Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Do psychological strengths protect college students confined by COVID-19 to emotional distress? The role of gender

David Sánchez-Teruel [a], María Auxiliadora Robles-Bello [b,*], Nieves Valencia-Naranjo [a,b]

[a] Department of Psychology, University of Cordoba, Cordoba, Spain
[b] Department of Psychology, University of Jaen, Jaen, Spain

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ABSTRACT

The COVID-19 pandemic represents a stressful situation for the university population due to the important changes in the development of their studies and in their living conditions. However, the impact of factors related to the family unit (living with COVID-19 positive patients and living with Essential Services Workers-ESW) and other protective psychosocial factors that could produce resilient or psychopathological results (anxiety and depression) in this population has not been sufficiently assessed, differentiating them by gender. The results obtained show that both variables related to the family unit and psychosocial protective variables explain 28.6% of the variance in general distress in the total sample ($R^2 = 0.286$; $F(3,250) = 34{,}717$; $p < .001$). However, models of regression of distress and anxiety levels differ between men and women, but not in terms of mood alteration. Women facing circumstances reminiscent of mandatory pandemic containment have moderately higher levels of resilience than men ($t_{CDRISC(125)} = 2.218$; $p < .05$; $t_{GSE(125)} = 2.415$; $p < .05$; $t_{CDRISC(125)} = 0.146$; $p = .884$; $t_{GSE(125)} = 0.315$; $p = .756$). The results are discussed from the perspective of gender differences, taking into account the contribution of sociodemographic factors that increase remembrance of the stressor/trauma and the coping styles of the participants.

During the second half of May 2020, Spain was the fifth country in the world and the second in Europe with the highest number of infections and deaths from COVID-19 (World Health Organization, 2020). The actions taken in in this country, as in many countries, include increasing hygiene measures, home confinement, reducing contact between people and increasing social distance. All these measures are unprecedented (Centers for Disease Control and Prevention, 2020), which has generated a threatening situation that can only be fought with responsible behaviour, as long as there is no adequate medical treatment (Usher & Durkin, 2020). The ease of transmission, the lack of immunity of the population, the delay in testing to determine who can transmit the disease, the lack of protective equipment and the significant number of deaths, has meant that the population can feel high levels of stress (Torales, O'Higgins, Castaldelli-Maia, & Ventriglio, 2020). Also, strict conditions of confinement of the population in Spain implicaron the closure of study centres and significant restrictions on the mobility of the population limited to very basic activities. These conditions, led to a substantial modification in the usual activities carried out by young university students, replacing the typical face-to-face training of Spanish universities with online training and requiring important adjustments in the initial training plan, the context of study (e.g. university libraries) as well as in the possibilities of direct contact with teachers and classmates. These modifications were made abruptly, generating a high level of uncertainty in students and teachers. In general, fear of contagion, lack of information, loss of work and economic problems along with stigma are some of the stressors associated with epidemics (Ibáñez-Vizoso, Alberdi-Páramo, & Díaz-Marsá, 2020).

Stressful events can be classified as traumatic or non-traumatic. A traumatic event must involve actual o threatened death, injury o threat to physical integrity of self or others. Typical examples are severe transport accidents, sexual and/or physical assault, combat, excluding circumstances like death of a family member or a close friend due to natural causes; witnessing an event (unless in person, violent or accidental death of love one or repeated exposure to details of traumas) and life-threatening medical illness (unless sudden catastrophic). Events that do not meet these criteria are stressful life events (e.g. non-traumatic) (i.e. interpersonal conflict, death of a loved one, unemployment, financial difficulties, or illness of a loved one or oneself (Einsle, Köllner, Dannemann, & Maercker, 2010; O'Donnell, Agathos, Metcalf, Gibson, & Lau, 2019).

* Corresponding author at: University of Jaen, Campus las Lagunillas, 23071 Jaen, Spain.
E-mail address: marobles@ujaen.es (M.A. Robles-Bello).

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Different investigations raise the usefulness of distinguishing between traumatic events and stressful life events highlighting that the categorization of the event is not always related to the severity of the symptoms, the importance given to the event and possible personal changes associated with the experience or effects on psychological health (Larsen & Pacella, 2016; Roos, O'Connor, Canevello, & Bennett, 2019; Silverstein, Lee, Witte, & Weathers, 2017; Van den Berg, Tollenaar, Spinhoven, Penninx, & Elzinga, 2017). However, it is not a position held unanimously (e.g. Favrod et al., 2018; Frewen, Zhu, & Lanius, 2019, among others). In this paper, the conceptualization of the events experienced by the participants has not been examined, assuming the more general concept of stressful life events associated with the pandemic experience by COVID-19. Emotional disturbances associated with stressful experiences for the individual have been reported in several papers (Bacchi & Licinio, 2017; Brailovskaia et al., 2018; Liang et al., 2020; Zhang, Zhang, Zhang, Zhang, & Feng, 2018). Similar to previous epidemics (i.e. SARS, MERS, influenza A/H1N1 and Ebola), the COVID-19 pandemic may generate psychological distress, emotional symptoms (low mood or irritability) and post-traumatic stress in the general population, as well as in college students (Caoa et al., 2020; Wang, Yang et al., 2020), some of these symptoms can be long lasting (Lai et al., 2020; Qiu et al., 2020; Usher & Durkin, 2020; Wang, Di, Ye, & Wei, 2020).

