty, optimism, self-efficacy to maintain daily routines, and perceived competence in managing the lockdown. The subjects showed higher uncertainty, lower optimism, lower self-efficacy to maintain daily routines, and felt lower perceived competence on managing lockdown (all $p < .001$) in the second wave as compared to the first wave. Small effect sizes were observed using Cohen's *d* (Table 2). The levels of emotional distress did not present statistically significant differences between the first and second wave ($p > .05$).

Table 1
Sociodemographic variables of the sample

	N (%)
Gender	
Men	15433 (52.8)
Women	13798 (47.2)
Education	
Primary School	834 (2.85)
Secondary School	875 (2.99)
Baccalaureate	3649 (12.48)
Professional Training	3032 (10.37)
University Degree	14859 (50.83)
Post-graduate Degree	5982 (20.46)
Employment *	
I currently telework	4984 (35.74)
I currently alternate telework with working outside of the house	747 (5.36)
I have lost my job	320 (7.29)
I have been affected by an ERTO+	832 (9.65)
I continue to work outside of the house	1089 (7.81)
I did not have a job	2318 (16.62)
Other	3657 (26.22)

* Data only for the second wave
+ An ERTO is a temporary employment record regulation, in which the companies suspend, during a limited period, the contracts of all their employees or of part of them for financial, technical, organization, production reasons or others, such as in the case of coronavirus.

Table 2
Means and standard deviations, Student's *t*-test values, statistical significance and effect sizes of the differences between the first and the second wave in the variables *Uncertainty, Optimism, Perceived Competence, Emotional distress, Self-efficacy and Age*.

	Wave				
Variable	First (n=15119)	Second (n=14112)	t	CI (95%)	d
Uncertainty	5.14 ± 1.60	5.31 ± 1.52	-9.19**	-.204; -.132	-.108
Optimism	4.20 ± 1.62	4.02 ± 1.61	9.26**	.138; .212	.105
P. Competence	5.79 ± 1.22	5.58 ± 1.26	14.17**	.177; .234	.163
E. Distress	3.32 ± 1.73	3.33 ± 1.69	-.423	-.048; .030	
Self-efficacy	5.76 ± 1.23	5.67 ± 1.27	6.54**	.067; .124	-.07
Age	54.36 ± 13.63	55.66 ± 12.97	-8.36**	-.048, .031	-.097

** p <.001.

Regarding gender (Table 3), we observe statistically significant differences in all of the variables analyzed. The women presented more uncertainty, emotional distress and self-efficacy to maintain daily routines ($p < .001$). On the contrary, they presented lower levels of optimism and perceived competence than the male participants ($p < .001$), with small effect sizes. Besides, significant differences in the age of the participants were observed, with women being younger than men (p <.001).

The result of Pearson's correlation analysis (Table 4) indicated the existence of a significant positive correlation between emotional distress and uncertainty ($p < .001$). Contrarily, a significant negative correlation was observed between emotional distress, optimism, perceived competence, self-efficacy, and age ($p < .001$) ranging between -.128 and -.382.

Table 3
Means and standard deviations, Student's *t*-test values, statistical significance, and effect sizes of the differences between men and women about the variables *Uncertainty, Optimism, Perceived Competence, Emotional distress, Self-efficacy, and Age.*

Variable	Men (n=15433)	Women (n=13798)	t	CI (95%)	d
Uncertainty	5.04 ± 1.60	5.41 ± 1.50	-20.08**	-.399; -.328	-.235
Optimism	4.19 ± 1.64	4.03 ± 1.58	8.44**	.122; .196	.098
P. Competence	5.75 ± 1.22	5.62 ± 1.27	9.02**	.103; .160	.105
E. Distress	3.15 ± 1.69	3.52 ± 1.70	-18.17**	-.402; -.324	-.21
Self-efficacy	5.69 ± 1.24	5.74 ± 1.25	-3.53**	-.080; -.023	-.041
Age	56.37 ± 13.63	53.43 ± 12.81	19.02**	2.640; 3.246	.222

** p <.001; a 95%.

The results of the first wave of stepwise multiple regression analysis controlling the gender variable (Table 5, first wave) show that perceived competence was the most influential variable for predicting emotional distress, contributing a determination coefficient of .123 to the model. The addition of uncertainty augmented the explanatory value of the model up to 5.2%. Age contributed another .5%, and finally, the variables of optimism and self-efficacy to maintain daily routines only added .2% to the explanatory model.

