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So far but yet so near: Examining the buffering effect of perceived social support on the psychological impact of Spanish lockdown

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Abstract

The main objective of this study was to examine the moderating or buffering effect of social support (SS) perceived by university students on the psychological impact of lockdown on mental health. Specifically, a total of 826 participants (622 women) completed an online survey that included standardized measures of anxiety (Generalised Anxiety Disorder-7), depression (Patient Health Questionnaire-9), and irritability (Brief Irritability Test), as well as measures of stressors, perceived SS, and self-perceived change in mental health. The results of hierarchical regression analyses suggest that SS contributes toward attenuating the negative impact of academic stressors, general overload, and interpersonal conflict on the indicators of psychological well-being; however, moderation analysis only confirms the buffering effect for symptoms of anxiety. In conclusion, it is suggested that SS networks need to be strengthened as a basic means of protecting health and well-being during unexpected disasters.

KEYWORDS
anxiety, confinement, COVID-19, depression, mental health, social support, university students

1 | INTRODUCTION

The year 2020 will be remembered as one of the most challenging in recent history, on many fronts. It was a period in which the world appeared to stop, following the abrupt outbreak of an infectious disease known as coronavirus disease 2019 (COVID-19) (World Health Organization, 2020), caused by severe acute respiratory syndrome coronavirus type-2.

The absence of any specific treatment, plus the strain on health systems, led to the adoption of extraordinary measures of prevention and containment to deal with the effects of the pathogen. While these measures contributed to a slowing down of the spread of the disease, they also caused significant psychological and emotional harm to the population (Ozamiz-Etxebarria et al., 2020; Rodríguez-Rey et al., 2020). In fact, empirical evidence suggests that confinement and isolation can in themselves be very stressful and traumatic experiences (for a review, see Boyraz & Legros, 2020; Brooks et al., 2020) and that these can be related to symptoms of posttraumatic stress disorder (PTSD), irritability, and insomnia, among many other mental health problems. Furthermore, recent research (e.g., Cao et al., 2020; Chen et al., 2020; Grey et al., 2020; Padrón et al., 2021) has revealed an increase in depression, anxiety, and irritability, as well as in self-perceived deterioration of mental health due to the COVID-19 quarantine, with higher vulnerability observed in university students between 18 and 24 years (Bourion-Bédès et al., 2021; Cao et al., 2020; Hamza et al., 2021; Padrón et al., 2021).

These findings are especially concerning given that, before the pandemic, university students already had higher rates of mental problems than the general population (Auerbach et al., 2016; Auerbach et al., 2018). Furthermore, unlike other age groups, university students are in the most unstable life stage of their entire development, known as emerging adulthood (18–29 years; Arnett et al., 2014). During this period, they experience drastic changes in personal, sociofamiliar, and academic levels that may affect psychological well-being (Barrera-Herrera et al., 2019; Matud et al., 2020; Wood et al., 2017). Particularly, students' mental health is affected by factors such as academic demands, future career opportunities, making meaningful social relationships, autonomous and independent lifestyle, home-university living transition, or economic pressures (Beiter et al., 2015; Harris, 2019). The COVID-19 crisis exacerbated the uncertainty and instability of emerging adulthood, making it difficult to face these challenges and increasing psychological vulnerability of the university student population.

In the context of this pandemic, it is necessary to identify factors that can protect against the negative effects of confinement and social distancing measures on mental health. According to research on the Buffering Hypothesis (Cohen & Wills, 1985), the availability of social support (SS) in stressful life circumstances can promote mental health and mitigate the negative impact of such events (e.g., Haden et al., 2007; Henrich & Shahar, 2008; Martínez-García et al., 2001; McGuire et al., 2018; Shahar et al., 2009). SS in this sense can be defined as "support accessible to an individual through social ties to other people, groups, and the larger community" (Lin et al., 1979; p. 109). Paradoxically, one of the main preventive strategies employed in an attempt to halt the spread of COVID-19 has been a restriction on social contact (Saltzman et al., 2020), and thus the need to protect people from contagion has changed, diminished, or indeed eliminated the conventional ways of providing and receiving SS. In this way, confinement and social distancing may have exacerbated the levels of stress experienced, as well as inhibiting the search for adaptive alternatives, which, ultimately, may have led to psychological deterioration and reduced well-being (Chen et al., 2020; Ozamiz-Etxebarria et al., 2020; Padrón et al., 2021).