Research articles that explore the capacity to cope with this adverse and stressful situation caused by the COVID-19 in the population of Spain are limited. However, the influence of adverse circumstances on emotional disturbances can be modulated by protective variables in the individual. Among those factors contributing to the maintenance of student mental health status in the face of the COVID-19 pandemic, Ye et al. (2020) identified the resilience of the participants. The American Psychological Association (2014) has defined resilience as "the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of threat" (pp. 4). Resilience can be understood as an outcome, as the absence of symptoms (Bonanno, Wortman, & Nesse, 2004), or as a process involving individual reactions (cognitive, emotional and behavioural) (Masten, 2016). From this last perspective, the individual has resources, variables that promote a flexible adaptation to changing conditions that act as demands. A kind of resource that is broadly relevant to resilience involves self-efficacy, psychological variable that future-oriented and plays a prominent role in goal-directed behaviour. Self-efficacy involves perceptions that one can perform specific behaviours necessary to achieve a desired outcome (Bandura, 1982). Other researchers have expanded this scope to examine the role of a general sense of self-efficacy, a factor that reflects one's beliefs about one's own capabilities in dealing with demands across different situation (Benight & Cieslak, 2011). These forms of positive expectancies are associated with adaptive engaged coping and inversely associated with maladaptive avoidance and emotion-focused coping (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005; Nes & Segerstrom, 2006). We therefore expect resilience and self-efficacy to act as protective elements in adverse situations. The hypothesis is that general resilience and self-efficacy will play a role in predicting emotional disturbances in adverse circumstances linked to the COVID-19 pandemic, specifically by maintaining a negative relationship with those levels of self-reported symptoms of distress, anxiety and depression.

Another element of interest is the possible gender difference in the emotional reactions experienced by participants. For example, several studies suggest that gender moderates the relationship between emotional disturbances (e.g., psychological distress) and personal strengths such as resilience and social support in students (Bacchi & Licinio, 2017; Brailovskaia et al., 2018; Liang et al., 2020; Zhang et al., 2018). However, Caoa et al. (2020) found no difference in the levels of generalized anxiety between men and women. The factors involved in these differences are not yet well understood but often highlight psychosocial and biological explanations (i.e. events experienced, stage of development at which the event occurs, subjective responses, coping strategies, sensitized hypothalamus-pituitary-axis in women/sensitized physiological hyperarousal system in men) (Olff, 2017). Without excluding biological factors, Christiansen and Hansen (2015) highlight in the context of post-instrumental disorder the relationship between the symptoms experienced and the importance of subjective and evaluative experience related to the stressful event (i.e. peritraumatic fear, horror, and helplessness and negative posttraumatic cognitions related to self and the world). Among the possible explanations for these gender differences, Boals (2010) suggests that the incidence of alterations in women may be related to greater attention to negative events, including them among the experiences that are part of the set of relevant facts in her biography. In the direction set by Boals (2010), the centrality of events affects the person's mental health status through ruminations and attributional styles associated with negative events central to the individual (Boals, Steward, & Schuettler, 2010; Brooks, Graham-Kevan, Lowe, & Robinson, 2017; Gehrt, Berntsen, Hoyle, & Rubin, 2018). Women also identify more events as central (Gehrt et al., 2018). Berntsen and Rubin (2006) establish that in the biographical history of every individual there are important moments or periods, some of which can affect the person's identity. For these authors, "a highly negative, unpredictable and probable rare event will influence the attribution of meaning to other mundane events as well the generation of expectations for future events. Ruminatios, unnecessary worries and compulsive attempts at avoiding similar events in the future are likely outcomes" (pg. 220). We believe that the set of circumstances associated with the COVID-19 pandemic allows it to be included among the events that may become central to the individual. Pfefferbaum and North (2020) point out that in the face of the COVID-19 pandemic the population seems to move gradually from an avoidant posture through humor to a hypervigilant posture modulated by negative cognitions, because there is a clear fear that the world as we know it is about to change, and the near future may be uncertain. Also, intrusive thoughts related to health and even death will occur are very probable if you are infected or are closely associated with people who are infected (Horesh & Brown, 2020). In this sense, we hope that the sociodemographic factors of the participants (e.g., members of the cohabitation unit) during confinement may act as an index of those intrusive thoughts. In relation to this general objective, the established hypotheses are; on the one hand, that the sociodemographic factors of cohabitation will participate in the models of regression of emotional disturbances and on the other hand, that this participation will be more frequent in the models of regression of women.