Overall, these variables explained 18.1% of the variance of the emotional distress variable. In the second wave, (Table 5, second wave) similar results were observed, with the competence to manage the situation being the most predictive variable, with 17.0%. The second most predictive variable was uncertainty, which added 4.7% to the model. Age added 1.4% and self-efficacy to maintain daily routines and optimism explained only .2% together. In total, these variables explained 23.3%.

In the whole sample (Table 5, set -first and second wave), the perceived competence on managing lockdown was the most influential variable for the prediction of emotional distress, contributing a determination coefficient of .144 to the model. The addition of uncertainty increased the explanatory value of the

Table 4
Pearson's Correlation coefficient matrix (r) between the variables: *Uncertainty, Optimism, Perceived competence, Self-efficacy, Age, Emotional distress, Sadness and Anger*, considering the first and the second wave together.

	Uncertainty	Optimism	P. Comp+	Self-efficacy	Age	Emotional Distress	Sadness
Optimism	-.171**						
P. Competence	-.092**	.255**					
Self-efficacy	.016**	.116**	.249**				
Age	-.063**	.015**	.057**	.127**			
E.Distress	.259**	-.143**	-.382**	-.128**	-.128**		
Sadness^	.251**	-.171**	-.367**	-.116**	-.092**	.804**	
Anger^	.231**	-.165**	-.333**	-.097**	-.082**	.750**	.764**

** p <.001.
^Variables that were only considered in the second wave
+ Perceived Competence

Table 5
Stepwise multiple linear regression analysis controlling the gender variable with Emotional distress as the dependent variable and Uncertainty, Optimism, Perceived competence, Self-efficacy and Age as independent variables.

	Predictors	B	SE	β	t	CI (95%)
First wave						
E. Distress	Uncertainty	.242	.008	.220	29.46**	.226; .258
	Optimism	-.042	.008	-.039	-5.06**	-.058; -.026
	P. Competence	-.447	.011	-.314	-40.27**	-.469; -.425
	Self-efficacy	-.031	.011	-.022	-2.84*	-.052; -.010
	Age	-.009	.001	-.066	-8.90**	-.010; -.007
	R^2	.181				
	$F(5)$	668.65				
Second wave						
E. Distress	Uncertainty	.24 2	.008	.215	28.51**	.226; .259
	Optimism	.019	.008	.018	2.33*	.003; .035
	P.Competence	-.503	.010	-.379	-48.05**	-.524; -.483
	Self-efficacy	-.065	.010	-.049	-6.44**	-.085; -.046
	Age	-.015	.001	-.112	-15.08**	-.017; -.013
	R^2	.233				
	$F(4)$	1000.62				
Total (first and second wave)						
E. Distress	Uncertainty	.241	.006	.217	41.32**	.230; .253
	P. Competence	-.474	.007	-.346	-63.79**	-.489; -.459
	Self-efficacy	-.048	.007	-.035	-6.50**	-.063; -.034
	Age	-.012	.001	-.090	-17.06**	-.013; -.010
	R^2	.202				
	$F(3)$	2354.42				

*p < .05; **p < .001.

model by 4.9%, age by .9% and, finally, self-efficacy to maintain daily routines added .1% to the explanatory model. Together, these variables explained 20.2%.

On the other hand, given that the variable with the highest predictive value for emotional distress was perceived competence in managing lockdown, we want to see if the levels of perceived competence can differentiate the subjects in our study. For this, participants were distributed into two groups of perceived competence according to the values of the 1st quartile (≤ 5) and 3rd quartile (≥7) of the global score. We observed that the participants that presented the highest levels of perceived competence (Table 6) presented lower levels of uncertainty, higher optimism, higher self-efficacy, and lower emotional distress, sadness and anger (all p <.001) with effect sizes.

