Received: 3 January 2023 | Revised: 3 July 2023 | Accepted: 28 July 2023

DOI: 10.1002/pits.23055

RESEARCH ARTICLE

WILEY

Emotion regulation, resilience, and mental health: A mediation study with university students in the pandemic context

Rute Brites[1] | Tânia Brandão[1,2] | João Hipólito[1] | Antónia Ros[1,3] | Odete Nunes[1]

[1]CIP—Psychology Research Centre, Universidade Autónoma de Lisboa, Lisboa, Portugal

[2]William James Research Centre, ISPA—Instituto Universitário, Lisbon, Portugal

[3]Universidade do Algarve, Faro, Portugal

Correspondence
Rute Brites, CIP–Centro de Investigação em Psicologia, Universidade Autónoma de Lisboa, Rua de Santa Marta, 47-3° Sala 314, 1169-023 Lisboa, Portugal.
Email: rbrites@autonoma.pt

Funding information
Fundação para a Ciência e a Tecnologia; FCT—Fundação para a Ciência e Tecnologia I.P., Grant/Award Number: Refª UID/PSI/04345/2020

Abstract

The COVID-19 pandemic had a huge impact on people's lives due to the fear of getting infected and having the disease, as well as the necessary prevention and containment measures. University students were one of the most affected groups, as they were forced to cope with significant life changes. However, not all displayed symptoms of psychological distress, which means that internal resources such as emotional regulation and resilience may have acted as protective variables. This cross-sectional study aimed to examine the extent to which the relationship between emotion regulation and stress, anxiety, depression, and posttraumatic stress disorder (PTSD) symptoms was mediated by resilience in a sample of university students. Results showed that emotion regulation strategies were positively associated with lower mental health. Some resilience dimensions mediated these relationships, with perception-of-self mediating all associations. Planned future mediated the association between emotion regulation and depression, family cohesion mediated the relation between emotion regulation and stress, and social resources mediated the association of cognitive reappraisal with anxiety and PTSD by suppressing the direct positive relationship. These

This manuscript comprises original, unpublished material and is not under consideration for publication elsewhere. The primary data have not been published previously nor accepted for publication.

results highlight the relevance of resilience as a key resource in coping effectively with the uncertainties, and changes that arise during stressful periods such as a pandemic.

KEYWORDS
COVID-19, emotion regulation, mental health, resilience, university students

1 | INTRODUCTION

During the first 2 years that the world was under the threat of the COVID-19 pandemic, and especially before the mass rollout of vaccines, it was necessary to adopt containment measures that significantly affected people's daily lives. Lockdowns, quarantine, physical and social distancing, curfews, and isolation were some of those measures. These had a huge impact on the mental health of individuals, as reported in numerous studies (Kola et al., 2021; Samji et al., 2022). The evidence shows an increase in poor mental health outcomes such as stress, depression, and anxiety (AlAzzam et al., 2021; Paulino et al., 2020; Simegn et al., 2021; Soltan et al., 2021) as well as posttraumatic stress symptoms (henceforth referred to as posttraumatic stress disorder [PTSD]) (Brooks et al., 2020; Cao et al., 2020; Paulino et al., 2020), following the *Diagnostic and Statistical Manual of Mental Disorders* (*5th edition*, *DSM-V*) symptoms clusters: intrusions, avoidance, negative alterations in cognition and mood, and alterations in arousal and reactivity (American Psychiatric Association, 2013). Research on previous pandemics (e.g., SARS, MERS) confirms the potential presence of trauma symptoms in individuals (Lam et al., 2009; Mak et al., 2009). A review study by Ahmed et al. (2020) collated the long-term clinical complications reported in survivors of these pandemics. The results clearly demonstrated the presence of PTSD, along with other psychological problems, in up to one-third of survivors.

The evidence points in a similar direction for COVID-19, as it indicates a potential increase in the prevalence of PTSD resulting from COVID-19 as a public health concern (Haderlein et al., 2021; Horesh & Brown, 2020). According to Forte et al. (2020), the prevailing sense of uncertainty and anxiety at the individual and community level, arising from the fear of contracting a new, potentially life-threatening highly infectious disease, gives the COVID-19 pandemic the status of a traumatic event.

University students were one of the groups most vulnerable to the consequences of the pandemic (Browning et al., 2022; Nahar et al., 2022; Villanueva-Silvestre et al., 2022). Their academic, social, and family lives underwent significant changes due to home confinement and quarantines, interruption of regular school and extracurricular activities, distance-learning and physical distancing mandates (Al-Rabiaah et al., 2020; Samji et al., 2022; Simegn et al., 2021). Like the rest of the population, they also had to deal with other threats, such as fear and worry about infection (Xiang et al., 2020), fake information, difficulties accessing the Internet (AlAzzam et al., 2021), unemployment, worsening economic conditions, and the direct and indirect impact of these (Cao et al., 2020; Villatoro et al., 2022).

All these stressors are likely to have had a negative impact on university students' mental health. Several studies reported high rates of depression, anxiety, stress, and PTSD (Cao et al., 2020; Simegn et al., 2021; Soltan et al., 2021). Other studies reported externalizing and attention problems (Copeland et al., 2021), more negative mood, and increased alcohol use (Charles et al., 2021). However, these studies focused essentially on assessing the impact of the pandemic on the mental health of this group and determining some predictor variables. Most of them only considered the sociodemographic predictors associated with COVID, and failed to examine the potential

interaction between psychological variables and their impact. The present study seeks to achieve this by adopting a processual approach that considers emotion regulation and resilience as relevant psychological resources in addressing the impact of COVID.

Emotion regulation has long been associated with mental health outcomes, with several studies associating anxiety, depression, and PTSD with difficulties in regulating emotions (Campbell-Sills & Barlow, 2007; McLean & Foa, 2017; Weiss et al., 2012). COVID-related research confirms this association, namely the relation between maladaptive emotion regulation strategies and anxiety (Jungmann & Witthöft, 2020; Riaz et al., 2021; Russell et al., 2022; Waterschoot et al., 2022) or poor mental health (Li et al., 2021).

Emotion regulation refers to the process "by which individuals influence which emotions they have when they have them, and how they experience and express these emotions" (Gross, 1998, p. 275). Traditionally, different emotion regulation strategies were associated with distinct mental health outcomes (Slanbekova et al., 2019; Tyra et al., 2021), with a focus on expressive suppression as a nonadaptive strategy, i.e., associated with poorer outcomes (Eldesouky, 2015; Millgram et al., 2018; Tyra et al., 2021). This contrasts with cognitive reappraisal, which is related to more positive outcomes (Cludius et al., 2020; Gross & John, 2003).

Resilience is also related to adult mental health. It can be defined as a resource, a protective factor in stressful situations that enhances adaptation to these situations (Schaap, et al., 2009). It is a dynamic multidimensional concept, which presupposes the presence of psychological competencies, but also the capacity of individuals to resort to the different systems of their context (e.g., family, social network) to better cope with adverse situations (Pereira et al., 2017).

Several research studies have demonstrated a negative association between resilience and indicators of poor mental health and a positive association with indicators of mental health well-being (Cano et al., 2020; Hu et al., 2015; Verdolini et al., 2021). COVID-related studies have confirmed this association, with higher levels of resilience being associated with better mental health outcomes, namely, with regard to depression, anxiety (Hezel et al., 2022; Killgore et al., 2020; Mosheva et al., 2020) and well-being (Skalski et al., 2022).

Both emotion regulation and resilience have been studied in the light of their relationship with mental health—mainly depression and anxiety. Their importance is evident and agreed upon, which justifies their choice as variables in this study. The evidence also shows a relationship between these two individual internal resources in diverse samples (Polizzi & Lynn, 2021). According to Banyard et al. (2017), emotion regulation is one of multiple protective factors that contribute to resilience. Mouatsou and Koutra (2021, p. 21) state that "individuals who effectively manage their emotions tend to cope well in stressful situations and, therefore, could be characterized as more "resilient."

According to some authors (Chen et al., 2022; Gross, 1998), adaptive emotion regulation strategies help the individual to reduce distress and negative emotions by generating positive interpretations of (or perspectives on) a stressful situation. We consider that there may be a similar effect in relation to resilience. In individuals, adaptive strategies facilitate the adoption of a positive perspective on their own competencies and their ability to draw on the systems of their context to better cope with adverse situations.

Polizzi and Lynn (2021) point out that, according to several studies, "assessing a stressor and regulating consequent emotional reactions generates positive emotionality, which protects against negative affect and promotes resilience through biopsychosocial benefits." The research has also demonstrated a strong association between emotion regulation during and after a negative experience and resilience (Caston & Mauss, 2011; Orcutt et al., 2014). Positive emotion regulation strategies can be used as a protective factor that stimulates internal resources to stabilize emotional state, develop positive factors, and improve the level of psychological resilience in challenges and adversity (Tugade & Fredrickson, 2007).

Thus, adaptive emotion regulation will be associated with greater resilience (Mestre et al., 2017; Mouatsou & Koutra, 2021). Specifically, several researchers have found a positive correlation between cognitive reappraisal and resilience (Mestre et al., 2017; Mouatsou & Koutra, 2021; Troy & Mauss, 2011), while fewer have demonstrated a negative correlation between expressive suppression and resilience (Mouatsou & Koutra, 2021).

To our knowledge, only one study has tested the existence of a mediation relationship between these two variables in a sample of university students, with resilience functioning as a mediator of the relationship between emotion regulation and depression (Ye et al., 2022). Therefore, it is relevant to examine the relationship between emotion regulation, resilience, and mental health by adopting a processual approach that seeks to contribute to knowledge about the interaction between these variables in a global adverse context like the COVID-19 pandemic.