Bonanno (2004) suggests that protection variables increase the perception of control in adverse situations. In these circumstances, it is likely that no special meaning is attached to the event (Schuettler & Boals, 2011) limiting possible changes in the person's beliefs, feelings and behaviours. However, resilience can be a result of the psychological struggle in adverse circumstances (Rawlins, Brooks, & Khan, 2020). Similarly, Weber, Pavlacic, Gawlik, Schulenberg, and Buchanan (2019) found a positive relationship between resilience and disaster preparedness behaviours (e.g. tornadoes), behaviours that may be related to higher expectations of self-efficacy. In light of this possible gender difference in the way that negative events are central to individuals' identities, we were interested in examining possible differences in the levels of resilience and self-efficacy displayed by men and women. In this paper, we hope that if negative events are central to women, we will see changes in their levels of resilience and self-efficacy when faced with circumstances that maximise the negative nature of the situation, i.e. living with people who are ill with COVID-19 or people who are at greater risk of infection such as Essential Services Workers-ESW. We do not expect to find these differences in men.

In summary, the objectives of this work are to know the factors that participate in the prediction of emotional disorders (anxiety, depression and psychological distress) in university students. It is hypothesized that psychological strengths (e.g., general resilience and self-efficacy) protect students from emotional disturbance. Secondly, to identify the

participation of sociodemographic factors that act as an element of memory of the lived pandemic situation (e.g. composition of the cohabitation unit) in the prediction models of emotional disturbances. The prediction is that these factors of remembrance of the stressful life event will be present, especially, in the models of regression of the emotional alterations in women. Thirdly, to explore whether continued exposure to the traumatic situation influences men's and women's coping strategies. The hypothesis is that women, although they may experience a higher level of emotional disturbance, do cope in a way that allows them to increase their strengths.

1. Method

1.1. Participants

The sample consisted of 699 people who answered a battery of online questionnaires. The criteria for inclusion in the study were: 1) To be 18 years of age or older and 2) To have completed all the questionnaires, 3) To be of Spanish nationality. The total sample is characterized by 402 (57.51%) women and 297 (42.49%) men, aged between 18 and 73 years ($M = 27.79$; $SD = 12.68$). From this sample of participants, students were selected. The number of male students was 127. Therefore, 127 female students were also randomly selected, matching sociodemographic conditions such as age, composition of the cohabitation unit (e.g. persons with COVID-19, persons providing essential services (ESW), presence of elderly people, presence of under age) and cohabitation conditions (e.g. number of members of the cohabitation unit and characteristics of the dwelling) (see Table 1).

1.2. Instruments

Socio-demographic data sheet. Fact sheet designed by the authors for this research with information on gender, age, the activity carried out, number of people confined at home, presence of elderly people, presence of under age, living with patients who present symptoms of COVID-19 infection and living with essential service workers (ESW).

Hospital, Anxiety and Depression (HAD-14) by Zigmond and Snaith (1983) in its Spanish version by Herrero et al. (2003). A 14-items scale was designed for the assessment of anxiety and depression in non-psychiatric outpatient hospital services. It is a state measure containing two scales, one for anxiety and another for depression. One of its main strengths is the suppression of somatic symptoms so that it can be assessed independently of the underlying somatic disease. It is a useful instrument validated in our environment, and of special interest and relevance in the context of Primary Care. It presents a subscale of anxiety of 7 items and a subscale of depression of 7 items in a 4-point Likert type format giving the maximum subscale scores of 21 for both depression and anxiety subscales. The questionnaire evaluates the symptoms during the previous week. This scale has a good internal consistency of 0.90 according to Cronbach's alpha for the full scale; 0.84 for the depression subscale and 0.85 for the anxiety subscale (Herrero et al., 2003).

Connor-Davidson Resilience Scale-10 (CD-RISC10; Campbell-Sills & Stein, 2007). This scale measures the level of general resilience and is made up of 10 items in a Likert type format (from 0 = not at all in agreement to 4 = totally in agreement). The instrument that will be used in the intervention is the adaptation to Spanish of Notario-Pacheco et al. (2011). As for the psychometric properties it presents, it can be stated that it has a good internal consistency (alpha = 0.87) (Soler, Meseguer, & García, 2016). The CD-RISC-10 have uniformly strong loadings on the general factor of resilience, which could indicate that these 10 items refer exclusively to the ability to adapt in the face of adversity, which is viewed as the core of resilience (Pulido-Martos, Fernández-Sánchez, & Lopez-Zafra, 2019).