Table 6
Means and standard deviations, Student's *t*-test values, statistical significance and effect sizes of the differences between the subjects with high and low perceived competence and variables Uncertainty, Optimism, Self-efficacy, Sadness, Anger and Emotional distress.

Variable	Perceived competence In managing		*t*	CI (95%)	*d*
	High (n=8529)	Low (n=10506)			
Uncertainty	5.06 ± 1.78	5.43 ± 1.48	15.41**	.32; .42	.224
Optimism	4.56 ± 1.70	3.64 ± 1.59	-38.24**	-.97; -.87	-.557
Self-efficacy	6.09 ± 1.22	5.37 ± 1.32	-38.73**	-.75; -.68	-.564
Sadness	2.57 ± 1.70	4.10 ± 1.65	62.47**	1.48; 1.58	.91
Anger	2.55 ± 1.76	3.95 ± 1.73	55.00**	1.35; 1.45	.801
E. Distress	2.56 ± 1.68	4.13 ± 1.60	65.63**	1.52; 1.62	.956

*p < .05; **p < .001

Regarding the levels of emotional distress, the participants were distributed into two groups from the 1st and 3rd quartiles, low (≤ 2) and high (≥ 5) scores for emotional distress, as it was done with the perceived competence variable. Those participants that presented high values of emotional distress compared to those that presented low levels showed higher uncertainty, sadness and anger, and lower optimism, perceived competence in managing the lockdown, and self-efficacy to maintain daily routines (all p<.001) with effect sizes ranging from d= .27 to .2.68 (Table 7).

Approximately 50% of the participants (in the second wave) have suffered changes in their work as a result of the COVID-19 pandemic: 41.1% went to telework, 6% suffered an ERTO and 2.3% lost their work.

Table 7
Means and standard deviations, Student's *t*-test values, statistical significance and effect sizes of the differences between the levels of Emotional distress and the variables Uncertainty, Optimism, Self-efficacy, Perceived Competence, Sadness, and Anger.

Variable	Levels of Emotional distress		*t*	CI (95%)	*d*
	High (n=7916)	Low (n=11444)			
Uncertainty	5.70 ± 1.39	4.77 ± 1.69	-41.90**	-.98; -.89	-.612
Optimism	3.86 ± 1.68	4.36 ± 1.63	20.77**	.45; .55	.303
P. Competence	5.13 ± 1.40	6.20 ± 1.02	57.80**	1.03; 1.10	.845
Self-efficacy	5.55 ± 1.36	5.90 ± 1.21	18.47**	.31; .39	.27
Sadness	5.16 ± 1.35	1.88 ± 1.07	-181.17**	-3.32; -3.24	-.2.68
Anger	4.99 ± 1.53	1.85 ± 1.14	-155.11**	-3.18; -3.10	-.2.26

*p < .05; **p < .001

If we analyze the levels of emotional distress depending on the employment situation (Table 8), we observe that there are statistically significant differences (F=10.24; $d.f.$= 6; p < .001). A detailed analysis indicates that the people who present the highest levels of emotional distress are those who have experienced employment changes because of the COVID-19 pandemic (t= 4.73, $d.f.$ =13945; p < .001). Among those who have experienced employment changes, the ones that manifest the highest emotional distress are those who have lost their job (F= 12; $d.f.$=3; p <.001).

Likewise, the subjects that have experienced employment changes because of the pandemic show higher levels of uncertainty compared to those that have not (t = 4.94; $d.f.$= 13945; p <.001) but they don't show significant changes in the other studied variables (Table 8).

Table 8
Means and standard deviations, Student's t-test values, statistical significance and effect sizes of the differences between the subjects that have experienced employment changes and those that have not, and the variables Uncertainty, Optimism, Perceived Competence, Self-efficacy, Sadness, and Anger.

Variable	Experienced Employment Changes		*t*	CI (95%)	*d*
	Yes (n=6893)	No (n=7064)			
Uncertainty	5.37 ± 1.47	5.24 ± 1.55	4.95**	.08; .18	.083
Optimism	4.02 ± 1.60	4.03 ± 1.62	-.43	-.06; .04	-
P. Competence	5.58 ± 1.24	5.59 ± 1.28	-.73	-.06; .03	-
Self-efficacy	5.68 ± 1.24	5.65 ± 1.30	1.04	-.02; .06	-
Sadness	3.29 ± 1.72	3.33 ± 1.80	-1.39	-.10; .02	-
Anger	3.10 ± 1.80	3.13 ± 1.89	-1.06	.09; .03	-

*p < .05; **p < .001.