1.1 | The present study

The main objective of this study is to explore the role of two individual variables—namely emotion regulation and resilience—in explaining individual differences in the psychological functioning of university students. More specifically, it aims to identify to what extent the relationship between emotion regulation strategies and various mental health indicators (stress, anxiety, depression, and PTSD symptoms) is mediated by resilience among university students who experienced a particularly stressful period due to the Covid-19 pandemic. Previous research has identified the potential for increased PTSD prevalence resulting from COVID-19 as a public health concern (Haderlein et al., 2021).

Following the literature review, we have formulated the following hypotheses:

H1. As expressive suppression has been linked to poor health outcomes (Eldesouky, 2015; Millgram et al., 2018; Tyra et al., 2021), we expect to find a positive association between expressive suppression and stress, anxiety, depression, and PTSD symptoms.

H2. In contrast, in accordance with previous studies that established a relation between cognitive reappraisal and better mental health outcomes, we expect a negative association with stress, anxiety, depression, and PTSD symptoms (Cludius et al., 2020; Gross & John, 2003).

H3. Since resilience is a dynamic process through which people adjust to adversity and buffer anxiety and depression (Taylor et al., 2022), there is evidence of an association with emotion regulation strategies (e.g., Mestre et al., 2017) and some studies suggest that emotional regulation strategies like cognitive reappraisal can protect a person' mental health by enhancing resilience (Mestre et al., 2017; Ye et al., 2022). We therefore expect that resilience dimensions will mediate the relation between emotion regulation and stress, anxiety, depression, and PTSD symptoms.

2 | METHOD

2.1 | Participants

A total of 426 students from two universities, one public and one private, participated in this study, 64.9% of whom were women. The participants' age ranged between 18 and 69 years (M_{age} = 28.03, SD = 10.76, Mdn_{age} = 23.00). Most of the participants were single (71.5%). Approximately half of the participants were working-student (48.8%) and most of them (82.8%) were enrolled in undergraduate studies. Almost 80% reported having medium, good, or very good socioeconomic status.

At the time of data collection, only 10% of the participants had ever been infected with COVID-19, with no need for hospitalization. However, 40% of the participants reported at least one family member had been infected with COVID-19, with only 10% reporting the need for their hospitalization. Seven and a half percent lost family members due to COVID-19.

2.2 | Measures

2.2.1 | Resilience

Resilience was assessed through the RSA-Resilience Scale for Adults (Hjemdal et al., 2001; 2011 Portuguese version: Pereira et al., 2013), a 33-item instrument rated on a 7-point scale with specific descriptors for each item (the two extreme response poles). Items are organized into six dimensions: Perception of self, which assesses confidence in one's own judgements, self-efficacy and realistic expectations (6 items, example: "*When something unforeseen happens: 1. I often feel disorientated/7. I always find a solution*"), Planned future, which assesses the ability to plan ahead, to take an optimistic view and be guided by clear and achievable goals (4 items, example: "*My plans for the future are: 1. Hard to achieve/Easy to achieve*"), Social competence, which refers to flexibility in social interactions, the ability to create new friendships, feeling at ease in social environments and the positive use of humor (6 items, example: "*Being flexible in social contexts: 1. Is not important to me/7. Is very important to me*"), Structured style, which evaluates the ability to have and follow routines, organize one's own time, and a preference for clear objectives and plans before carrying out activities (4 items, example: "*When I start new things/projects: 1. I rarely plan, I just go ahead with things/7. I prefer to have a thorough plan*"), Family cohesion, regarding whether values are shared or there is disagreement about these in the family, whether family members enjoy spending time together, whether they have an optimistic view of the future, whether they are loyal to each other and have a sense of appreciation and support each other (6 items, example: "*My family's perspective on what is important in life is: 1. Very different from mine/7. Very similar to mine*"), and Social resources, which measures the availability of social support, whether there is a confidant outside the family nucleus and whether there are people to turn to outside the family if they need help (7 items, example: "*I can discuss personal matters with 1. No one/7. Friends/family*"). In this study, all dimensions presented good internal consistency values, except structured style (α = .78 for perception of self; α = .81 for planned future; α = .77 for social competence; α = .48 for structured style; α = .85 for family cohesion; α = .84 for social resources).

2.2.2 | Emotion regulation

Emotion regulation strategies were measured using the ERQ-Emotion Regulation Questionnaire (Gross & John, 2003; Portuguese version: Machado-Vaz, 2009). The ERQ is a 10-item self-report scale that examines expressive suppression, a strategy that comprises efforts to hide or inhibit the emotion-expressive behavior (4 items, example: "*I control my emotions by not expressing them*") and cognitive reappraisal, a strategy that comprises efforts to change the way one thinks about an emotion-eliciting situation (Gross & John, 2003) (6 items, example: "*I control my emotions by changing the way I think about the situation I'm in*"). Items are scored on a 7-point Likert scale (1 = "*strongly disagree*" to 7 = "*strongly agree*"). In the present study, both dimensions presented good internal consistency values (α = .77 for expressive suppression; α = .82 for cognitive reappraisal).

2.2.3 | Depression, anxiety, and stress

Depression, anxiety and stress were evaluated using the Depression Anxiety and Stress Scale (DASS-21) (Lovibond & Lovibond, 1995; Portuguese version: Pais-Ribeiro et al., 2004), a 21-item self-report scale scored on a 4-point scale (0 = "Did not apply to me at all" to 3 = "Applied to me very much or most of the time"). Each dimension is assessed through seven items (Depression example item: "*I could see nothing in the future to be hopeful about*"; anxiety example item: "*I experienced breathing difficulty*"; stress example item: "I *found it difficult to relax*"). In this

study, all dimensions presented excellent internal consistency values (α = .93 for depression; α = .90 for anxiety; α = .92 for stress).

2.2.4 | Posttraumatic stress symptoms

Posttraumatic stress symptoms were measured with the Posttraumatic Stress Disorder Checklist (PCL-5) (Weathers et al., 2013; Portuguese version: Carvalho et al., 2020), a 20-item self-report scale that assesses the 20 DSM-V diagnostic criteria for PTSD, scored on a 5-point Likert scale (0 = "*Not at all*" to 5 = "*Extremely*") (example item: "*In the past month, how much you have been bothered in the last month with repeated, disturbing, and unwanted memories of the stressful experience?*"). A global score was used to assess symptom severity (Carvalho et al., 2020). In the present study, the internal consistency value was excellent (α = .96).

2.3 | Procedure

In Portugal, the first cases of COVID-19 appeared on 2 March 2020. The rapid spread of the virus led the government to impose immediate measures, such as closing nightclubs and schools (moving to a distance learning system), and restricting people's access to public services and shopping centers (Ferreira da Silva et al., 2022). The first State of Emergency was declared on 18 March, with a general lockdown that lasted for 6 weeks. Schools remained closed until the summer. Between September 2020 and January 2021, two news States of Emergency were decreed, with restrictive measures. Vaccination of the population began in December 2020 and from February 2021, a sharp decrease in the number of cases, deaths and hospitalizations was observed, leading to the end of the State of Emergency at the end of April. In early October 2021, 85% of the Portuguese population had been vaccinated (including young people) and most of the restrictive measures were withdrawn (Ferreira da Silva et al., 2022).

This study was approved by the Research Ethics Committee of CIP—Psychology Research Centre (Reference: 14-2021). Participants from one university in Lisbon and one university in Algarve answered an online survey hosted by LimeSurvey. The survey link was released on social media between May and November 2021. Students also received a link with the participation request in their university email.

Informed consent was obtained for all participants. The first page of the survey contained a statement assuring confidentiality and voluntary participation. A presentation of the study was also made, indicating that responses should be based on experience of the pandemic and related events (e.g., having been infected; having been hospitalized; having family members infected; having family members hospitalized). Participants took an average of 15 min to complete the survey responses.

2.3.1 | Data analysis

Data analysis was performed using SPSS (version 26; IBM, SPSS Inc.). Descriptive statistics were run for all variables. Pearson correlation was used to examine bivariate associations among the study variables. To test mediation, multiple mediational models (model 4) using the PROCESS macro (version 4.00; Hayes, 2021) were conducted. Eight models were tested, always using one independent variable, four mediator variables, and one outcome variable. Emotion regulation strategies were included as independent variables, resilience dimensions were included as mediation variables, and stress, anxiety, depression, and PTSD were included as outcome variables. Direct and indirect effects were subject to bootstrap analyses (5000 samples). Indirect effects were considered significant in the presence of 95% confidence intervals not including zero. Unstandardized betas were

reported. The suppression effect (or inconsistent mediation) was considered when the directionalities of the direct, indirect, and total effects were different (MacKinnon, 2000).

3 | RESULTS

3.1 | Descriptive statistics and bivariate associations between variables

All measures had the maximum response range, i.e., they varied between the minimum and maximum possible values in each one. In terms of emotional regulation, cognitive reappraisal ($M = 4.56$, $SD = 1.27$) was, on average, more used than expressive suppression ($M = 4.05$, $SD = 1.46$). Regarding resilience, the dimensions with higher mean scores were social resources ($M = 5.75$, $SD = 1.12$) and family cohesion ($M = 5.31$, $SD = 1.27$). Social skills ($M = 4.78$, $SD = 1.23$) and self-perception ($M = 4.77$, $SD = 1.25$) dimensions obtained lower mean values. Anxiety was the variable with the lowest mean value, followed by depression and stress (respectively, $M = 9.98$, $SD = 10.52$; $M = 12.72$, $SD = 11.58$; $M = 15.12$, $SD = 11.25$). PTSD symptoms had a mean value of 46.96 ($SD = 19.30$). Descriptive statistics (mean and standard deviation), as well as Bivariate Pearson correlations, are presented in Table 1.

There were significant weak negative associations between expressive suppression and the resilience dimensions: perception of self, planned future, social competence, family cohesion, and social resources. Conversely, cognitive reappraisal was positively associated with all these resilience dimensions.