1.1 | The role of SS in the COVID-19 crisis

While most psychological research into COVID-19 has focused on the impact of the pandemic on mental health, a number of studies have explicitly addressed the role of SS as a protective factor for health and well-being (e.g., Ao et al., 2020; Grey et al., 2020; Hou et al., 2020; Kandeğer et al., 2021; Killgore et al., 2020; Mariani et al., 2020; Qi et al., 2020; Ren et al., 2020; Rogers et al., 2021; Samrah et al., 2020; Xiao et al., 2020; Xu et al., 2020;

Yang et al., 2020; Yu et al., 2020; Zhang et al., 2020). In particular, some studies were conducted in vulnerable populations, such as university students and young adults. For example, Li et al. (2020) found that perceived social support (PSS) served as a buffer against the negative effects of COVID-19-related stressors on anxiety, depression, and PTSD symptoms in Chinese college students. In the same country, Cao et al. (2020) reported that the availability of SS reduced psychological pressure during the context of the pandemic and played a protective role in mitigating anxiety. On the same lines, the results of a study by Szkody et al. (2020) suggested that PSS moderated the connection between worrying about COVID-19 and psychological health; specifically, PSS served as a buffer against the negative impact of COVID-19-related anxiety on mental health only when days in self-insolation were lower and worrying about pandemic was higher. Liu et al. (2020) found that family networks provided higher levels of support against depression and PTSD symptoms, highlighting the importance of different sources of SS. Finally, Bourion-Bédès et al. (2021) found that PSS from family and friends reduced psychological pressure during the confinement and appeared to be a protective factor against anxiety symptoms.

1.2 | The present study

In light of the above, it seems reasonable to conclude that psychosocial factors can play a critical role in the development of negative symptomatology after stressful experiences (Saltzman et al., 2020). Thus, SS is an important construct in health protection, and especially in planning intervention strategies (Yang et al., 2020; Yu et al., 2020; Zhang et al., 2020). The perception of adequate and sufficient SS can buffer the negative impact of stressors, with PSS being a protective factor for well-being (Li et al., 2020). However, in the COVID-19 pandemic, the primary preventive efforts to curtail the spread of the disease have involved the limitation and/or reduction of social contact (Saltzman et al., 2020). Thus, the specific role that SS might have played, in particular, its potential to mitigate the negative impact of severely restrictive measures such as confinement, has become of greater importance. The present research was conducted to address this issue.

Most of the studies that have addressed SS as a protective factor during the COVID-19 crisis were carried out Eastern populations, so it is possible that the interaction of pandemic-related stressors and SS might not generalize to Western populations (Li et al., 2020). In this regard, while it seems likely that people from all cultures benefit from SS, there may be cultural differences in terms of how people receive and seek SS from their social networks (Kim et al., 2008). Hence, the main objective of the current descriptive cross-sectional study (Ato et al., 2013) was to analyze the moderating or buffering effect of PSS on the psychological impact of confinement in Spanish university students. Following previous studies, it is hypothesized that PSS may buffer the relationship between stress associated with the COVID-19 pandemic and anxiety (Hypothesis 1), depression (Hypothesis 2), irritability (Hypothesis 3), and self-perceived change in mental health (Hypothesis 4).

2 | METHODS

2.1 | Participants

A total of 826 students agreed to participate in the research. Most were undergraduate (88.0%) and female (75.3%) students, aged 21–23 (45.8%). A large percentage of the students in the sample lived with their mother (69.4%) and/or their father (62.6%), or their romantic partner (12.0%) during the quarantine; however, 5.4% of the participants remained alone.

Eligibility criteria for participation in the study included being a student enrolled in the Spanish university system regardless of sex/gender, age, level of education, branch of knowledge, or university.

2.2 | Measures

2.2.1 | COVID-19-related stressors

A scale composed of 26 items was used to assess possible sources of stress during the confinement (Padrón et al., 2021). Respondents were asked to rate, on a four-point Likert scale (1 = *not all* to 4 = *a lot*), the extent to which they had been disturbed by academic stressors (e.g., "uncertainty about academic evaluation") (Cronbach's α = 0.80, mean inter-item correlation [MIC] = 0.40), social distancing (e.g., "lack of face-to-face contact with loved ones") (Cronbach's α = 0.71, MIC = 0.34), pandemic (e.g., "the risk that either you or people close to you might become infected by COVID-19") (Cronbach's α = 0.73, MIC = 0.36), general overload (e.g. "the impossibility of dedicating time to hobbies and interests") (Cronbach's α = 0.71, MIC = 0.39), and interpersonal conflicts (e.g., "worsening cohabit relations") (Cronbach's α = 0.69, MIC = 0.35).

2.2.2 | Perceived social support

A set of seven items from Padrón et al. (2021) was administered to assess PSS from different sources (e.g., family, friends, or professors). A four-point Likert scale was used ranging from 1 (*not all*) to 4 (*a lot*). Items were coded so that higher scores indicated higher perception of SS. Cronbach's α in the current study was 0.65 (MIC = 0.22). See Appendix 1 for a complete list of items.