The results of the linear multiple regression analysis controlling the employment variable (Table 9) show that the perceived competence on managing lockdown was the most influential variable for the prediction of Emotional distress, followed by uncertainty, self-efficacy to maintain daily routines, optimism and age. Together, these variables explained 22.9% of variance of emotional distress.

Table 9
Stepwise multiple linear regression analysis controlling the employment situation variable with Emotional distress as the dependent variable and Uncertainty, Optimism, Perceived competence, Self-efficacy, and Age as independent variables.

	Predictors	B	*SE*	β	*t*	CI (95%)
E. Distress	Uncertainty	.249	.008	.224	29.49**	.232; .265
	Optimism	.025	.008	.024	3.07*	.009; .041
	P. Competence	-.496	.011	-.371	-46.80**	-.517; -.475
	Self-efficacy	-.057	.010	-.043	-5.62**	-.077; -.037
	Age	-.014	.001	-.112	-14.87**	-.016; -.012
	R^2	.229				
	$F(4)$	829.20**				

*p < .05; **p < .001

Discussion

A remarkable level of uncertainty has been manifested during the confinement due to the COVID-19 pandemic, although it is impossible to compare it to previous situations to evaluate the increase produced by this event. However, observing that the mean scores exceed 5 on a seven-point scale and that this absolute value is higher than the optimism scores, it can be inferred that uncertainty is remarkable among the population experiencing the confinement.

The degree of personal competency and self-efficacy to maintain routines also exceeds 5, so apparently, there is a positive perception of one's own resources to face the situation.

If we compare the two waves, we can see that there is indeed a deterioration caused by the extension of the confinement when the pandemic was spreading the most. Optimism decreases uncertainty increases, perceived competence to manage the situation and self-efficacy to maintain routines decrease. However, emotional distress does not increase in the same way, which could be explained by the framework of the current stress model based on allostasis (Ganzel et al., 2010; Sterling, 2004) which holds that when faced with the prolongation of chronic stressors that remain for a long time, a process of accommodation occurs that impedes negative emotional and physiological responses from increasing with time. This non-linear dynamics of affect is well known in the neuroscience field (Waugh et al., 2016).

A clear gender pattern has been found, with women showing more uncertainty and emotional distress and less optimism and perceived competence. This pattern is consistent with the data found in other stress circumstances (Anderson & Manuel, 1994; Baum & Grunberg, 1991; Matud, 2004). In contrast, they show higher self-efficacy to maintain routines and to offer support. It seems contradictory that women present less optimism and less perceived control but more self-efficacy in handling routines and supporting. This contradiction can be explained by accounting for differences in gender social roles, women may feel less competent about the general situation and the evolution of the pandemic, but more involved in the care of the house and relatives (Cinamon, 2006; Preece, 2016).

The proposed hypothesis on the predictors of distress during confinement has been confirmed. General beliefs about the future, uncertainty, and optimism, together with beliefs about one's own conduct, such as perceived competence to manage the confinement and self-efficacy to maintain routines, can predict the emotional distress experienced in both waves. It is important to note that the most robust predictors have been uncertainty, in a negative sense, and perceived competence in a positive sense. It is not unexpected that uncertainty has this effect (Grupe & Nitschk, 2013; Peters et al., 2017; Wu et al., 2020), but the fact that optimism is not as predictive as in other studies is surprising (Carbone & Echolsel, 2017; Vera-Villarroel & Celis-Atenas, 2014) given that optimism contributes to the implementation of more adaptive strategies (Prati & Pietrantoni, 2009).