Expressive suppression was positively associated with depression, anxiety, stress, and PTSD symptoms. There was no significant association between cognitive reappraisal and depression, anxiety, stress, and PTSD symptoms. All the dimensions of resilience (perception of self, planned future, social competence, family cohesion, and social resources) showed significant negative associations with depression, anxiety, stress, and PTSD symptoms.

3.2 | Mediational models

Multiple mediation models stating that emotion regulation should be related to depression, anxiety, stress, and PTSD symptoms via resilience were tested.

3.2.1 | Emotion regulation, resilience, and depression

Initially, we examined the effects of expressive suppression on predicting depression. The results are presented in Table 2. Regarding the direct effects, the negative association between expressive suppression and all dimensions of resilience was significant. High levels of expressive suppression were associated with lower levels of resilience, namely, perception of self, planned future, family cohesion, social competence, and social resources. Perception of self and planned future were negatively associated with depression. Expressive suppression was positively associated with depression.

With resilience dimensions as mediators, the association between expressive suppression and depression remained significant, indicating a partial mediation. An examination of the confidence intervals revealed that perception of self had a significant indirect effect, as did planned future. Social competence, family cohesion, and social resources did not have a significant effect. High levels of expressive suppression were positively associated with lower perception of self and planned future which, in turn, were associated with higher levels of depression.

We then tested the effects of cognitive reappraisal as a predictor of depression. Considering the direct effects, the associations between cognitive reappraisal and the resilience dimensions were positive and significant. High

TABLE 1 Bivariate pearson correlations among study variables ($N = 426$).

	M (*SD*)	ES	CR	SP	PF	SS	FC	SR	DP	AN	ST	PT
ER												
Expressive supression (ES)	4.05 (1.46)	–										
Cognitive reappraisal (CR)	4.56 (1.27)	**0.209****	–									
RE												
Self-perception (SP)	4.77 (1.25)	**−0.284****	**0.222****	–								
Perception of future (PF)	4.88 (1.50)	**−0.272****	**0.171****	**0.675****	–							
Social skills (SS)	4.78 (1.23)	**−0.376****	**0.120***	**0.520****	**0.468****	–						
Family cohesion (FC)	5.31 (1.27)	**−0.146****	**0.138****	**0.333****	**0.365****	**0.396****	–					
Social resources (SR)	5.75 (1.12)	**−0.307****	**0.172****	**0.427****	**0.442****	**0.522****	**0.617****	–				
Depression (DP)	12.72 (11.58)	**0.410****	−0.079	**−0.644****	**−0.566****	**−0.420****	**−0.351****	**−0.431****	–			
Anxiety (AN)	9.98 (10.52)	**0.309****	0.007	**−0.482****	**−0.374****	**−0.300****	**−0.291****	**−0.350****	**0.755****	–		
Stress (ST)	15.12 (11.25)	**0.298****	0.012	**−0.544****	**−0.397****	**−0.289****	**−0.310****	**−0.322****	**0.811****	**0.839****	–	
PTSD symptoms (PT)	46.96 (19.30)	**0.331****	−0.044	**−0.593****	**−0.465****	**−0.352****	**−0.307****	**−0.385****	**0.830****	**0.829****	**0.867****	–

Note: *$p < .05$; **$p < .01$.

TABLE 2 Direct, indirect, and total effects of emotion regulation strategies on depression through resilience dimensions.

	Direct effect			Indirect effect*		Total effect		
	B (*SE*)	95% CI	*p*	*B* (*SE*)	95% CI	*B* (*SE*)	95% CI	*p*
ES->SP	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**	–	–	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**
ES->PF	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**	–	–	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**
ES->SS	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**	–	–	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**
ES->FC	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**	–	–	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**
ES->SR	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**	–	–	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**
SP->Depression	**−3.93 (0.46)**	**(−4.83, −3.03)**	**<.001**	–	–	**−3.93 (0.46)**	**(−4.83, −3.03)**	**<.001**
PF->Depression	**−1.36 (0.37)**	**(−2.09, −0.62)**	**<.001**	–	–	**−1.36 (0.37)**	**(−2.09, −0.62)**	**<.001**
SS->Depression	0.34 (0.42)	(−2.09, −0.62)	.425	–	–	0.34 (0.42)	(−2.09, −0.62)	.425
FC->Depression	0.76 (0.40)	(−1.55, 0.03)	.060	–	–	0.76 (0.40)	(−1.55, 0.03)	.060
SR ->Depression	0.76 (0.50)	(−1.74, 0.23)	.134	–	–	0.76 (0.50)	(−1.74, 0.23)	.134
ES->SP->Depression	**1.75 (0.30)**	**(1.16, 2.34)**	**<.001**	**0.95 (0.18)**	**(0.61, 1.31)**	**3.24 (0.35)**	**(2.56, 3.94)**	**<.001**
ES->PF->Depression				**0.38 (0.13)**	**(0.15, 0.66)**			
ES->SS->Depression				−0.06 (0.09)	(−0.25, 0.10)			
ES->FC->Depression				−0.02 (0.04)	(−0.11, 0.05)			
ES->SR->Depression				0.07 (0.05)	(−0.02, 0.18)			
R^2 = 17%								
CR->SP	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**	–	–	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**
CR->PF	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**	–	–	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**
CR->SS	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**	–	–	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**
CR->FC	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**	–	–	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**

TABLE 2 (Continued)

	Direct effect			Indirect effect*		Total effect		
	***B* (*SE*)**	**95% CI**	***p***	***B* (*SE*)**	**95% CI**	***B* (*SE*)**	**95% CI**	***p***
CR->SR	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**	–	–	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**
CR->SP->Depression	**0.78 (0.33)**	**(0.12, 1.43)**	**.021**	**−0.92 (0.26)**	**(−1.47, −0.45)**	−0.73 (0.44)	(−1.60, 1.45)	.102
CR->PF->Depression				**−0.30 (0.13)**	**(−0.59, −0.09)**			
CR->SS->Depression				0.02 (0.06)	(−0.15, 0.09)			
CR->Fc->Depression				−0.08 (0.07)	(−0.23, 0.04)			
CR->SR->Depression				**−0.19 (0.11)**	**(−0.42, −0.02)**			

Note: Bold font indicates significant effects ($p < .05$). B = unstandardized regression coefficients; SE = standard error; 95% CI = bootstrapped 95% confidence intervals; p = p-values.
*Indirect effects were considered significant in the presence of 95% confidence intervals not including zero.

Abbreviations: CR, cognitive reappraisal; ES, expressive suppression; FC, family cohesion; PF, perception of future; SP, self-perception; SR, social resources; SS, social skills.

TABLE 3 Direct, indirect, and total effects of emotion regulation strategies on anxiety through resilience dimensions.

	Direct effect			Indirect effect*		Total effect		
	B (*SE*)	95% CI	*p*	*B* (*SE*)	95% CI	*B* (*SE*)	95% CI	*p*
ES->SP	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**	-	-	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**
ES->PF	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**	–	–	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**
ES->SS	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**	–	–	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**
ES->FC	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**	–	–	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**
ES->SR	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**	–	–	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**
SP->Anxiety	**−3.16 (0.50)**	**(−4.14, −2.18)**	**<.001**	–	–	**−3.16 (0.50)**	**(−4.14, −2.18)**	**<.001**
PF->Anxiety	−0.17 (0.41)	(−0.97, 0.63)	.681	–	–	−0.17 (0.41)	(−0.97, 0.63)	.681
SS->Anxiety	0.51 (0.46)	(−0.40, 1.42)	.267	–	–	0.51 (0.46)	(−0.40, 1.42)	.267
FC->Anxiety	−0.78 (0.44)	(−1.64, 0.093)	.078	–	–	−0.78 (0.44)	(−1.64, 0.093)	.078
SR->Anxiety	−0.95 (0.55)	(−2.03, 0.14)	.087	–	–	−0.95 (0.55)	(−2.03, 0.14)	.087
ES->SP->Anxiety	**1.25 (0.33)**	**(0.61, 1.89)**	**<.001**	**0.76 (0.198)**	**(0.44, 1.16)**	**2.22 (0.33)**	**(1.57, 2.87)**	**<.001**
ES->PF->Anxiety				0.05 (0.13)	(−0.22, 0.30)			
ES->SS->Anxiety				−0.16 (0.15)	(−0.47, 0.13)			
ES->F->Anxiety				0.10 (0.08)	(−0.02, 0.28)			
ES->SR->Anxiety				0.22 (0.15)	(−0.04, 0.55)			
R^2 = 10%								
CR->SP	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**	–	–	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**
CR->PF	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**	–	–	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**
CR->SS	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**	–	–	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**
CR->FC	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**	–	–	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**

TABLE 3 (Continued)

	Direct effect			Indirect effect*		Total effect		
	***B* (*SE*)**	**95% CI**	***p***	***B* (*SE*)**	**95% CI**	***B* (*SE*)**	**95% CI**	***p***
CR->SR	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**	–	–	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**
CR->SP->Anxiety	**1.14 (0.36)**	**(0.44, 1.84)**	**.001**	**−0.75 (0.23)**	**(−1.23, −0.35)**	0.06 (0.40)	(−0.73, 0.85)	.886
CR->PF->Anxiety				−0.05 (0.09)	(−0.24, 0.13)			
CR->SS->Anxiety				0.02 (0.06)	(−0.10, 0.15)			
CR->FC->Anxiety				0.09 (0.08)	(−0.27, 0.05)			
CR->SR->Anxiety				**−0.21 (0.12)**	**(−0.46, −0.02)**			

Note: Bold font indicates significant effects ($p < .05$). B = unstandardized regression coefficients; SE = standard error; 95% CI = bootstrapped 95% confidence intervals; p = p-values.
*Indirect effects were considered significant in the presence of 95% confidence intervals not including zero.