2.2.3 | Anxiety

The Spanish adaptation (García-Campayo et al., 2010) of the Generalized Anxiety Disorder-7 Scale (Spitzer et al., 2006) was administered to measure symptoms of anxiety over the previous 15 days (e.g., "feeling nervous, anxious, or on edge") using a four-point Likert scale (0 = *not at all* to 3 = *almost every day*). Cronbach's α was 0.89 (MIC = 0.54).

2.2.4 | Depression

Participants were asked to respond to the 9-item Patient Health Questionnaire (Kroenke et al., 2001). In the Spanish validation of the instrument (Muñoz-Navarro et al., 2017), symptoms of depression over the last 15 days (e.g., "feeling down, depressed, or hopeless") were reported using a 4-point Likert scale, from 0 (*not at all*) to 3 (*nearly every day*). The internal consistency was 0.87 (MIC = 0.44).

2.2.5 | Irritability

A Spanish version (Padrón et al., 2021) of the Brief Irritability Test (Holtzman et al., 2015) was used. The inventory consists of five items (e.g., "I have been feeling like I might snap") with a 6-point Likert scale (1 = *never* to 6 = *always*). Cronbach's α in this research was 0.92 (MIC = 0.71).

2.2.6 | Self-perceived change in mental health

Students were asked whether they perceived changes in their mental health, using a 5-point Likert scale (Padrón et al., 2021), from 1 (*my mental health is much worse*) to 5 (*my mental health is much better*). That is, a high score

indicated that respondents perceived an improvement, whereas a low score indicated that they perceived a deterioration in their mental health.

2.3 | Procedure

This study was approved by the Bioethics Committee of the University of Santiago de Compostela, Spain. The data for this project were collected through an online survey conducted between April 27 and May 27, 2020; that is, from the 6th to 10th week after the beginning of the lockdown in Spain. Students were invited to participate voluntarily, using snowball sampling techniques, these focused largely on instant messaging systems (e.g., WhatsApp) and social media (e.g., Twitter), with these students encouraged to forward the link to their own contacts. Before beginning the survey, all participants were provided with detailed information about the aims and requirements of the study and were asked to give their explicit informed consent, guaranteeing confidentiality and anonymity. The entire survey took an average of 20 min to complete and there was no reward for participation.

2.4 | Data analysis

First, data were analyzed using measures of central tendency and dispersion, and the correlations among variables in the study were calculated. Second, four hierarchical regression analyzes were conducted (one for each mental health indicator), considering the assumptions of normality, homoscedasticity, and collinearity. Gender and age were introduced in the first step to control for their possible effect. COVID-19 stressors and PSS were included in the second and third steps, respectively. As in other studies dealing with SS (e.g., Jackson et al., 2013; Molero et al., 2017), if the association between each stressor and each indicator of mental health decreased when SS was introduced into the equations, then it was assumed that SS could be acting as a moderator. Finally, the SPSS macro PROCESS (Hayes, 2013) was used to graphically represent the interaction effects between variables after moderation analyses. All analyses were conducted with SPSS for Windows version 25. A post hoc G*Power 3.1 analysis (Faul et al., 2017) showed that the observed statistical power for the regression models (i.e., 0.88) was higher than the optimal 0.80 level (Cohen, 1988) for all significant effects.

3 | RESULTS

Table 1 shows the statistical descriptives and correlations between all measures. Correlations followed the expected directions, so higher experience of stress was associated with higher anxiety, depression, irritability, and a self-perceived change toward worse mental health. PSS, in turn, was associated with less anxiety, depression, irritability, and a self-perceived change toward better mental health. Also, higher PSS was associated with low levels of stress, except for pandemic stressors ($r = 0.10$, $p = 0.002$). Interestingly, no relationship was found between social distancing and PSS ($r = −0.03$, $p = 0.41$).

To test the hypotheses, four hierarchical multiple regression models were conducted, one for each mental health indicator. Before this, regression assumptions were checked. First, regarding the presence of multicollinearity, it was assumed that there was no significant risk according to correlation coefficients, tolerance values, and variance inflation factors (Pallant, 2005). On the other hand, the Durbin–Watson statistic was used to check the independence of residuals, where values were found to be within the recommended range, from 1 to 3 (Field, 2000). Regression assumptions of the homogeneity of variances and normality were confirmed using the standardized predicted values versus standardized residuals scatterplot, and the histogram of the standardized residuals, respectively. In brief, regression assumptions were validated, and hence it was possible to analyze the results of the study.