The larger importance of uncertainty in comparison with optimism deserves to be analyzed, because it probably manifests one of the aspects of the confinement that provokes the highest discomfort, lack of information about that future. It is known that perceived competence and optimism share a positive outlook on the environment and promote wellbeing and health, but they differ, because the first is a belief about self-conduct, while the second only refers to the future (Fernández-Castro et al., 2009). The explanation of these results could be that in the case of a pandemic, due to the excess of information that is produced, optimism decreases because the news doesn't allow people to imagine that positive results are possible, therefore causing uncertainty to manifest more strongly, increasing stress and worry (Dugas et al., 2004), and leaving the belief about one's own capacity to face the situation as the only protective factor (Limonero et al., 2012). In summary, when facing an excess of information that erodes trust about the future, beliefs about one's own abilities become more important, as in the case of perceived competence, which favors the perception of being in control of the situation (Fernández-Castro et al., 2009; Ranchor et al., 2010; Wallston, 1992).

Analysis of the profile of the people that have shown the highest levels of emotional distress confirms what has been stated above since these people have less optimism, more uncertainty, and less perceived competence and self-efficacy to maintain routines. Besides, they show more anger and sadness. Studies in other fields confirm this data since low levels of self-efficacy (Perez-Fuentes et al., 2020), of perceived competence (Limonero et al., 2010) or self-isolation (Szody, et al. 2021) are related to high levels of anxiety. However, to complete the psychosocial profile of the people with the highest levels of emotional distress during the confinement we must admit the importance of their employment situation. Those who have seen their financial and work situation worsen show more distress. This data only confirms the model already established by Wilkinson and Marmot (2003), which explains how financial crises affect public health through psychological stress effects caused by uncertainty about the ability to maintain current incomes.

Beyond the emotional distress caused by confinement, these results offer some ideas on pandemic prevention. Compliance with the rules of the use of masks and social distance is essential to prevent the expansion of the pandemic, and this compliance seems that more can be ensured to depart from confidence in the future and in the perception of control than the fear of contagion and the distress that this entails.

Limitations

This study has some important limitations. The first one is related to the nature of the crisis because we don't have previous measurements that allow comparison. Second, our study is composed of two waves where the participants are not necessarily the same and it is not possible to make a longitudinal record. Furthermore, our sample is composed of people that have responded voluntarily to the online survey and could be unrepresentative of the general population. However, the high participation could partially reduce this bias, although it could be that people most affected by the crisis would not want to respond. And thirdly, very brief methods of investigation have been used due to the extraordinary situation of the COVID-19 lockdown that has provided us a large response at the cost of having less specific information. Despite this, the use of single items is sufficiently supported for a large number of studies that have used and validated the method (for example, Bayés et al., 1995, 1997; Bergkvist, 2015; Limonero et al., 2012, West et al., 2009; Woods & Hampson, 2005). And finally, we are aware that we have evaluated some aspects that may be related to emotional distress to confinement but we have not taken into account aspects related to personality or coping styles that could influence them.

Conclusion

Despite these limitations, we believe that this study provides information that will be used to confront the future consequences of stress experienced during the lockdown. It should be noted that this study has been conducted with participants who were confined in one of the worst moment of the pandemic. Such a large group of people can hardly be found in natural situations experiencing a high level of uncertainty in the absence of acute trauma. By a lot, the original contribution of this study is the coverage of the extent to which uncertainty and future prospects have an impact on the reported psychological state of the general population. There is growing information on the adverse effects on the mental health of COVID 19 confinement and risk, these results show the psychological factors that mediate between the objective risk and the distinction that are the prospects for the future, optimism and uncertainty, and the beliefs in being able to cope with them, self-efficacy and perception of control.

From what we know about posttraumatic stress, it can be predicted that the distress produced during the strictest confinement will be diminished in a large part of the population while in the most sensitive sector it could maintain distress and lead to posttraumatic stress. In this sense, the key moment to evaluate the magnitude of this phenomenon will be in 12 months (Bonanno et al., 2007; McBride et al, 2020).

The present study indicates three important aspects that could be useful to efficiently prevent or reduce the predicted consequences and emotional costs associated with a lockdown in future pandemics or further outbreaks of COVID-19. In the first place, the importance of information. It is essential to promote reliable and realistic information about the future because false news produces unfounded alarmism by causing increased uncertainty and negatively impacting the optimism of the population, and therefore in their resilience.