Abbreviations: CR, cognitive reappraisal; ES, expressive suppression; FC, family cohesion; PF, perception of future; SP, self-perception; SR, social resources; SS, social skills.

levels of cognitive reappraisal were associated with a higher perception of self, planned future, family cohesion, social competence, and social resources. The association with depression was also positive and significant.

When all the variables were entered in the mediation model, the association between cognitive reappraisal and depression remained significant. Regarding the indirect effects, an examination of the confidence intervals showed that cognitive reappraisal had a significant indirect effect on depression through the perception of self, planned future, and social resources. The values indicated a suppression effect since the directionalities of the effects were opposite.

High levels of cognitive reappraisal were associated with lower levels of depression due to resilience dimensions. The presence of high levels of perception of self, planned future, and social resources suppressed the positive effect of cognitive reappraisal on depression.

3.2.2 | Emotion regulation, resilience, and anxiety

We examined the effects of emotion regulation in predicting anxiety (Table 3), starting with the expressive suppression strategy. Considering direct effects, as reported above, the association between expressive suppression and resilience dimensions was negative and significant. Perception of self was negatively associated with anxiety. Expressive suppression was positively associated with anxiety.

When all the resilience dimensions were entered in the mediation model, the previous positive association between expressive suppression and anxiety remained significant, indicating a partial mediation. An examination of the confidence intervals showed that only perception of self had a significant indirect effect. High expressive suppression was associated with lower perception of self which, in turn, was associated with higher anxiety.

We then tested the effects of cognitive reappraisal on anxiety through resilience. Considering direct effects, the positive associations between cognitive reappraisal and the resilience dimensions were significant. There was also a positive significant association between cognitive reappraisal and anxiety.

Regarding the indirect effects, the examination of the confidence intervals showed that cognitive reappraisal had a significant negative indirect effect on anxiety due to the perception of self and social resources. Again, there is a suppression effect, since the directionalities of the effects are different. High levels of cognitive reappraisal were associated with lower levels of anxiety because of the perception of self and social resources.

3.2.3 | Emotion regulation, resilience, and stress

We then tested the mediation model to examine the effects of emotion regulation on stress, mediated by resilience dimensions (Table 4).

An examination of the direct effects showed that stress was significantly predicted by expressive suppression, perception of self, and family cohesion.

With the resilience dimensions entered into the mediation model, the positive association between expressive suppression and stress remained significant, indicating a partial mediation. When we examined the confidence intervals, we found that perception of self and family cohesion had a significant indirect effect. Higher expressive suppression was associated with higher stress because of lower values of perception of self and family cohesion.

Next, we tested the effects of cognitive reappraisal on stress. Concerning the direct effects, stress was significantly predicted by cognitive reappraisal (positively), perception of self, and family cohesion (both in a negative way).

When the mediators were included in the model, the confidence intervals showed that cognitive reappraisal had a significant negative indirect effect on stress due to resilience dimensions in relation to perception of self and

TABLE 4 Direct, indirect, and total effects of emotion regulation strategies on stress through resilience dimensions.

	Direct effect			Indirect effect*		Total effect		
	B (*SE*)	95% CI	*p*	*B* (*SE*)	95% CI	*B* (*SE*)	95% CI	*p*
ES->SP	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**	–	–	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**
ES->PF	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**	–	–	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**
ES->SS	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**	–	–	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**
ES->FC	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**	–	–	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**
ES->SR	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**	–	–	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**
SP->Stress	**−4.37 (0.51)**	**(−5.38, −3.36)**	**<.001**	–	–	**−4.37 (0.51)**	**(−5.38, −3.36)**	**<.001**
PF->Stress	−0.06 (0.42)	(−0.88, 0.77)	.890	–	–	−0.06 (0.42)	(−0.88, 0.77)	.890
SS->Stress	0.89 (0.48)	(−0.42, 1.83)	.061	–	–	0.89 (0.48)	(−0.42, 1.83)	.061
FC->Stress	**−1.31 (0.45)**	**(−2.20, −0.42)**	**.004**	–	–	**1.31 (0.45)**	**(−2.20, −0.42)**	**.004**
SR->Stress	−0.21 (0.57)	(−1.32, 0.91)	.072	–	–	−0.21 (0.57)	(−1.32, 0.91)	.072
ES->SP->Stress	**1.29 (0.34)**	**(0.63, 1.95)**	**<.001**	**1.06 (0.22)**	**(0.66, 1.52)**	**2.29 (0.36)**	**(1.59, 2.99)**	**<.001**
ES->PF->Stress				0.02 (0.13)	(−0.24, 0.27)			
ES->SS-> Stress				−0.28 (0.16)	(−0.60, 0.03)			
ES->FC->Stress				**0.16 (0.09)**	**(0.02, 0.38)**			
ES->SR->Stress				0.05 (0.14)	(−0.23, 0.35)			
R^2 = 09%								
CR->SP	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**	–	–	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**
CR->PF	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**	–	–	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**
CR->SS	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**	–	–	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**
CR->FC	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**	–	–	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**

(Continues)

TABLE 4 (Continued)

	Direct effect			Indirect effect*		Total effect		
	***B* (*SE*)**	**95% CI**	***p***	***B* (*SE*)**	**95% CI**	***B* (*SE*)**	**95% CI**	***p***
CR->SR	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**	–	–	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**
CR->SP->Stress	**1.37 (0.36)**	**(0.65, 2.08)**	**.001**	**−1.03 (0.29)**	**(−1.64, −0.51)**	0.11 (0.43)	(−0.74, 0.96)	.800
CR->PF->Stress				−0.03 (0.10)	(−0.23, 0.17)			
CR->SS->Stress				0.07 (0.07)	(−0.04, 0.21)			
CR->FC->Stress				**−0.16 (0.10)**	**(−0.39, −0.02)**			
CR->SR->Stress				−0.10 (0.11)	(−0.33, 0.09)			

Note: Bold font indicates significant effects ($p < .05$). B = unstandardized regression coefficients; SE = standard error; 95% CI = bootstrapped 95% confidence Intervals; p = p-values.
*Indirect effects were considered significant in the presence of 95% confidence intervals not including zero.

Abbreviations: CR, cognitive reappraisal; ES, expressive suppression; FC, family cohesion; PF, perception of future; SP, self-perception; SR, social resources; SS, social skills.

family cohesion. There is a suppression effect since the directionalities of the effects are different. High levels of cognitive reappraisal were associated with lower levels of stress due to the perception of self and family cohesion.

3.2.4 | Emotion regulation, resilience, and PTSD symptoms

The last two mediation models were intended to test the effects of emotion regulation on PTSD symptoms mediated by resilience. Results are presented in Table 5.

TABLE 5 Direct, indirect, and total effects of emotion regulation strategies on PTSD symptoms through resilience dimensions.

	Direct effect			Indirect effect*		Total effect		
	B (*SE*)	95% CI	*p*	*B* (*SE*)	95% CI	*B* (*SE*)	95% CI	*p*
ES->SP	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**	–	–	**−0.24 (0.04)**	**(−0.32, −0.16)**	**<.001**
ES->PF	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**	–	–	**−0.28 (0.05)**	**(−0.37, −0.19)**	**<.001**
ES->SS	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**	–	–	**−0.32 (0.04)**	**(−0.39, −0.24)**	**<.001**
ES->FC	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**	–	–	**−0.13 (0.04)**	**(−0.21, −0.05)**	**.003**
ES->SR	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**	–	–	**−0.23 (0.04)**	**(−0.30, −0.17)**	**<.001**
SP->PTSD	**−7.33 (0.84)**	**(−8.98, −5.68)**	**<.001**	–	–	−7.33 (0.84)	**(−8.98, −5.68)**	**<.001**
PF->PTSD	−0.82 (0.69)	(−2.17, 0.53)	.233	–	–	−0.82 (0.69)	(−2.17, 0.53)	.233
SS->PTSD	0.95 (0.78)	(−0.58, 2.49)	.222	–	–	0.95 (0.78)	(−0.58, 2.49)	.222
FC->PTSD	−1.03 (0.74)	(−2.49, 0.42)	.164	–	–	−1.03 (0.74)	(−2.49, 0.42)	.164
SR->PTSD	1.63 (0.93)	(−3.46, 0.93)	.079	–	–	1.63 (0.93)	(−3.46, 0.93)	.079
ES->SP->PTSD	**2.15 (0.55)**	**(1.07, 3.23)**	**<.001**	**1.77 (0.36)**	**(1.12, 2.53)**	**4.37 (0. 61)**	**(3.17, 5.55)**	**<.001**
ES->PF->PTSD				0.23 (0.22)	(−0.21, 0.69)			
ES->SS->PTSD				−0.30 (0.27)	(−0.83, 0.22)			
ES->FC->PTSD				0.13 (0.12)	(−0.06, 0.40)			
ES->SR->PTSD				−0.38 (0.24)	(−0.07, 0.89)			
R^2 = 11%								
CR->SP	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**	–	–	**0.22 (0.05)**	**(0.13, 0.31)**	**<.001**
CR->PF	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**	–	–	**0.20 (0.06)**	**(0.09, 0.31)**	**<.001**
CR->SS	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**	–	–	**0.12 (0.05)**	**(0.03, 0.21)**	**.013**
CR->FC	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**	–	–	**0.14 (0.05)**	**(0.04, 0.23)**	**.004**
CR->SR	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**	–	–	**0.15 (0.04)**	**(0.07, 0.23)**	**<.001**
CR->SP->PTSD	**1.65 (0.60)**	**(0.47, 2.83)**	**.006**	**−1.70 (0.46)**	**(−2.67, −0.85)**	−0.67 (0.74)	(−2.12, 0.79)	.377
CR->PF->PTSD				−0.20 (0.18)	(−0.61, 0.11)			
CR->SS->PTSD				0.05 (0.11)	(−0.16, 0.28)			
CR->FC->PTSD				−0.11 (0.13)	(−0.40, 0.12)			
CR->SR->PTSD				**−0.36 (0.21)**	**(−0.81, −0.03)**			

Note: Bold font indicates significant effects ($p < .05$). B = unstandardized regression coefficients; SE = standard error; 95% CI = bootstrapped 95% confidence Intervals; *p* = *p*-values. *Indirect effects were considered significant in the presence of 95% confidence intervals not including zero.