TABLE 1 Descriptive statistics and correlations among the study variables ($n = 826$)

Variable	Mean	SD	Min.	Max.	1	2	3	4	5	6	7	8	9	10
1. PSS	18.79	3.91	7.00	31.00	–	–	–	–	–	–	–	–	–	–
2. AS	3.07	0.71	1.00	4.00	-0.13**	–	–	–	–	–	–	–	–	–
3. SD	2.95	0.67	1.00	4.00	-0.03	0.42**	–	–	–	–	–	–	–	–
4. P	2.93	0.59	1.20	4.00	0.10*	0.45**	.38**	–	–	–	–	–	–	–
5. GO	2.85	0.78	1.00	4.00	-0.14**	0.53**	0.45**	0.30**	–	–	–	–	–	–
6. IC	1.99	0.74	1.00	4.00	-0.25**	0.39**	0.41**	0.29**	0.35**	–	–	–	–	–
7. A	10.83	4.97	0.00	21.00	-0.18**	0.45**	0.43**	0.34**	0.47**	0.45**	–	–	–	–
8. D	12.98	6.39	0.00	27.00	-0.28**	0.41**	0.40**	0.24**	0.43**	0.43**	0.75**	–	–	–
9. I	16.89	6.24	5.00	30.00	-0.22**	0.36**	0.38**	0.24**	0.37**	0.48**	0.70**	0.63**	–	–
10. SPC	2.19	0.77	1.00	5.00	0.26**	-0.40**	-0.42**	-0.22**	-0.39**	-0.35**	-0.57**	-0.57**	-0.50**	–

Abbreviations: A, anxiety; AS, academic stressors; D, depression; GO, general overload; I, irritability; IC, interpersonal conflicts; P, pandemic; PSS, perceived social support; SD, social distancing; SPC, self-perceived change.

The correlations that remain significant after Bonferroni's correction ($p < 0.001$) are shown in bold type.

*$p < 0.01$; **$p < 0.001$.

Hierarchical multiple regression was conducted to examine whether PSS moderated the relationship between COVID-19-related stressors and anxiety (see Table 2). The first model (H1) revealed that, after controlling for gender and age (Step 1), the main effects of stressors accounted for 36.2% of the variance in anxiety, $F(7, 818) = 68.01$, $p < 0.001$. Academic stressors ($\beta = 0.14$, $p < 0.001$), general overload ($\beta = 0.21$, $p < 0.001$), and interpersonal conflicts ($\beta = 0.23$, $p < 0.001$) significantly predicted anxiety symptoms, so higher perceived stress from these sources increased anxiety (Step 2). However, this relationship significantly decreased when the PSS was introduced into the equation (Step 3), $\Delta R^2 = 0.01$, $F(8, 817) = 61.49$, $p < 0.001$, $\beta = -.10$, $p = 0.001$.

The second model (H2) assessed the moderating role that PSS might have played in the association between stressors and depression (see Table 3). It showed that, after controlling for gender and age (Step 1), the sources of stress accounted for 30.7% of the variance, $F(7, 818) = 53.19$, $p < 0.001$. Likewise, academic stressors ($\beta = 0.16$, $p < 0.001$), general overload ($\beta = 0.18$, $p < 0.001$), and interpersonal conflicts ($\beta = 0.24$, $p < 0.001$) were significant predictors of depressive symptomatology. Thus, when participants perceived higher levels of stress from these sources, they experienced higher depression (Step 2). Nevertheless, this relationship was reduced when entering PSS in a third step, $\Delta R^2 = 0.03$, $F(8, 817) = 53.69$, $p < 0.001$, $\beta = -.19$, $p < 0.001$.

Regarding PSS as a moderator in the connection between stressors and irritability (see Table 4), the third model (H3) indicated that the main effect of stressors accounted for 30.6% of the variance, $F(7, 818) = 52.89$, $p < 0.001$, after adding gender and age in the first step. Once again, academic stressors ($\beta = 0.09$, $p = 0.02$), general overload ($\beta = 0.12$, $p = 0.002$), and interpersonal conflicts ($\beta = 0.35$, $p < 0.001$) were significant predictors, so higher perceived

TABLE 2 Regression of stressors and perceived social support on anxiety

Mental health indicator			B	$SE\ B$	β	R^2 adjusted	Durbin–Watson
Anxiety	Step 1	Gender	−1.37	0.38	−0.12***	0.03***	1.98
		Age	−0.73	0.16	−0.16***		
	Step 2	Gender	−0.30	0.32	−0.03	0.36***	
		Age	−0.28	0.14	−0.06*		
		Academic stressors	0.96	0.25	0.14***		
		Social distancing	0.97	0.25	0.13***		
		Pandemic	0.80	0.27	0.10**		
		General overload	1.34	0.23	0.21***		
		Interpersonal conflicts	1.55	0.21	0.23***		
	Step 3	Gender	−0.36	0.32	−0.03	0.37***	
		Age	−0.28	0.13	−0.06*		
		Academic stressors	0.88	0.25	0.13**		
		Social distancing	1.03	0.25	0.14***		
		Pandemic	0.97	0.28	0.12**		
		General overload	1.29	0.23	0.20***		
		Interpersonal conflicts	1.38	0.22	0.20***		
		Perceived support	−0.12	0.04	−0.10**		