General Self-Efficacy Scale-GSE (Schwarzer & Jerusalem, 1995). Translated into Spanish as Escala de Autoeficacia General by Sanjuán-Suárez, Pérez-García, and Bermúdez-Moreno (2000). It is a scale that measures overall self-efficacy, meaning the belief that one's actions are responsible for successful results, and is made up of 10 items with a scale from 1 (not true at all) to 4 (completely true). No cut-off points have been established, they vary from 10 to 40 points and simply the higher the score, the greater the overall perceived self-efficacy. The internal consistency of the Spanish version was 0.84.

Table 1
Description of socio-demographic data of the sample (men and women).

	Men n_1(%)	Women n_2(%)
Age		
18–25	121(94.7)	120(95)
26–38	6(5.3)	7(5)
Family member with COVID-19 infection (COVID19)		
Yes	5(3.9)	5(3.9)
No	122(96.1)	122(96.1)
Relationship with essential services workers (ESW)		
Yes	68(53.5)	66(52)
No	59(46.5)	61(48)
Number of members living together		
1	4(3.1)	3(2.4)
2	7(5.5.)	9(7.1)
3	39(30.7)	37(29.1)
4	52(40.9)	48(37.8)
5	17(13.4)	17(13.4)
6	8(6.3)	13(10.2)
Housing characteristics		
Small apartment (less than 60 m^2)	3(2.4)	1(1)
Apartment (60–99 m^2)	33(26)	33(26)
Apartment (+100 m^2)	29(22.8)	28(22)
House (+100m^2)	14(11)	14(11)
House (+100m^2 + garden)	31(24.4)	31(24.4)
Bigger ones	17(13.4)	20(15.7)

1.3. Procedure

This is a cross-sectional study. Data collection was done between 22 April 2020 and May. The online survey was posted to the link https://forms.gle/kAU1sr84uCTHCfMu8. The survey was disseminated using snowball sampling. Before completing all the online questionnaires (Google Forms, second and third author's university license), participants provided their voluntary and informed consent. The approval of the Ethics Committee of the second and third author's university (code ABR.20/4.PRY) had previously been sought and obtained, which also conforms to the principles enshrined in the Declaration of Helsinkim (Goodyear, Krleza-Jeric, & Lemmens, 2007). Cohabitation conditions (e.g. number of members of the cohabitation unit and characteristics of the dwelling) were equalized for men and women to limit possible effects related to the physical space of the dwelling per inhabitant. The definition of an Essential Services Worker (ESW) is set out in Royal Decree 463/2020 of 14 March. In this study, essential services workers were composed of health workers, state security forces personnel, care for vulnerable people such as shelters and old people's homes. We do not know exactly the possible number of people who were proposed to participate in the study since, as mentioned, the dissemination procedure was through snowball sampling. However, once informed and provided consent, participants were required to answer all questions posed before submitting their response, i.e. there were no incomplete answers because of the way the online survey was constructed.

1.4. Data analysis

In relation to the first and second objectives, simple multivariate regression analyses were applied to identify the contribution of protective factors (Resilience and General Self-Efficacy) and socio-

demographic factors (living with COVID-19 patients -COVID-19 and living with essential service workers-ESW) in the prediction of self-reported and measured levels of anxiety, depression and general distress through HAD-14. General distress is the sum of the anxiety and depression values of the HAD-14 scale. These models were obtained for men and women independently in the second objective. The dependent variables in the third objective were psychological strengths of Resilience and General Self-Efficacy. Possible differences in men or women in the effects on these strengths of the independent variables COVID-19 and ESW (socio-demographic factors) were examined by testing for differences in means (*t*-tests). The statistical analyses of the data were performed with the SPSS statistical package version 24.0 (Licensed by the University of Jaen in Spain).

2. Results

The contribution of sociodemographic factors (living with COVID-19 patients and living with essential service workers-ESW) and psychological strength factors (general resilience and self-efficacy) in predicting levels of anxiety, depression and self-reported distress by participants (Objective 1) was obtained by regression analysis in each of the emotional disturbances. Goodness of fit was previously assessed by confirming compliance with non-multicollinearity assumptions (<5, VIF = 1.00) and tolerance values in 1. Non-autocorrelation was also observed, regardless of errors. The results obtained could be generalized to the general population; specifically, the Durwin-Watson index was 1618, 1527, 1892 in distress, anxiety and depression, respectively, showing values close to 2. To perform the analyses, the socio-demographic variables were transformed into "dummy" variables -COVID-19 (Yes, No) and essential service workers-ESW (Yes, No). The independent variables related to protective factors were Resilience (CDRISC-10) and General Self-Efficacy (GSE). All the models obtained in the regression analyses were significant and explanatory. The variance of general distress (HAD-14) was explained at 28.6% ($R^2 = 0.286$; $F_{(3,250)} = 34.717$; $p < .001$); at 18.9% in anxiety (HAD-14) ($R^2 = 0.620$; $F_{(3,250)} = 20.597$; $p < .001$) and at el 28.3% in depression (HAD-14) ($R^2 = 0.283$; $F_{(2,251)} = 50.853$; $p < .001$) (see Table 2).