Abbreviations: CR, cognitive reappraisal; ES, expressive suppression; FC, family cohesion; PF, perception of future; SP, self-perception; SR, social resources; SS, social skills.

PTSD symptoms were significantly predicted by expressive suppression and perception of self (direct effects) but not by family cohesion, planned future, social competence, and social resources. When resilience dimensions were entered into the mediation model, the positive association between expressive suppression and PTSD symptoms remained significant, indicating a partial mediation. Examining the confidence intervals, only perception of self had a significant indirect effect. Higher levels of expressive suppression were associated with lower perception of self which, in turn, was associated with higher PTSD.

We then tested the effects of cognitive reappraisal on PTSD symptoms. Considering the direct effects, PTSD symptoms were significantly predicted by cognitive reappraisal and perception of self. Considering indirect effects, confidence intervals showed that cognitive reappraisal had a significant negative indirect effect on PTSD symptoms, due to the resilience dimensions perception of self and social resources. There was a suppression effect since the directionalities of the effects are different. High levels of cognitive reappraisal were associated with lower levels of PTSD symptoms, as a result of the perception of self and social resources.

4 | DISCUSSION

The purpose of this study was to explore the role of emotion regulation and resilience in explaining individual differences in the psychological functioning of university students. Specifically, it aimed to identify to what extent the relationship between emotion regulation strategies (expressive suppression and cognitive reappraisal) and several mental health indicators (depression, anxiety, stress, and PTSD symptoms), was mediated by resilience dimensions (perception of self, planned future, social competence, family cohesion, and social resources).

As expected, the results for expressive suppression allow us to confirm its association with poorer mental health outcomes, since higher levels of expressive suppression were associated with higher levels of depression, anxiety, stress, and PTSD symptoms, thus supporting our H1. These findings are consistent with previous studies (Eldesouky, 2015; Joormann & Gotlib, 2010; Millgram et al., 2018; Schäfer et al., 2017; Tyra et al., 2021), and confirms that inhibiting emotional expression may have an adaptation cost. It seems to be ineffective in reducing negative affect (Meyer et al., 2012), which can be associated with psychopathological symptoms. It is also not effective in reducing anxiety-related physiological arousal (Hoffmann et al., 2009).

Unexpectedly, there was also a positive association between cognitive reappraisal and mental health: high levels of depression, anxiety, stress, and PTSD symptoms were predicted by high levels of cognitive reappraisal, which did not allow confirmation of H2. Although most studies associate cognitive reappraisal with better mental health (Cludius et al., 2020; Gross & John, 2003), some authors (Aldao & Christensen, 2015; Ford & Troy, 2019) highlight the importance of a more in-depth study because sometimes people are unable to use cognitive appraisal successfully, or it does not function as it should. For example, some studies note how cognitive reappraisal can function as an escape strategy, which contributes to perpetuating the vicious circle of negative emotion (this happens, for example, in the ruminative processes typical of depression) (Dryman & Heimberg, 2018; Haines et al., 2016). Cognitive reappraisal is not always beneficial.

In this regard, several studies draw attention to the need to adopt a person-by-situation approach while evaluating the adequacy of the strategy (Ford & Troy, 2019; Troy et al., 2013), since the context influences its effects (Troy et al., 2013) as well as an individual's flexibility in the use of emotion regulation strategies (e.g., Bonanno & Burton, 2013). According to some authors, it is in stressful situations which are more controllable for the individual that cognitive reappraisal entails costs for their mental health because it can reduce the tendency to take effective action when action would be functional (Ford & Troy, 2019; Haines et al., 2016; Troy et al., 2013). In the present study, data were obtained in the context of a pandemic. Although it was a very challenging period, it is possible to assume that, after a year of the pandemic, individuals already knew what measures to take to decrease their likelihood of becoming infected with COVID-19. Also, after an initial period of adaptation to distance learning, students had by then already mastered the tools of remote learning and its requirements.

In line with previous studies (Mestre et al., 2017; Mouatsou & Koutra, 2021; Taylor et al., 2022), our findings showed that, as expected, some resilience dimensions mediated the relation between emotion regulation and depression, anxiety, stress, and PTSD symptoms, thus allowing confirmation of H3. Our study highlights the role of resilience in reducing the effect of expressive suppression and suppressing the potential negative effect of cognitive reappraisal on mental health outcomes.

The only dimension of resilience that mediated all associations, considering both expressive suppression and cognitive reappraisal, was the perception of self. This dimension refers to confidence in one's "own abilities and judgments, self-efficacy and realistic expectations" (Hjemdal et al., 2011, p. 59). Self-efficacy has been associated with mental health outcomes (Abdel-Khalek & Lester, 2017), and is also a relevant aspect associated with health-related intentions and behaviors (Sheeran et al., 2016). In a challenging context for health such as the COVID-19 pandemic, evidence shows that self-efficacy and confidence are important elements in the adaptation process. COVID-19-related studies found negative associations between self-efficacy and psychological distress (Shacham et al., 2020; Yıldırım & Güler, 2020). So, if a person suppresses the expression of emotion, this can be associated with a perception of insecurity and lower self-efficacy, which contributes to an increase in depression, anxiety, stress, and PTSD symptoms. However, if the person tries to reframe an experience to control the underlying emotion and this leads to a perception of confidence about her abilities and judgments, that is associated with a decrease in depression, anxiety, stress, and PTSD symptoms. People with high levels of self-efficacy believe and are more likely to cope with adverse situations and so tend to present fewer psychological distress symptoms.

Our findings also showed that the planned future dimension mediated the association between emotion regulation (expressive suppression and cognitive reappraisal) and depression. This resilience dimension refers to "the ability to plan, have a positive outlook, and be goal-oriented" (Hjemdal et al., 2011, p. 59). It is one of the psychological features that is impaired in cases of depression (MacLeod & Salaminiou, 2001), with the lack of positive expectations being a characteristic and specific feature of depressive future-thinking (Gamble et al., 2019; MacLeod, & O'Connor, 2018). Beck's negative triad (1979) theorizes that depressed people have negative and hopeless thoughts about themselves, the world, and the future. While expressive suppression seems to "feed" this triad, cognitive reappraisal seems more effective in diminishing it by positively reinterpreting the situation.

Emotion regulation antecedent-focused strategies that target cognition, such as cognitive reappraisal, are more effective than those that rely less on cognition and are response-focused, such as expressive suppression (Gross, 1998; Joormann & Gotlib, 2010). That seems to be the case in the present study, as expressive suppression appears to affect the capacity to plan and have a positive outlook, whereas cognitive reappraisal seems to facilitate this process, with a positive impact on mental health.

Family cohesion mediated the relation between emotion regulation and stress. While expressive suppression predicts lower levels of family cohesion, leading to an increase in poor mental health outcomes, cognitive reappraisal is positively associated with this resilience dimension and with better outcomes. Family cohesion refers to the extent to which there is agreement on values within the family, whether its members enjoy spending time together, have an optimistic vision of the future, are loyal to each other, and are mutually supportive (Hjemdal et al., 2011). It refers to the capacity of individuals to make use of the various systems in their context to cope better with adverse and stressful situations (Pereira et al., 2017).

According to Moore et al. (2008), some people who often inflexibly use expressive suppression tend to adopt an emotion-avoidant way of interacting with others and the world. This can hinder family closeness and support, and prevent the individual from turning to the family as a means of coping with stress, thus increasing its level. The COVID-19-related study by Zeng et al. (2021) confirms this association: the greater the family cohesion, the more support and help the person can obtain from their relatives, which contributes to reducing the negative effects of stress.

Cognitive reappraisal was associated with higher family cohesion and lower stress. Ye et al. (2022) reported that family communication was associated with learning to consider diverse perspectives in problem-solving, which has a positive impact on decreasing stress. Considering that the pandemic led to significant challenges for family functioning (Yun et al., 2021), it is possible to hypothesize that the resignification of experiences for emotional

purposes may have contributed to family cohesion, i.e., an appreciation of time spent with family and the support provided by family members.

Finally, social resources mediated the association of cognitive reappraisal with anxiety and PTSD by suppressing their direct positive relationship. Social resources, as a dimension of resilience, refers to the availability of social support, whether the person has a confidant outside their family, and whether they have someone outside the family to turn to if they need help (Hjemdal et al., 2011).

Cognitive reappraisal is classically associated with better interpersonal functioning (Gross & John, 2003). According to Cutuli (2014), using cognitive reappraisal allows a person to implement and produce interpersonal behavior that is appropriately focused on social interaction, and to be perceived by others as emotionally engaging and responsive. Individuals who habitually use cognitive reappraisal engage in positive prosocial behavior because they efficiently interpret the social environment (Panno et al., 2020). They will, therefore, tend to have positive social relationships, which has a positive impact on mental health outcomes.

Despite previous studies ascertaining the effectiveness of cognitive reappraisal in moderating anxiety (Campbell-Sills et al., 2006; Xu et al., 2020) and PTSD (Boden et al., 2012; Ehring & Quack, 2010), in the present study, resilience dimensions, as social resources, were necessary for that effectiveness.

4.1 | Limitations and future directions

Despite these important findings, this study presents some limitations that need to be acknowledged. In terms of methodology, the cross-sectional nature of the data does not allow causal relationships to be established between the variables. The low internal consistency of the "structured style" dimension of resilience also prevented its use. Regarding the characteristics of the sample, although they are all university students, the age range is very wide, hence it includes people at different stages of life, with different life experiences and different mental health backgrounds (which were not controlled). On the other hand, the sample is mostly women, and students with a medium or medium-high socioeconomic status. Future studies should focus on more homogeneous groups or on controlling for socio-demographic variables with a potential impact on the results, such as age, gender, or socioeconomic status.