Secondly, it is essential to promote good habits of self-care and give people the confidence to maintain them, thereby empowering their perceived competence and self-efficacy and therefore their perception of control. Finally, it is necessary to offer preventative psychological attention to the most vulnerable sector of society, such as those who have had their income reduced or lost their job or those who have been affected by a significant loss in their lives such as the death of a relative or friend.

Acknowledgements

Our gratitude to the online platform of the newspaper ARA that has facilitated the collection of data.

Declaration of Conflicting Interests

The Authors declare that there is no conflict of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Jordi Fernández Castro: https://orcid.org/0000-0001-7725-3506
Ramon Cladellas Pros: https://orcid.org/0000-0002-0801-8462
Maria José Gómez Romero: https://orcid.org/0000-0003-2488-7649
Itziar Iruarrizaga: https://orcid.org/0000-0001-5495-7172
Joaquín T. Limonero: https://orcid.org/0000-0003-0573-791X

Note

1. An ERTO is a temporary employment record regulation, in which the companies suspend, during a limited period, the contracts of all their employees or of part of them for financial, technical, organization, production reasons or others, such as in the case of coronavirus.

References

Ahmad, F., Jhajj, A. K., Stewart, D. E., Burghardt, M., & Bierman, A. S. (2014). Single item measures of self-rated mental health: a scoping review. *BMC Health Services Research, 14,* 398. https://doi.org/10.1186/1472-6963-14-398

Anderson, K. M., & Manuel, G. (1994). Gender differences in reported stress response to the Loma Prieta earthquake. *Sex Roles, 30*(9-10), 725-733. https://doi.org/10.1007/BF01544672

Baum, A., & Grunberg, N. E. (1991). Gender, stress, and health. *Health Psychology, 10*(2), 80. https://doi.org/10.1037/0278-6133.10.2.80

Bayés, R., Limonero, J. T., Barreto, P., & Comás, M. D. (1995). Assessing suffering. *The Lancet (British ed.)(346),*1492-1492.

Bayés, R., Limonero, J. T., Barreto, P., & Comas, M. D. (1997). A Way to Screen for Suffering in Pallative Care. *Journal of Palliative Care,13*(2), 22-26.

Bergkvist, L. (2015). Appropriate use of single-item measures is here to stay. *Marketing Letters, 26*(3), 245-255. https://doi.org/10.1007/s11002-014-9325-y

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology, 75*(5), 671-682. https://doi.org/10.1037/0022-006X.75.5.671

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet, 39*, 912-20. https://doi.org/10.1016/ S0140-6736(20)30460-8

Carbone, E. G., & Echols, E. T. (2017). Effects of optimism on recovery and mental health after a tornado outbreak. *Psychology & Health, 32*(5), 530-48. https://doi.org/10.1080/08870446.2017.1283039

Chang, E. C., & Sanna, L. J. (2003). Optimism, Accumulated Life Stress, and Psychological and Physical Adjustment: Is it Always Adaptive to Expect the Best. *Journal of Social and Clinical Psychology, 22*(1), 97-115. https://doi.org/10.1521/jscp.22.1.97.22767

Cinamon, R. G. (2006). Anticipated work-family conflict: Effects of gender, self-efficacy, and family background. *The Career Development Quarterly, 54*, 202–215.

Department of National Security. Government of Spain (2020). Punto de acceso General. Retrieved from https://administracion.gob.es/pag_Home/atencionCiudadana/Estado-de-alarma-crisis-sanitaria.html#.Xsjo-kQzapp. Consulted on 1/06/2020

Dugas, M.J., Schwartz, A., & Francis, K. (2004). Brief Report: Intolerance of Uncertainty, Worry, and Depression. *Cogn Ther Res 28,* 835-842. https://doi.org/10.1007/s10608-004-0669-0

Fernández-Castro, J., Rovira, T., Doval, E., & Edo, S. (2009). Optimism and perceived competence: The same or different constructs? *Personality and Individual Differences, 46,* 735-740. https://doi.org/10.1016/j.paid.2009.01.041