In the second objective, we examined the predictive capacity of sociodemographic factors and psychological strengths in the participants' mental health status in men and women, obtaining predictive models for the global HAD-14 scale and in the subcategory's anxiety (HAD-14) and depression (HAD-14). The predictive factors were COVID19 and essential service workers-ESW sociodemographic variables and resilience and General Self-Efficacy-GSE psychological strengths. Previous analyses indicated that the assumptions of non-multicollinearity were fulfilled (<5, VIF = 1.00; and tolerance values were between 1 and 0.962). In addition, there is no autocorrelation in the protective and sociodemographic variables, and the assumption of independence from error is fulfilled as indicated by the Durwin-Watson index with a coefficient close to two on the total scale (1.804/1.599), in the anxiety subscale (1.784/1500) and in the depression subscale (1.871/1824) (women/men, respectively).

For the group of women, the model obtained in the general scale of HAD-14, indicated that the sociodemographic variables participating in the explanation and prediction of the level of distress were COVID-19, with the psychological protective variable resilience also participating in the model. The variance explained by this model was 24.6% ($R^2 = 0.246$; $F_{(2,124)} = 21.530$; $p < .001$). In predicting and explaining the anxious symptomatology in this same group of participants, the model includes as factors the coexistence with essential services workers-ESW and the two factors of psychological strength (Resilience and General Self-Efficacy). The variance explained by this model was 20% ($R^2 = 0.200$; $F_{(3,123)} = 11.478$; $p < .001$). In the case of self-reported depressive symptoms, the model defined for women included

Table 2
Values of the stepwise regression equation for the prediction of the general distress, anxiety and general depression score obtained using the HAD-14 scale.

	R^2	*F*	B	SE	*t*	β	C.I.(95%) for β	
							L.L.	U.L.
General distress								
Model 1	0.254	86.992**						
Resilience			−0.583	0.063	9.327**	−0.507	−0.707	−0.460
Model 2	0.283	49.557**						
Resilience			−0.570	0.062	9.240**	−0.495	−0.692	−0.449
COVID-19			6.451	2.119	3.044*	0.163	2.277	10.624
Model 3	0.294	34.717**						
Resilience			−0.414	0.100	4.136**	−360.	−0.611	−0.217
COVID-19			6.602	2.108	3.132*	0.167	2.277	10.754
General Self-Efficacy			−0.240	0.121	1.973*	−0.171	−479	0.000
Anxiety								
Model 1	0.164	50.617**						–
Resilience			−0.279	0.518	4.550**	0.144	1.341	3.376
Model 2	0.178	28.395**						
Resilience			−0.287	0.039	7.351**	−0.421	−0.364	−0.210
ESW			1.204	0.523	2.304	0.132	0.175	2.233
Model 3	0.189	20.597**						
Resilience			−0.184	0.063	2.925*	−0.270	−0.309	−0.060
ESW			1.284	0.521	2.466*	0.141	0.259	2.309
General Self-Efficacy			−0.159	0.077	2.065*	−0.191	−0.310	−0.007
Depression								
Model 1	0.241	81.429**						
Resilience			−0.304	0.034	9.024**	−0.494	−0.371	−0.238
Model 2	0.283	50.853**						
Resilience			−0.295	0.033	8.978**	−0.479	−0.360	−0.230
COVID-19			4.453	1.128	3.946**	0.211	2.230	6.675

General distress = HAD-14; Anxiety = HAD-14 anxiety sub-dimension; Depression = HAD-14 depression sub-dimension; ESW = essential service workers; COVID-19 = living with COVID-19 patients; R^2 = Corrected determination coefficient; *F* = contrast statistic (ANOVA); B = non-standardized coefficient; SE = standard error; *t* = predictive variable contrast statistic; β = result of the regression or beta equation; C.I.(95%) = confidence intervals; L.L. = lower limit; U.L. = upper limit.

* $p < .05$.

** $p < .01$.

the variables of coexistence with COVID-19 patients (COVID19) and the level of resilience. The variance explained by this model was 21.4% ($R^2 = 0.214$; $F_{(2,124)} = 18.147$; $p < .001$) (see Table 3).