Finally, although the data were collected in the context of a pandemic, at the time of collection, only a small proportion of the participants had been infected with COVID-19, and not severely. As such, it was not possible to determine to what extent this experience would impact their mental health. At the same time, no data concerning vaccination were gathered, which meant we were unable to ascertain the potential positive impact of this measure on levels of stress and anxiety. Future research should also study the mental health indicators of infected and noninfected people, vaccinated or not, considering the severity of the infection and the potentially protective internal resources such as emotional regulation and resilience. While the evidence demonstrates the negative psychological impact of a perceived threat, studies on the long-term impact of the 2-year limitations imposed by COVID-19 are only now beginning to be conducted.

4.2 | Implications

Our findings are of great importance in terms of the clinical and health implications. By deepening knowledge of how resilience and emotion regulation can function as protective factors against the development of psychological distress symptoms in challenging health contexts, this study provides evidence that confirms the importance of facilitating increased psychological resilience, as well as the use of contextually appropriate emotion regulation strategies. Previous COVID-19 related studies highlighted the importance of developing interventions that enhance resilience to reduce negative mental effects during pandemics (Skalski et al., 2022; Verdolini et al., 2021), with the main focus on individuals' confidence in their judgements, their self-efficacy and realistic expectations (self-perception) (Hjemdal et al., 2011;

Pereira et al., 2013). Some authors state the need to prioritize psychological resilience as a primary public health issue during stressful situations like pandemics (Ruengorn et al., 2022).

These results also point to the probable greater effectiveness of "combined" interventions (i.e., to say, intervening jointly on emotional regulation strategies and resilience), a hypothesis that needs future experimental verification of the research.

5 | CONCLUSION

This study made it possible to deepen our knowledge of how, in a challenging context like the COVID-19 pandemic, internal resources such as resilience and emotional regulation may operate in parallel as protective factors against the development of psychological distress symptoms, specifically depression, anxiety, stress, and PTSD.

In particular, the results obtained contribute to describing the role that the different dimensions of resilience may play as mediators between the emotional regulation strategies adopted and mental health outcomes. The data on expressive suppression is in line with previous COVID and non-COVID studies, confirming its positive association with lower mental health indicators (Eldesouky, 2015; Jungmann & Witthöft, 2020; Li et al., 2021; Millgram et al., 2018; Russell et al., 2022). Data on cognitive reappraisal helped elucidate the important role of resilience in the relationship between this emotion regulation strategy and mental health outcomes (Hezel et al., 2022; Killgore et al., 2020; Mosheva et al., 2020), in that it was the mediating role of resilience that allowed cognitive reappraisal to function in a protective sense, thus contributing to better mental health.

Several studies have established the protective function of resilience against the development of psychological problems. Resilient individuals are seen as flexible and cope with adverse or stressful situations because they have several individual, interpersonal and contextual protective resources (Friborg et al., 2003) and tend to adopt more positive adaptive behaviors toward negative life events (Peng et al., 2012), such as the COVID-19 pandemic.

ACKNOWLEDGMENTS

This work was financed by national funds through the FCT—Fundação para a Ciência e Tecnologia I.P., under the project CIP/UAL—Ref[a] UID/PSI/04345/2020.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Rute Brites http://orcid.org/0000-0002-7617-933X
Tânia Brandão http://orcid.org/0000-0001-7865-2445

REFERENCES

Abdel-Khalek, A. M., & Lester, D. (2017). The association between religiosity, generalized self-efficacy, mental health, and happiness in Arab college students. *Personality and Individual Differences*, *109*, 12–16. https://doi.org/10.1016/j.paid.2016.12.010

Ahmed, H., Patel, K., Greenwood, D. C., Halpin, S., Lewthwaite, P., Salawu, A., Eyre, L., Breen, A., O'connor, R., Jones, A., & Sivan, M. (2020). Long-term clinical outcomes in survivors of severe acute respiratory syndrome and Middle East respiratory syndrome coronavirus outbreaks after hospitalisation or ICU admission: A systematic review and meta-analysis. *Journal of Rehabilitation Medicine*, *52*(5), 00063. https://doi.org/10.2340/16501977-2694

AlAzzam, M., Abuhammad, S., Abdalrahim, A., & Hamdan-Mansour, A. M. (2021). Predictors of depression and anxiety among senior high school students during COVID-19 pandemic: The context of home quarantine and online education. *The Journal of School Nursing: The Official Publication of the National Association of School Nurses*, *37*(4), 241–248. https://doi.org/10.1177/1059840520988548

Aldao, A., & Christensen, K. (2015). Linking the expanded process model of emotion regulation to psychopathology by focusing on behavioral outcomes of regulation. *Psychological Inquiry*, *26*(1), 27–36. https://doi.org/10.1080/1047840X.2015.962399

Al-Rabiaah, A., Temsah, M. H., Al-Eyadhy, A. A., Hasan, G. M., Al-Zamil, F., Al-Subaie, S., Alsohime, F., Jamal, A., Alhaboob, A., Al-Saadi, B., & Somily, A. M. (2020). Middle East Respiratory Syndrome-Corona Virus (MERS-CoV) associated stress among medical students at a university teaching hospital in Saudi Arabia. *Journal of Infection and Public Health*, *13*(5), 687–691. https://doi.org/10.1016/j.jiph.2020.01.005

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Banyard, V., Hamby, S., & Grych, J. (2017). Health effects of adverse childhood events: Identifying promising protective factors at the intersection of mental and physical well-being. *Child Abuse & Neglect*, *65*, 88–98. https://doi.org/10.1016/j.chiabu.2017.01.011

Beck, A. T. (1979). *Cognitive Therapy of Depression*. The Guilford Press.

Boden, M. T., Bonn-Miller, M. O., Kashdan, T. B., Alvarez, J., & Gross, J. J. (2012). The interactive effects of emotional clarity and cognitive reappraisal in posttraumatic stress disorder. *Journal of Anxiety Disorders*, *26*, 233–238. https://doi.org/10.1016/j.janxdis.2011.11.007

Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, *8*(6), 591–612. https://doi.org/10.1177/1745691613504116

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*, *395*(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Browning, M. H. E. M., Larson, L. R., Sharaievska, I., Rigolon, A., McAnirlin, O., Mullenbach, L., Cloutier, S., Vu, T. M., Thomsen, J., Reigner, N., Metcalf, E. C., D'Antonio, A., Helbich, M., Bratman, G. N., & Alvarez, H. O. (2022). Correction: Psychological impacts from COVID-19 among university students: Risk factors across seven states in the United States. *PLoS One*, *17*(8), e0273938. https://doi.org/10.1371/journal.pone.0273938

Campbell-Sills, L., & Barlow, D. H. (2007). Incorporating emotion regulation into conceptualizations and treatments of anxiety and mood disorders. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 542–559). Guilford Press.

Campbell-Sills, L., Barlow, D. H., Brown, T. A., & Hofmann, S. G. (2006). Acceptability and suppression of negative emotion in anxiety and mood disorders. *Emotion (Washington, D.C.)*, *6*, 587–595. https://doi.org/10.1037/1528-3542.6.4.587

Cano, M. Á., Castro, F. G., De La Rosa, M., Amaro, H., Vega, W. A., Sánchez, M., Rojas, P., Ramírez-Ortiz, D., Taskin, T., Prado, G., Schwartz, S. J., Córdova, D., Salas-Wright, C. P., & de Dios, M. A. (2020). Depressive symptoms and resilience among hispanic emerging adults: Examining the moderating effects of mindfulness, distress tolerance, emotion regulation, family cohesion, and social support. *Behavioral Medicine*, *46*(3–4), 245–257. https://doi.org/10.1080/08964289.2020.1712646

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, *287*, 112934. https://doi.org/10.1016/j.psychres.2020.112934

Carvalho, T., Motta, C., & Pinto-Gouveia, J. (2020). Portuguese version of the posttraumatic stress disorder checklist for DSM-5 (PCL-5): comparison of latent models and other psychometric analyses. *Journal of Clinical Psychology*, *76*(7), 1267–1282. https://doi.org/10.1002/jclp.22930

Caston, A. T., & Mauss, I. B. (2011). Resilience in the face of stress: emotion regulation as a protective factor. In S. M. Southwick, B. T. Litz, D. Charney & M. J. Friedman (Eds.), *Resilience and Mental Health: Challenges Across the Lifespan* (pp. 30–44). Cambridge University Press.