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

TABLE 3 Regression of stressors and perceived social support on depression

Mental health indicator			B	SE B	β	R^2 adjusted	Durbin–Watson
Depression	Step 1	Gender	−1.19	0.49	−0.08*	0.03***	2.00
		Age	−0.92	0.20	−0.16***		
	Step 2	Gender	−0.13	0.43	−0.01	0.30***	
		Age	−0.34	0.18	−0.06		
		Academic stressors	1.43	0.34	0.16***		
		Social distancing	1.40	0.34	0.15***		
		Pandemic	−0.18	0.37	−0.02		
		General overload	1.48	0.30	0.18***		
		Interpersonal conflicts	2.10	0.29	0.24***		
	Step 3	Gender	−0.27	0.42	−0.02	0.33***	
		Age	−0.34	0.18	−0.06		
		Academic stressors	1.23	0.33	0.14***		
		Social distancing	1.55	0.33	0.16***		
		Pandemic	0.24	0.36	0.02		
		General overload	1.35	0.30	0.17***		
		Interpersonal conflicts	1.65	0.30	0.19***		
		Perceived support	−0.31	0.05	−0.19***		

*$p < 0.05$; ***$p < 0.001$.

stress from these sources increased irritability (Step 2). When PSS was included in the model (Step 3); however, this relationship diminished, $\Delta R^2 = 0.01$, $F(8, 817) = 49.02$, $p < 0.001$, $β = −0.12$, $p < 0.001$.

Finally, Table 5 sets out the hierarchical multiple regression conducted to examine whether PSS moderated the association between stressors and self-perceived change in mental health. The fourth model (H4) revealed that the main effect of stressors accounted for 26.9% of the variance, $F(7, 818) = 44.40$, $p < 0.001$, after controlling for gender and age (Step 1). As with anxiety, depression, and irritability, the significant predictors of self-perceived change were academic stressors ($β = −0.19$, $p < 0.001$), general overload ($β = −0.13$, $p < 0.001$), and interpersonal conflicts ($β = −0.14$, $p < 0.001$). Thus, higher levels of experienced stress from these sources worsened the psychological well-being of students (Step 2). These results are in line with previous regression analyses and, once again, this relationship changed with the addition of PSS to the equation (Step 3), $\Delta R^2 = 0.03$, $F(8, 817) = 45.23$, $p < 0.001$, $β = 0.19$, $p < 0.001$.

Taken together, regression analyses suggest that PSS attenuated the stress-health relationship. To confirm the buffering effect of PSS, a moderation analysis (Hayes, 2013) was performed. Results revealed a significant interaction between general overload and PSS for anxiety ($B = −0.11$, $p = 0.01$), using gender and age as covariates. In this case, PSS buffered the negative impact of this source of stress on anxiety symptomatology. Thus, when participants perceived higher SS, they experienced less stress-induced anxiety. However, regarding depression, irritability, and self-perceived change in mental health, no PSS buffering was found for any of these stressors.

Since perceived stress due to general overload significantly interacted with PSS, stress-related anxiety regression equations were computed with three levels for PSS: medium, low, and high. Figure 1 shows the

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TABLE 4 Regression of stressors and perceived social support on irritability

Mental health indicator			*B*	*SE B*	*β*	R^2 adjusted	Durbin–Watson
Irritability	Step 1	Gender	−1.60	0.48	−0.12**	0.03***	2.05
		Age	−0.91	0.20	−0.16***		
	Step 2	Gender	−0.65	0.42	−0.05	0.30***	
		Age	−0.52	0.18	−0.09**		
		Academic stressors	0.76	0.33	0.09*		
		Social distancing	1.11	0.33	0.12**		
		Pandemic	0.07	0.36	0.01		
		General overload	0.93	0.30	0.12**		
		Interpersonal conflicts	2.96	0.28	0.35***		
	Step 3	Gender	−0.74	0.42	−0.05	0.31***	
		Age	−0.52	0.18	−0.09**		
		Academic stressors	0.64	0.33	0.07		
		Social distancing	1.20	0.33	0.13***		
		Pandemic	0.34	0.36	0.03		
		General overload	0.85	0.29	0.11**		
		Interpersonal conflicts	2.68	0.29	0.32***		
		Perceived support	−0.19	0.05	−0.12***		

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

regression lines, setting for PSS the values of the mean (18.79), one standard deviation below (14.88), and one standard deviation above (22.70), respectively.