The results obtained in the case of the male students indicate that the variables included in the model of regression of the score in the general scale of the HAD were the psychological strength of resilience (CDRISC), explaining 28.4% of the variance ($R^2 = 0.284$; $F_{(1,125)} = 50.958$; $p < .001$); the level of overall self-efficacy (GSE) in predicting the level of anxiety explaining 15.6% of the variance ($R^2 = 0.156$; $F_{(2,124)} = 24.278$; $p < .001$) and through the contribution of personal resilience strength (CDRISC) as well as the sociodemographic variable of coexistence with COVID-19 patients (COVID19) in the prediction of the variance associated with the depressive symptomatology score (34.4%; $R^2 = 0.344$; $F_{(2,124)} = 34.081$; $p < .001$) (see Table 4).

The analysis of differences in Resilience and General Self-Efficacy according to the inclusion or not of essential service workers-SEW among the members of the cohabitation unit showed the existence of differences in the group of women ($t_{CDRISC(125)} = 2.218$; $p < .05$; $t_{GSE(125)} = 2.415$; $p < .05$). In this group, the average scores in both strengths were higher for female students whose cohabitation unit included essential services personnel in contrast to women whose cohabitation unit did not include this type of worker (see Table 5). A similar pattern was obtained when examining the level of General Self-Efficacy (GSE). In the analysis of the data for the male group, the differences in Resilience and General Self-Efficacy among students where the cohabitation unit included or did not include essential services workers did not reach the level of statistical significance ($t_{CDRISC(125)} = 0.146$; $p = .884$; $t_{GSE(125)} = 0.315$; $p = .756$). Means and standard deviations in resilience are presented (Table 5).

3. Discussion

Resilient people redefine what has happened by reaching higher levels of optimism, reducing their negative emotions, increasing the positive ones and participating more actively in society (Armstrong, Galligan, & Critchley, 2011; Ibáñez, 2012). The results obtained in this work suggest that resilience is in college students a personal strength that is related to the emotional disturbances (distress, anxiety and depression) of the participants. The negative weight in the regression model of these alterations obtained suggests that resilience is a protective factor according to Bacchi and Licinio (2017), Brailovskaia et al. (2018), Zhang et al. (2018), Rawlins et al. (2020) or Tranter, Brooks, and Khan (2020), and in the context of the COVID-19 pandemic, by Ye et al. (2020). The latter authors suggest that resilience is a protective factor against acute stress symptoms among college students; specifically, "resilient individuals are more capable of dealing with fears from coronavirus stresses, experiencing positive emotions and thoughts and seeking the social support, all of which allows them to actively cope with stress" (pg. 13).

Self-efficacy también participó in the regression models another personal general strength, this is, the belief that one's skills will produce certain outcomes. Löve, Moore, and Hensing (2012) found a positive relationship between self-assessed ability to work and the performance of mental activities (vs. physical activities) when using the GSE scale. The emotional disturbances of the students included in this work were inversely related to the protective factors that promote flexible adaptation to changing conditions that act as demands. The sociodemographic factors (e.g. coexistence with essential services personnel or the coexistence with people who are ill due to COVID-19) were also included in the regression models of the emotional alterations, maintaining positive relationships with self-reported symptoms. More specifically, living with essential service workers se relacionó con student anxiety and living with COVID-19 patients con mood disorders and general distress psychological adjustment to stressful events improves when the person is able to integrate adverse circumstances into their self (Strasshofer, Peterson, Beagley, & Galovski, 2017). In this paper, we consider that these sociodemographic factors reflect the efforts made by the individual to integrate these particularly stressful situations during the pandemic. In this process, emotional regulation strategies aimed at reducing the perceived discrepancy between goals, standards or desired

Table 3
Values of the stepwise regression equation for the prediction of the distress, anxiety and general depression score obtained using the HAD-14 scale for the women's group.

	R^2	*F*	B	SE	*t*	β	C.I.(95%) for β	
							L.L.	U.L.
General distress								
Model 1	0.205	32.300**						
Resilience			−0.547	0.096	5.683**	−0.453	−0.737	−0.356
Model 2	0.246	21.530**						
Resilience			−0.551	0.093	5.899**	−0.456	−0.735	−0.366
COVID-19			9.044	3.057	2.959*	0.229	2.995	15.094
Anxiety								
Model 1	0.139	21.306**						
Resilience			−0.269	0.058	4.616**	−0.382	−0.384	−0.153
Model 2	0.178	14.624**						
Resilience			−0.298	0.058	5.146**	−0.424	−0.413	−0.184
ESW			1.945	0.739	2.633	0.217	0.483	3.407
Model 3	0.200	11.478**						
Resilience			−0.184	0.063	2.925*	−0.270	−0.309	−0.060
ESW			1.284	0.521	2.466*	0.141	0.259	2.309
General Self-Efficacy			−0.159	0.077	2.065*	−0.191	−0.310	−0.007
Depression								
Model 1	0.173	27.310**						
Resilience			−0.278	0.053	5.226**	−0.423	−0.383	−0.173
Model 2	0.214	18.147**						
Resilience			−0.280	0.052	5.400**	−0.427	−0.383	−0.177
COVID-19			4.668	1.699	2.748*	0.217	1.306	8.030