Charles, N. E., Strong, S. J., Burns, L. C., Bullerjahn, M. R., & Serafine, K. M. (2021). Increased mood disorder symptoms, perceived stress, and alcohol use among college students during the COVID-19 pandemic. *Psychiatry Research*, *296*, 113706. https://doi.org/10.1016/j.psychres.2021.113706

Chen, X., Huang, Z., & Lin, W. (2022). The effect of emotion regulation on happiness and resilience of university students: The chain mediating role of learning motivation and target positioning. *Frontiers in Psychology*, *13*, 1029655. https://doi.org/10.3389/fpsyg.2022.1029655

Cludius, B., Mennin, D., & Ehring, T. (2020). Emotion regulation as a transdiagnostic process. *Emotion (Washington, D.C.)*, *20*, 37–42. https://doi.org/10.1037/emo0000646

Copeland, W. E., McGinnis, E., Bai, Y., Adams, Z., Nardone, H., Devadanam, V., Rettew, J., & Hudziak, J. J. (2021). Impact of COVID-19 pandemic on college student mental health and wellness. *Journal of the American Academy of Child and Adolescent Psychiatry*, *60*(1), 134–141. https://doi.org/10.1016/j.jaac.2020.08.466

Cutuli, D. (2014). Cognitive reappraisal and expressive suppression strategies role in the emotion regulation: an overview on their modulatory effects and neural correlates. *Frontiers in Systems Neuroscience*, *8*, 175. https://doi.org/10.3389/fnsys.2014.00175

Dryman, M. T., & Heimberg, R. G. (2018). Emotion regulation in social anxiety and depression: A systematic review of expressive suppression and cognitive reappraisal. *Clinical Psychology Review*, *65*, 17–42. https://doi.org/10.1016/j.cpr.2018.07.004

Ehring, T., & Quack, D. (2010). Emotion regulation difficulties in trauma survivors: The role of trauma type and PTSD symptom severity. *Behavior Therapy*, *41*(4), 587–598. https://doi.org/10.1016/j.beth.2010.04.004

Eldesouky, L., (2015). Emotion regulation goals influence strategy use and outcomes. [Doctoral dissertation]. Graduate School of Arts and Sciences. https://openscholarship.wustl.edu/art_sci_etds/402

Ferreira da Silva, R., Macedo, M., & Conceição, J. (2022). A pandemia de COVID-19 em Portugal: Evolução, Vacinação e Farmacovigilância. *revistamultidisciplinar.com*, *4*(2), 135–154. https://doi.org/10.23882/rmd.22090

Ford, B. Q., & Troy, A. S. (2019). Reappraisal reconsidered: A closer look at the costs of an acclaimed emotion-regulation strategy. *Current Directions in Psychological Science*, *28*(2), 195–203. https://doi.org/10.1177/0963721419827526

Forte, G., Favieri, F., Tambelli, R., & Casagrande, M. (2020). COVID-19 pandemic in the Italian population: Validation of a post-traumatic stress disorder questionnaire and prevalence of PTSD symptomatology. *International Journal of Environment Research & Public Health*, *17*(11), 4151. https://doi.org/10.3390/ijerph17114151

Friborg, O., Hjemdal, O., Rosenvinge, J. H., & Martinussen, M. (2003). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment. *International Journal of Methods in Psychiatric Research*, *12*(2), 65–76. https://doi.org/10.1002/mpr.143

Gamble, B., Moreau, D., Tippett, L. J., & Addis, D. R. (2019). Specificity of future thinking in depression: A meta-analysis. *Perspectives on Psychological Science*, *14*(5), 816–834. https://doi.org/10.1177/1745691619851784

Gross, J. J. (1998). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, *74*(1), 224–237.

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*, 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Haderlein, T. P., Wong, M. S., Yuan, A., Llorente, M. D., & Washington, D. L. (2021). Association of PTSD with COVID-19 testing and infection in the veterans health administration. *Journal of Psychiatric Research*, *143*, 504–507. https://doi.org/10.1016/j.jpsychires.2020.11.033

Haines, S. J., Gleeson, J., Kuppens, P., Hollenstein, T., Ciarrochi, J., Labuschagne, I., Grace, C., & Koval, P. (2016). The wisdom to know the difference: Strategy-situation fit in emotion regulation in daily life is associated with well-being. *Psychological Science*, *27*(12), 1651–1659. https://doi.org/10.1177/0956797616669086

Hayes, A. F. (2021). *Introduction to Mediation, Moderation, and Conditional Process Analysis* (3rd Ed.). Guilford Press.

Hezel, D. M., Rapp, A. M., Wheaton, M. G., Kayser, R. R., Rose, S. V., Messner, G. R., Middleton, R., & Simpson, H. B. (2022). Resilience predicts positive mental health outcomes during the COVID-19 pandemic in New Yorkers with and without obsessive-compulsive disorder. *Journal of Psychiatric Research*, *150*, 165–172. https://doi.org/10.1016/j.jpsychires.2022.03.040

Hjemdal, O., Friborg, O., Braun, S., Kempenaers, C., Linkowski, P., & Fossion, P. (2011). The Resilience Scale for adults: Construct validity and measurement in a Belgian sample. *International Journal of Testing*, *11*(1), 53–70. https://doi.org/10.1080/15305058.2010.508570

Hjemdal, O., Friborg, O., Martinussen, M., & Rosenvinge, J. H. (2001). Preliminary results from the development and validation of a Norwegian scale for measuring adult resilience. *Journal of the Norwegian Psychology Association*, *38*(4), 310–317. https://doi.org/10.1186/s40359-015-0076-1

Hoffmann, S. G., Heering, S., Sawyer, A. T., & Asnaani, A. (2009). How to handle anxiety: The effects of reappraisal, acceptance, and suppression strategies on anxious arousal. *Behaviour Research and Therapy*, *47*(5), 389–394. https://doi.org/10.1016/j.brat.2009.02.010

Horesh, D., & Brown, A. D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(4), 331–335. https://doi.org/10.1037/tra0000592

Hu, T., Zhang, D., & Wang, J. (2015). A meta-analysis of the trait resilience and mental health. *Personality & Individual Differences*, *76*, 18–27. https://doi.org/10.1016/j.paid.2014.11.039

Joormann, J., & Gotlib, I. H. (2010). Emotion regulation in depression: Relation to cognitive inhibition. *Cognition and Emotion*, *24*, 281–298. https://doi.org/10.1080/02699930903407948.

Jungmann, S. M., & Witthöft, M. (2020). Health anxiety, cyberchondria, and coping in the current COVID-19 pandemic: which factors are related to coronavirus anxiety? *Journal of Anxiety Disorders*, *73*, 102239. https://doi.org/10.1016/j.janxdis.2020.102239

Killgore, W. D. S., Taylor, E. C., Cloonan, S. A., & Dailey, N. S. (2020). Psychological resilience during the COVID-19 lockdown. *Psychiatry Research*, *291*, 113216. https://doi.org/10.1016/j.psychres.2020.113216

Kola, L., Kohrt, B. A., Hanlon, C., Naslund, J. A., Sikander, S., Balaji, M., Benjet, C., Cheung, E. Y. L., Eaton, J., Gonsalves, P., Hailemariam, M., Luitel, N. P., Machado, D. B., Misganaw, E., Omigbodun, O., Roberts, T., Salisbury, T. T., Shidhaye, R., Sunkel, C., … Patel, V. (2021). COVID-19 mental health impact and responses in low-income and middle-income countries: Reimagining global mental health. *The Lancet Psychiatry*, *8*(6), 535–550. https://doi.org/10.1016/S2215-0366(21)00025-0

Lam, S., Dickerson, S. S., Zoccola, P. M., & Zaldivar, F. (2009). Emotion regulation and cortisol reactivity to a social-evaluative speech task. *Psychoneuroendocrinology*, *34*(9), 1355–1362. https://doi.org/10.1016/j.psyneuen.2009.04.006

Li, F., Luo, S., Mu, W., Li, Y., Ye, L., Zheng, X., Xu, B., Ding, Y., Ling, P., Zhou, M., & Chen, X. (2021). Effects of sources of social support and resilience on the mental health of different age groups during the COVID-19 pandemic. *BMC Psychiatry*, *21*, 16. https://doi.org/10.1186/s12888-020-03012-1

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U

Machado-Vaz, F. J. (2009). *Diferenciação e regulação emocional na idade adulta: tradução e validação de dois Instrumentos de avaliação para a população Portuguesa* [Differentiation and emotional regulation in adulthood: Translation and validation of two instruments to the Portuguese population] (Unpublished master's thesis). Instituto de Educação e Psicologia.

MacKinnon, D. P. (2000). Equivalence of the mediation, confounding, and suppression effect. *Prevention Science*, *1*(4), 173–181.

MacLeod, A. K., & O'Connor, R. C. (2018). Positive future-thinking, well-being, and mental health. In G. Oettingen, A. T. Sevincer & P. Gollwitzer (Eds.), *The psychology of thinking about the future* (pp. 199–213). The Guilford Press.

MacLeod, A. K., & Salaminiou, E. (2001). Reduced positive future-thinking in depression: Cognitive and affective factors. *Cognition & Emotion*, *15*(1), 99–107. https://doi.org/10.1080/0269993004200006

Mak, I. W. C., Chu, C. M., Pan, P. C., Yiu, M. G. C., & Chan, V. L. (2009). Long-term psychiatric morbidities among SARS survivors. *General Hospital Psychiatry*, *31*(4), 318–326. https://doi.org/10.1016/j.genhosppsych.2009.03.001

McLean, C. P., & Foa, E. B. (2017). Emotions and emotion regulation in posttraumatic stress disorder. *Current Opinion in Psychology*, *14*, 72–77. https://doi.org/10.1016/j.copsyc.2016.10.006

Mestre, J. M., Núñez-Lozano, J. M., Gómez-Molinero, R., Zayas, A., & Guil, R. (2017). Emotion regulation ability and resilience in a sample of adolescents from a suburban area. *Frontiers in Psychology*, *8*, 1980. https://doi.org/10.3389/fpsyg.2017.01980

Meyer, T., Smeets, T., Giesbrecht, T., & Merckelbach, H. (2012). The efficiency of reappraisal and expressive suppression in regulating everyday affective experiences. *Psychiatry Research*, *200*(2–3), 964–969. https://doi.org/10.1016/j.psychres.2012.05.034

Millgram, Y., Joormann, J., Huppert, J. D., Lampert, A., & Tamir, M. (2018). Motivations to experience happiness or sadness in depression: Temporal stability and implications for coping with stress. *Clinical Psychological Science*, *7*(1), 143–161. https://doi.org/10.1177/2167702618797937

Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2008). Are expressive suppression and cognitive reappraisal associated with stress-related symptoms? *Behaviour Research and Therapy*, *46*(9), 993–1000. https://doi.org/10.1016/j.brat.2008.05.001