Fisher, G. G., Matthews, R. A., & Gibbons, A. M. (2016). Developing and Investigating the Use of Single-Item Measures in Organizational Research. *Journal of Occupational Health Psychology, 21*(1), 3-23. https://doi.org/10.1037/a0039139

Ganzel, B. L, Morris, P. A., & Wethington, E. (2010). Allostasis and the human brain: Integrating models of stress from the social and life sciences. *Psychological Review, 117*(1), 134-174. https://doi.org/10.1037/a0017773

Gobierno de España (2020). Punto de acceso General. https://administracion.gob.es/pag_Home/atencionCiudadana/Estado-de-alarma-crisis-sanitaria.html#.Xsjo-kQzapp

Grupe, D. W., & Nitschke, J. B. (2013). Uncertainty and anticipation in anxiety: an integrated neurobiological and psychological perspective. *Nature Reviews Neuroscience, 14*, 488-501. https://doi.org/10.1038/nrn3524 · 14 4888501

Güell, P., & Linde, O. (2 de abril de 2020). España supera las 10.000 muertes por coronavirus tras un repunte en los fallecimientos. *EL PAÍS.* Retrieved from https://elpais.com/sociedad/2020-04-02/espana-supera-las-10000-muertes-por-coronavirus-tras-un-repunte-en-los-fallecimientos.html

Limonero, J. T., Tomás-Sábado, J., Fernández-Castro, J., Cladellas, R., & Gómez-Benito, J. (2010). Competencia personal percibida y ansiedad ante la muerte en estudiantes de enfermería. *Ansiedad y Estrés, 16*(2-3),177-188.

Limonero, J. T., Mateo, D., Maté, J., Bayés, R., González-Barboteo, J., Bernaus, M., ... Viel, S. (2012). Evaluación de las propiedades psicométricas del cuestionario de Detección de Malestar Emocional (DME) en pacientes oncológicos. *Gaceta Sanitaria, 26*(2);145-152.

Limonero, J. T., Tomás-Sábado, J., Fernández-Castro, J., Gómez-Romero, M. J., & Aradilla Herrero, A. (2012). Estrategias de afrontamiento resilientes y regulación emocional: predictores de satisfacción vital. *Psicología Conductual / Behavioral Psychology, 20*(1);183-196.

Llaneras, K. (2 de abril de 2020). El pico que puede ser una meseta. *EL PAÍS.* Retrieved from https://elpais.com/sociedad/2020-04-02/videoanalisis-el-pico-que-puede-ser-una-meseta.html

Mak, W. W. S., Law, R. W., Woo, J., Cheung, F. M., & Lee, D. (2009). Social support and psychological adjustment to SARS: The mediating role of self-care self-efficacy. *Psychology and Health, 24*(2), 161-174. https://doi.org/10.1080/08870440701447649

Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences, 37*(7): 1401-1415. https://doi.org/10.1016/j.paid.2004.01.010

McBride, O., Murphy, J., Shevlin, M., Gibson-Miller, J., Hartman, T., Hyland, P., ... Bentall, R. P. (2020). *Monitoring the psychological impact of the COVID-19 pandemic in the general population: An overview of the context, design and conduct of the COVID-19 Psychological Research. Consortium (C19PRC) Study.* Workking draft. https://doi.org/10.31234/osf.io/wxe2n

Muñoz-Navarro, R., Cano Vindel, A., Schmitz, F., Cabello, R., & Fernández-Berrocal, P. (2020). Emotional distress and associated sociodemographic risk factors during the COVID-19 outbreak in Spain. medRxiv https://doi.org/10.1101/2020.05.30.20117457

Perez-Fuentes, M. C., Nunez, A., Molero, M. M., Gazquez, J. J., Rosario, P., & Nunez, J. C. (2020). The role of anxiety in the relationship between self-efficacy and math achievement. *Educational Psychology, 26*(2), 137-143 Ahead of print. https://doi.org/10.5093/psed2020a7

Peters, A., McEwen, B. S., & Friston, K. (2017). Uncertainty and stress: Why it causes diseases and how it is mastered by the brain. *Progress in Neurobiology, 156,* 164-188. https://doi.org/10.1016/j.pneurobio.2017.05.004