4 | DISCUSSION

The current study examined the role of PSS as a protective factor against the psychological impact of the COVID-19 confinement on Spanish university students. Specifically, it sought to determine whether PSS buffered the relationship between stress associated with the pandemic and four indicators of mental health, these being anxiety, depression, irritability, and self-perceived change in mental health. The results of the study confirm the negative effect of the quarantine on psychological well-being. Particularly, data indicate that perceived stress due to different pandemic-related stressors was positively associated with anxiety, depression, irritability, and self-perceived change toward worse mental health, and provide additional support for recent research onto the mental health of university students during the confinement (e.g., Bourion-Bédès et al., 2021; Cao et al., 2020; Chen et al., 2020; Hamza et al., 2021; Padrón et al., 2021). Further, in line with previous work (e.g., Ao et al., 2020; Bourion-Bédès et al., 2021; Cao et al., 2020; Grey et al., 2020; Kandeğer et al., 2021; Li et al., 2020; Liu et al., 2020; Mariani et al., 2020; Qi et al., 2020; Ren et al., 2020; Rogers et al., 2021; Samrah et al., 2020; Szkody et al., 2020; Xiao et al., 2020; Xu et al., 2020; Yang et al., 2020; Zhang et al., 2020), PSS was negatively associated with

TABLE 5 Regression of stressors and perceived social support on self-perceived change in mental health

Mental health indicator			*B*	*SE B*	*β*	*R²* adjusted	Durbin–Watson
Self-perceived change	Step 1	Gender	0.12	0.06	0.07*	0.02***	2.06
		Age	0.10	0.03	0.14***		
	Step 2	Gender	−0.01	0.05	−0.01	0.26***	
		Age	0.03	0.02	0.04		
		Academic stressors	−0.21	0.04	−0.19***		
		Social distancing	−0.27	0.04	−0.23***		
		Pandemic	0.04	0.05	0.03		
		General overload	−0.13	0.04	−0.13***		
		Interpersonal conflicts	−0.15	0.04	−0.14***		
	Step 3	Gender	0.00	0.05	0.00	0.30***	
		Age	0.03	0.02	0.04		
		Academic stressors	−0.18	0.04	−0.17***		
		Social distancing	−0.28	0.04	−0.25***		
		Pandemic	−0.01	0.05	−0.01		
		General overload	−0.12	0.04	−0.12**		
		Interpersonal conflicts	−0.10	0.04	−0.09**		
		Perceived support	0.04	0.01	0.19***		

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

COVID-19-related stress and indicators of mental health, highlighting the importance of SS as a protective factor for psychological well-being during the pandemic situation.

Regarding the role of SS, results reveal that the association among stressors and indicators of mental health decreased significantly when PSS was entered into equations. For instance, the information provided to students by professors and/or the university about deadlines, methods, and assessment criteria may have mitigated perceived stress due to uncertainty about the academic year (Bourion-Bédès et al., 2021). Concerning general overload, it is possible that PSS enhanced perceived self-efficacy and resilience to cope with the overload arising from both academic and household tasks during the quarantine (Hou et al., 2020; Killgore et al., 2020; Xiao et al., 2020). Moreover, although changes in family dynamics due to confinement (e.g., less personal space and privacy) may have led to psychological distress (Rogers et al., 2021), it seems reasonable to think that the perception of SS contributed to the reduction of family conflicts and the improvement of cohabit relations, helping individuals to manage stress and feelings of loneliness (Mariani et al., 2020).