General distress = HAD-14; Anxiety = HAD-14 anxiety sub-dimension; Depression = HAD-14 depression sub-dimension; ESW = essential service workers; COVID-19 = living with COVID-19 patients; R^2 = Corrected determination coefficient; *F* = contrast statistic (ANOVA); B = non-standardized coefficient; SE = standard error; *t* = predictive variable contrast statistic; β = result of the regression or beta equation; C.I.(95%) = confidence intervals; L.L. = lower limit; U.L. = upper limit.

* $p < .05$.

** $p < .01$.

Table 4
Values of the stepwise regression equation for the prediction of the distress, anxiety and general depression score obtained using the HAD-14 scale for the male group.

	R^2	*F*	B	SE	*t*	β	C.I.(95%) for β	
							L.L.	U.L.
General distress								
Model 1	0.284	50.958**						
Resilience			−0.599	0.084	7.138**	−0.538	−0.765	−0.433
Anxiety								
Model 1	0.163	24.278**						
General Self-Efficacy			−0.317	0.064	4.927**	−0.4093	−0.445	−0.190
Depression								
Model 1	0.311	57.744**						
Resilience			−0.333	0.044	7.599**	−0.562	−0.420	−0.246
Model 2	0.344	34.081**						
Resilience			−0.315	0.043	7.286**	−0.532	−0.400	−0.229
COVID-19			4.125	1.512	2.728*	0.199	1.132	7117

General distress = HAD-14; Anxiety = HAD-14 anxiety sub-dimension; Depression = HAD-14 depression sub-dimension; ESW = essential service workers; COVID-19 = living with COVID-19 patients; R^2 = Corrected determination coefficient; *F* = contrast statistic (ANOVA); B = non-standardized coefficient; SE = standard error; *t* = predictive variable contrast statistic; β = result of the regression or beta equation; C.I.(95%) = confidence intervals; L.L. = lower limit; U.L. = upper limit.
* $p < .05$.
** $p < .01$.

Table 5
Descriptive statistics of female and male university students living with and not living with essential service workers.

	Resilience+ESW	GSE+ESW	Resilience−ESW	GSE−ESW
	M(*SD*)	*M*(*SD*)	*M*(*SD*)	*M*(*SD*)
Women	27.94 (5.90)	30.14(5.08)	25.45 (6.70)	27.97 (5.03)
Men	28.83(7.32)	30.88 (5.40)	29.02(6.29)	30.56 (6.16)

M = means; *SD* = standard deviations; GSE = General Self-Efficacy; ESW = essential service workers (yes = +; no = −).

outcomes and the current state are involved. Their effectiveness depends on the validity of the content, the intrapersonal and situational context and the level of processing adopted by the individual (Watkins, 2008). Living with essential service workers (healthy people but at greater risk of contagion) can encourage repetitive thoughts of concern result from unresolved safety goals focused on the future (Watkins, Moulds, & Mackintosh, 2005). Contagion, and even the death of oneself or a loved one, is a very real possibility in the case of living with COVID-19 sufferers, being more likely repetitive thoughts of rumination focused on the past. People who live with people who are ill with COVID-19 (or are suspected of being ill) may be higher risk of depression symptom (Wang, Yang, et al., 2020).

The use of coping strategies is more frequent when the event is central to the individual (del Palacio-Gonzalez & Berntsen, 2019; Watkins, 2008). The centrality of negative events may be greater in women (Gehrt et al., 2018), perhaps linked to the context during women's socio-emotional development which emphasises the identification and valuation of negative events as relevant circumstances in their identity (Boals, 2010). Therefore, in the second objective the relationship between sociodemographic factors and psychological strengths con las reacciones emocionales was examined independently in men and women. The hypothesis of the participation of sociodemographic factors of cohabitation in the family unit in the models of regression of emotional disturbances in women was partially supported. The results suggest that these sociodemographic factors are positively related to the emotional disturbances in women while, in the case of men, they also participated in relation to the symptoms of depression. As commented, these demographic variables represent adverse elements that can interfere in the regulation process aimed at achieving highly self-relevant goals.