Prati, G., & Pietrantoni, L. (2009). Optimism, social support, and coping strategies as factors contributors to posttraumatic growth: A meta-analysis. *Journal of Loss & Trauma, 14*(5), 364–388. https://doi.org/10.1080/15325020902724427

Preece, J. (2016). Mind the Gender Gap: An Experiment on the Influence of Self-Efficacy on Political Interest. Politics & Gender, 12(1), 198-217. https://doi.org/10.1017/S1743923X15000628

Ranchor, A. V., Wardle, J., Steptoe, A., Henselmans, I., Ormel, J., & Sanderman, R. (2010). The adaptative role of perceived control before and after cancer diagnosis: A prospective study. *Social Science & Medicine, 70*(11), 1825-1831. https://doi.org/10.1016/j.socscimed.2009.10.069Volume 70, Issue 11

Sanz, A. (2020). *Study to assess the accumulative effect on behaviour of the COVID-19 pandemic.* https://www.uab.cat/web/newsroom/news-detail/study-to-assess-the-accumulative-effect-on-behaviour-of-the-covid-19pandemic1345668003610.html?noticiaid=1345813097873

Scheier, M. F., Carver, C. S., & Bridges, M. W. (2001). Optimism, pessimism, and psychological well-being. In E. C. Chang (Ed.), Optimism & pessimism: Implications for theory, research, and practice (p. 189–216). American Psychological Association. https://doi.org/10.1037/10385-009

Sim, K., & Chua, H. Ch. (2004). The psychological impact of SARS: a matter of heart and mind. *CMAJ, 170*(5), 811-812. https://doi.org/10.1503/cmaj.1032003

Sterling, P. (2011). Allostasis: A Model of Predictive Regulation. *Physiology & Behavior, 106*(1), 5-15. https://doi.org/10.1016/j.physbeh.2011.06.004

Szkody, E., Stearns, M., Stanhope, L. & McKinney, C. (2021). Stress-Buffering Role of Social Support during COVID-19. *Family Process, 60,* 1002-1015. https://doi.org/10.1111/famp.12618

Vera-Villarroel, P., & Celis-Atenas, K. (2014). Positive and Negative Affect as Mediator of the Relatioship Optimism-Health: Evaluation of a Structural Model. *Universitas Psychologica, 13*(3), 15-23. http://dx.doi.org/10.11144/Javeriana

Wallston, K. A. (1992). Hocus-Pocus, the Focus Isn't Strictly on Locus: Rotter's Social Learning Theory Modified for Health. *Cognitive Therapy and Research, 16*(2), 183-199. https://doi.org/10.1007/BF01173488

Waugh, C. E.; Zarolia, P.; Mauss, I.B.; Lumian, D.S.,Ford, B.Q.; Davis, T.S.; Ciesielski, B.G.; Sams, K.V.; McRae, K. (2016) Emotion regulation changes the duration of the BOLD response to emotional stimuli. *Social Cognitive and Affective Neuroscience, 11*(10), 1550–1559, https://doi.org/10.1093/scan/nsw067

West, C. P., Dyrbye, L. N., Sloan, J. A., & Shanafelt, T. D. (2009). Single item measures of emotional exhaustion and depersonalization are useful for assessing burnout in medical professionals. *Journal of General Internal Medicine, 24*(12),1318-1321. https://doi.org/10.1007/s11606-009-1129-z

WHO (2020). Mental health and psychosocial considerations during theCOVID-19 outbreak. Retrieved from https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf

Wilkinson, R., & Marmot, M. (2003). *Social Determinants of Health: The Solid Facts.* Geneva : WHO, Regional Office for Europe.

Woods, S. A., & Hampson, S. E. (2005). Measuring the Big Five with single items using a bipolar response scale. *European Journal of Personality, 19,* 373-390.

Wu, D., Yu, L., Yang T., Cottrell, R., Peng, S., Guo, W., & Jiang, S. (2020). The Impacts of Uncertainty Stress on Mental Disorders of Chinese College Students: Evidence From a Nationwide Study. *Frontiers in Psychology, 11,* 1-9. https://doi.org/10.3389/fpsyg.2020.00243