Data indicate that PSS had an important role in mitigating the negative effects of stressors on psychological well-being, in line with previous evidence here (e.g., Li et al., 2020). However, contrary to expectations, when PSS was introduced into the regression models, the impact of both pandemic and social distancing stressors increased. These results are troubling, as PSS has been shown to reduce psychological pressure and promote mental health during the confinement (Bourion-Bédès et al., 2021; Cao et al., 2020; Grey et al., 2020; Killgore et al., 2020; Mariani et al., 2020; Szkody et al., 2020). On the one hand, with respect to pandemic stressors, the risk that the main sources of support may be directly affected by the COVID-19 pandemic (e.g., become infected), and/or indirectly
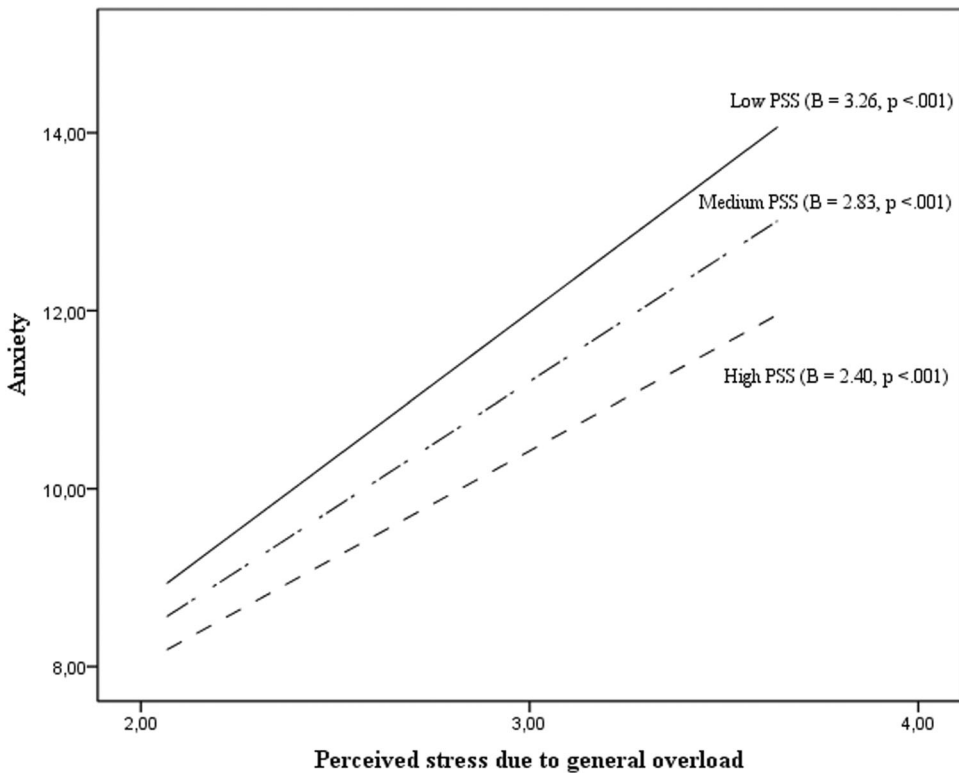
FIGURE 1 Effect of perceived stress due to general overload on anxiety for three levels of perceived social support. PSS, perceived social support.

affected (e.g., experience psychological problems due to quarantine) may have increased worry and perceived stress (Li et al., 2020). On the other hand, regarding social distancing, it has been suggested that individuals who perceived higher SS "may feel lonelier during periods of self-isolation because they miss, and are unable to access, that support system which they perceive they have" (Szkody et al., 2020; p. 1011).

A moderation analysis (Hayes, 2013) was performed to confirm PSS moderation between sources of stress and indicators of mental health, which was suggested by regression analyses. Results reveal that, when gender and age were used as covariates, PSS buffered only the negative impact of perceived stress related to general overload on anxiety symptomatology, partly supporting H1. In this case, a higher perception of SS may have provided feelings of understanding and support (Ao et al., 2020) and reinforced self-efficacy (Xiao et al., 2020) to cope with the overload of both academic and domestic tasks.

Contrary to H2, H3, and H4, no SS buffering effect was found between stressors and depression, irritability, and self-perceived change in mental health, respectively. These findings are not congruent with recent research (e.g., Li et al., 2020; Szkody et al., 2020; Xu et al., 2020) which did find a buffering effect of SS on the psychological impact of the COVID-19 pandemic. This disparity of results could be explained by the measure employed to assess SS. As noted by Cohen and Wills (1985), research that uses specific and appropriate functional measures, that is, ones which are adequately suited to the specific stressful events under study, is more likely to identify the buffering effect than those which employ global (undifferentiated) measures, which may obscure the relevant function of SS. Furthermore, the lack of moderation could also be related to cultural factors and more specifically, to the ways that SS is construed and used to buffer the damaging effects of stress by different cultural groups (Kim et al., 2008; Liang & Bogat, 1994; Shavitt et al., 2016). In this sense, the Western model of SS transaction focuses on the explicit

seeking and receipt of support; that is, it involves people's specific recruitment and use of their social networks for advice, instrumental help, and emotional comfort (Kim et al., 2008). In this case, the perception of SS may not have been sufficient to buffer the impact of stressors as confinement drew people away from their conventional support systems, making it difficult to receive support, this especially affecting Hispanic culture, which places great importance on sociability (Shavitt et al., 2016). In contrast, people from Asian cultural backgrounds benefit more from implicit support, that is, comfort and solace provided through awareness of the existence of a support network, rather than through the use of it (Kim et al., 2008). For this reason, perceived support by this population may have been more protective than objective or received support during the pandemic situation, in accordance with past research on SS and culture (e.g., Liang & Bogat, 1994). Thus, the results reinforce the need to consider different aspects of support, as both functional and structural dimensions are critical elements to adapt positively to traumatic experiences, such as the COVID-19 pandemic (e.g., Ao et al., 2020; Bourion-Bédès et al., 2021; Cao et al., 2020; Grey et al., 2020; Hou et al., 2020; Li et al., 2020; Mariani et al., 2020; Qi et al., 2020; Szkody et al., 2020; Xiao et al., 2020; Yang et al., 2020; Yu et al., 2020).