Watkins (2008) highlights that in response to difficult situational demands, people tend to use more concrete levels of analysis. However, the extent to which goal progress is blocked (by situational, motivational, and cognitive factors) can interfere with this regulatory process, leads to higher level construals (e.g. more negative expectations would engender more abstract construal) and more maladaptive strategies. The results obtained for men and women are in line with these suggestions from Watkins (2008). Specifically, the contribution of self-efficacy in the regression model in men suggests that they use concrete levels of analysis with specific strategies for managing anxiety in the situation. In the case of women, the coexistence with essential service personnel can represent the context in which the progression towards the objectives is limited. In the prediction of self-reported anxiety symptoms in this group, their level of self-efficacy also participates although these beliefs show a lower relative importance (Beta weight) than a more general disposition associated with the level of resilience. However, the possibility that a negative event relevant to individuals may be central to a person's identity and negatively associated with psychological health occurs independently of gender in depressive symptoms. Different results can be obtained when analyzing the effects of a stressful event after a longer period of time (Helgelson, Reynolds, & Tomich, 2006).

The third hypothesis is related to possible differences in resilience and self-efficacy in people living with or without essential service workers. This analysis was conducted on men and women. According to the established hypothesis, the average scores in general resilience and self-efficacy in women living with essential service workers were significantly higher than those obtained in women without the presence of this sociodemographic factor. These differences are not present in the group of men, and average values in these variables are lower in those male students who live with essential service workers. As regards coexistence with COVID-19 patients, the limited number of participants who presented this sociodemographic factor limits the possibility of performing statistical analyses, although the pattern of results is the same as that reported for coexistence with essential services personnel in terms of resilience and self-efficacy. However, the under-representation of these conditions is a major constraint in this study.

Efforts to cope with adverse circumstances, especially when they are important to the individual, are likely to be influenced by the strategies developed previously and their assessment of the ability to cope with adverse situations. This assessment does not exclude experiencing emotional disturbances that can act as a "trigger" for these new efforts (Rawlins et al., 2020). In this sense, there is no consensus on whether the emotional activation associated with the event is stimulated by its valuation as a central event for the individual (del Palacio-Gonzalez & Berntsen, 2019) or whether the emotional effects associated with the event contribute to defining that event as central (Schuettler & Boals,

2011) and even represent both different moments in the dynamic process of relations between valuations and emotional regulation (del Palacio-Gonzalez & Berntsen, 2019). Our results suggest that women who face circumstances that increase the relevance of the pandemic are immersed in a context of change that encourages new choices in the face of the circumstances experienced. However, as Páez, Vázquez, and Echeburúa (2012) emphasise, when facing situation, it is necessary to differentiate between the voluntary use of seeking and remembering the positive aspects of the experience of the spontaneous process of finding positive aspects in the response to the stressful event.

The results of this study suggest that in students it is important to encourage protective factors that will reduce the adverse emotional effects of a stressful event. Encouraging the development of protective factors in university settings will equip students with skills that will facilitate their personal, occupational and social adjustment. This set of skills can be especially relevant in very adverse circumstances such as those associated with pandemics. Wang, Yang, et al. (2020) highlight the students' demands for psycho-educational interventions aimed at understanding the emotional processes and basic strategies of action in the face of the COVID-19. These protocols should pay special attention to the incidence of factors that can increase the vulnerability of students (i.e. composition of the family unit). These authors also find that living with COVID-19 patients is related to self-reported symptoms of depression, although it has a limited incidence in the sample. Regarding the gender of students, during coping male and female students may highlight different aspects of the circumstances experienced, requiring further study of the subsequent emotional effects of these different coping strategies. Initially, women's coping with fairly adverse conditions can lead to changes that encourage women to adapt. However, action protocols aimed at monitoring the individual effects of conditions associated with the pandemic, minimize the possibility that emotional, cognitive and behavioural reactions to the difficulty of managing stressful events will limit the ability to adapt to those circumstances.

This study has several limitations, one of which is related to the cross-sectional nature of the study limiting significantly the inferences made about the results. In this sense, it is necessary to re-examine these data with a longitudinal methodology. The continued effects of the COVID-19 pandemic in Spain unfortunately place us in a situation where we must examine the effects of this pandemic in another period of time. In this new context it is likely that we will be able to examine in more detail the effects of living with patients due to COVID-19. The limited number of participants who present this condition is another limitation of this work. In these future studies, moreover, it would be advisable to modify the strategy of approaching the possible mediating effects of the centrality of negative events and the gender moderators on the effects on the state of mental health that would allow more direct inferences to be made about the effects of these variables. In this sense, approaches to analysis based on structural equations may be useful. It would also be useful to identify whether the stressful events experienced by the participants can, in some cases, act as a traumatic event, making it easier to know whether the person's assessment of the event or the characteristics of the event itself is an element that has a differential effect on the results.

CRediT authorship contribution statement

It is certified that, María Auxiliadora Robles Bello, David Sánchez Teruel and Nieves Valencia Naranjo, all authors have seen and approved the final version of the manuscript being submitted. They warrant that the article is the authors' original work, hasn't received prior publication and isn't under consideration for publication elsewhere.

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