5 | LIMITATIONS AND FUTURE RESEARCH

This study is not without limitations. First, we used an ad hoc measure that, although efficient for addressing the main sources of SS for university students, could not capture the multiple elements of SS, that is, structural versus functional, perceived versus received. Further research should also consider this issue, to paint a more nuanced picture of the functioning of SS for this specific group. Second, the current study did not explore the changes brought about by the pandemic in the way SS was given and received, or how individuals accessed their social networks. Future studies should examine the impact of the pandemic on SS systems and possible ways of reconstruction and adaptation in the post-COVID-19 era. Third, the sample is unbalanced concerning gender, as women clearly predominate, probably due to the type of sampling procedure employed. Future research should use stratified sampling to resolve this gender asymmetry (López, 2004). In addition, given that cultural differences may influence the buffering effect of SS (Liang & Bogat, 1994; Shavitt et al., 2016), further work should test culture as a moderator of the connection between adjustment and SS using cross-cultural comparative samples (Li et al., 2020). Fourth, surveys were collected during the early stages of the Spanish lockdown, specifically from 6th to 10th week after the beginning of the confinement. Despite the risk for mental impairment was relatively high, depressive, anxiety, and stress symptoms continuously increased as weeks went on, in a "cumulative mental health burden" (Wong et al., 2021; p. 11). Thus, the data collection period may have diluted the buffering effects of PSS which, instead, were confirmed in the advanced stages of the pandemic (Xu et al., 2020). The data collection period is a critical issue to consider for future research on pandemics. Finally, data were gathered with self-report measures, which may inflate the associations among variables under study due to common-method variance (Podsakoff et al., 2003). Future studies, then, would benefit from using a multimethod approach (e.g., interview or daily diary) (Hernández Plaza et al., 2004).

6 | IMPLICATIONS

The findings of the current study provide a better understanding of the protective role that PSS played against the negative effects of confinement on mental health, illustrating as they did that SS may mitigate the impact of pandemic stressors on psychological well-being. Particularly, PSS seemed to buffer the association between stress due to general overload and anxiety symptoms. In line with previous work (e.g., Li et al., 2020; Szkody et al., 2020; Xu et al., 2020), these results provide some empirical support for the Buffering Hypothesis (Cohen & Wills, 1985) in the specific context of the COVID-19 pandemic. However, as in Szkody et al. (2020), this is partial support, in that

no significant interaction between sources of stress and SS was found for depression, irritability, or self-perceived change in mental health. As noted above, the lack of moderation could be explained by the global measure employed to assess SS (Cohen & Wills, 1985) and/or by cultural factors (Kim et al., 2008; Liang & Bogat, 1994; Shavitt et al., 2016).

The present study also has practical implications for intervention in applied contexts, and more specifically, in the university setting. Universities should implement services and ensure resources that take into account the protective function of SS against psychological distress, for example, an online support group for home-quarantined university students (Pan et al., 2005). An alternative, or additional, resource would be a telephone support service to provide more tailored help and advice (Matthewson et al., 2020). These SS interventions are essential, since they not only promote psychological well-being but also prevent the development of mental disorders in the population (Yang et al., 2020; Yu et al., 2020; Zhang et al., 2020).

7 | CONCLUSION

The current research shed light on the role of SS as a protective factor against the psychological impact of lockdown during the very first weeks of the pandemic. The study adds weight to the need to strengthen SS networks as a basic means of protecting health and well-being in unexpected disasters. The COVID-19 crisis has changed both actual and perceived social relationship dynamics, leading to a situation with social distancing that has shaped the conventional way of giving and receiving SS, thus making it difficult to adequately access or benefit from informal SS systems. Such a situation increased perceived stress and inhibited the search for adaptative alternatives, which exacerbated the psychological impact of the pandemic (Chen et al., 2020; Ozamiz-Etxebarria et al., 2020; Padrón et al., 2021). However, SS played an important role in mitigating the negative effects of the COVID-19 context, helping to recover closeness, restore deteriorated social ties, and adaptively face the challenges that this unprecedented crisis has wrought on society. Indeed, the population has found ways to cope with social distance and household isolation (e.g., clapping at 8 p.m., balcony-singing, and talking to neighbors) to reinforce the sense of community, setting out key actions for a united front to beat the pandemic. Public policy should not ignore this issue, and all policy measures that involve strict house confinement and severe restrictions of social contact should pay special attention to enhance PSS to boost collective resilience.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation, to any qualified researcher.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.