Mosheva, M., Hertz-Palmor, N., Dorman Ilan, S., Matalon, N., Pessach, I. M., Afek, A., Ziv, A., Kreiss, Y., Gross, R., & Gothelf, D. (2020). Anxiety, pandemic-related stress, and resilience among physicians during the COVID-19 pandemic. *Depression and Anxiety*, *37*, 965–971. https://doi.org/10.1002/da.23085

Mouatsou, C., & Koutra, K. (2021). Emotion regulation in relation with resilience in emerging adults: The mediating role of self-esteem. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*, *42*(2), 1–14. https://doi.org/10.1007/s12144-021-01427-x

Nahar, Z., Sohan, M., Supti, K. F., Hossain, M. J., Shahriar, M., Bhuiyan, M. A., & Islam, M. R. (2022). Prevalence and associated risk factors for mental health problems among female university students during COVID-19 pandemic: A cross-sectional study findings from Dhaka, Bangladesh. *Heliyon*, *8*(10), e10890. https://doi.org/10.1016/j.heliyon.2022.e10890

Orcutt, H. K., Bonanno, G. A., Hannan, S. M., & Miron, L. R. (2014). Prospective trajectories of posttraumatic stress in college women following a campus mass shooting. *Journal of Traumatic Stress*, *27*(3), 249–256. https://doi.org/10.1002/jts.21914

Pais-Ribeiro, J. L., Honrado, A., & Leal, I. (2004). Contribuição para o estudo da adaptação portuguesa das escalas de ansiedade, depressão e stress (EADS) de 21 itens de Lovibond e Lovibond. *Psicologia, Saúde e Doenças*, *V*(2), 229–239.

Panno, A., Theodorou, A., Carrus, G., Imperatori, C., Spano, G., & Sanesi, G. (2020). Nature reappraisers, benefits for the environment: A model linking cognitive reappraisal, the "being away" dimension of restorativeness and eco-friendly behavior. *Frontiers in Psychology*, *11*, 1986. https://doi.org/10.3389/fpsyg.2020.01986

Paulino, M., Dumas-Diniz, R., Brissos, S., Brites, R., Alho, L., Simões, M. R., & Silva, C. F. (2021). COVID-19 in Portugal: Exploring the immediate psychological impact on the general population. *Psychology, health & medicine*, *26*, 44–55. https://doi.org/10.1080/13548506.2020.1808236

Peng, L., Zhang, J., Li, M., Li, P., Zhang, Y., Zuo, X., Miao, Y., & Xu, Y. (2012). Negative life events and mental health of Chinese medical students: The effect of resilience, personality, and social support. *Psychiatry Research*, *196*(1), 138–141. https://doi.org/10.1016/j.psychres.2011.12.006

Pereira, M., Cardoso, M., Albuquerque, S., Janeiro, C., & Alves, S. (2017). Escala de Resiliência para Adultos (ERA). In A. P. Relvas & S. Major (Coord.), *Avaliação familiar: vulnerabilidade, stress e adaptação* (Vol. II, pp. 37–62). Pombalina: Coimbra University Press https://doi.org/10.14195/978-989-26-1268-3_2

Pereira, M., Cardoso, M., Alves, S., Narciso, I., & Canavarro, M. C. (2013). Estudos preliminares das características psicométricas da Escala de Resiliência para Adultos (ERA). In A. Pereira, M. Calheiros, P. Vagos, I. Direito, S. Monteiro, C. F. Silva & A. Allen Gomes (Eds.), Livro de atas do VIII Simpósio Nacional de Investigação em Psicologia (pp. 93–103). Associação Portuguesa de Psicologia.

Polizzi, C. P., & Lynn, S. J. (2021). Regulating emotionality to manage adversity: A systematic review of the relation between emotion regulation and psychological resilience. *Cognitive Therapy and Research*, *45*, 577–597. https://doi.org/10.1007/s10608-020-10186-1

Riaz, M., Abid, M., & Bano, Z. (2021). Psychological problems in general population during covid-19 pandemic in Pakistan: Role of cognitive emotion regulation. *Annals of Medicine*, *53*(1), 189–196. https://doi.org/10.1080/07853890.2020.1853216

Ruengorn, C., Awiphan, R., Phosuya, C., Ruanta, Y., Wongpakaran, N., Wongpakaran, T., Thavorn, K., & Nochaiwong, S. (2022). Psychological resilience and adverse mental health issues in the Thai population during the coronavirus disease 2019 pandemic. *International Journal of Environment Research & Public Health*, *19*, 13023. https://doi.org/10.3390/ijerph192013023

Russell, B. S., Hutchison, M., Park, C. L., Fendrich, M., & Finkelstein-Fox, L. (2022). Short-term impacts of COVID-19 on family caregivers: Emotion regulation, coping, and mental health. *Journal of Clinical Psychology*, *78*(2), 357–374. https://doi.org/10.1002/jclp.23228

Samji, H., Wu, J., Ladak, A., Vossen, C., Stewart, E., Dove, N., Long, D., & Snell, G. (2022). Review: Mental health impacts of the COVID-19 pandemic on children and youth – a systematic review. *Child and Adolescent Mental Health*, *27*(2), 173–189. https://doi.org/10.1111/camh.12501

Schaap, I. A., Galen, F. M., Ruijter, A. M., & Smeets, E. C (2009). *Resilience, the article: The balance between awareness and fear*. Retrieved from www.impact-kenniscentrum.nl/download/file1163776605.pdf

Schäfer, J.Ö., Naumann, E., Holmes, E. A., Tuschen-Caffier, B, Stewart, E., Dove, N., Long, D., & Samson, A. (2017). Emotion regulation strategies in depressive and anxiety symptoms in youth: A meta-analytic review. *Journal of Youth and Adolescence*, *46*, 261–276. https://doi.org/10.1007/s10964-016-0585-0

Shacham, M., Hamama-Raz, Y., Kolerman, R., Mijiritsky, O., Ben-Ezra, M., & Mijiritsky, E. (2020). COVID-19 factors and psychological factors associated with elevated psychological distress among dentists and dental hygienists in Israel. *International journal of environmental research and public health*, *17*(8), 2900. https://doi.org/10.3390/ijerph17082900

Sheeran, P., Maki, A., Montanaro, E., Avishai-Yitshak, A., Bryan, A., Klein, W. M. P., Miles, E., & Rothman, A. J. (2016). The impact of changing attitudes, norms, and self-efficacy on health-related intentions and behavior: A meta-analysis. *Health Psychology*, *35*(11), 1178–1188. https://doi.org/10.1037/hea0000387

Simegn, W., Dagnew, B., Yeshaw, Y., Yitayih, S., Woldegerima, B., & Dagne, H. (2021). Depression, anxiety, stress and their associated factors among Ethiopian university students during an early stage of COVID-19 pandemic: An online-based cross-sectional survey. *PLoS One*, *16*(5), e0251670. https://doi.org/10.1371/journal.pone.0251670

Skalski, S. B., Konaszewski, K., Büssing, A., & Surzykiewicz, J. (2022). Resilience and mental well-being during the COVID-19 pandemic: Serial mediation by persistent thinking and anxiety about coronavirus. *Frontiers in Psychiatry*, *12*, 810274. https://doi.org/10.3389/fpsyt.2021.810274

Slanbekova, G. K., Chung, M. C., Ayupova, G. T., Kabakova, M. P., Kalymbetova, E. K., & Korotkova-Ryckewaert, N. V. (2019). The relationship between posttraumatic stress disorder, interpersonal sensitivity and specific distress symptoms: the role of cognitive emotion regulation. *Psychiatric Quarterly*, *904*, 803–814. https://doi.org/10.1007/s11126-019-09665-w

Soltan, M. R., Soliman, S. S., & Dawoud, M. E. (2021). A study of anxiety, depression, and stress symptoms among Fayoum medical students during COVID-19 lockdown, Egypt. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, *57*(1), 123. https://doi.org/10.1186/s41983-021-00377-2

Taylor, S. C., Smernoff, Z. L., Rajan, M., Steeman, S., Gehringer, B. N., Dow, H. C., Barzilay, R., Rader, D. J., Bucan, M., Almasy, L., & Brodkin, E. S. (2022). Investigating the relationships between resilience, autism-related quantitative traits, and mental health outcomes among adults during the COVID-19 pandemic. *Journal of Psychiatric Research*, *148*, 250–257. https://doi.org/10.1016/j.jpsychires.2022.01.046

Troy, A. S., & Mauss, I. B. (2011). Resilience in the face of stress: Emotion regulation as a protective factor. In S. M. Southwick, B. T. Litz, D. Charney & M. J. Friedman (Eds.), *Resilience and mental health: Challenges across the lifespan* (pp. 30–44). University Press.

Troy, A. S., Shallcross, A. J., & Mauss, I. B. (2013). A person-by-situation approach to emotion regulation: Cognitive reappraisal can either help or Hurt, depending on the context. *Psychological Science*, *24*(12), 2505–2514. https://doi.org/10.1177/0956797613496434

Tugade, M. M., & Fredrickson, B. L. (2007). Regulation of positive emotions: Emotion regulation strategies that promote resilience. *Journal of Happiness Studies*, *8*, 311–333. https://doi.org/10.1007/s10902-006-9015-4

Tyra, A. T., Ginty, A. T., & John-Henderson, N. A. (2021). Emotion regulation strategies predict PTSS during the COVID-19 pandemic in an American Indian population. *International Journal of Behavioral Medicine*, *28*(6), 808–812. https://doi.org/10.1007/s12529-021-09964-2

Verdolini, N., Amoretti, S., Montejo, L., García-Rizo, C., Hogg, B., Mezquida, G., Rabelo-da-Ponte, F. D., Vallespir, C., Radua, J., Martinez-Aran, A., Pacchiarotti, I., Rosa, A. R., Bernardo, M., Vieta, E., Torrent, C., & Solé, B. (2021). Resilience and mental health during the COVID-19 pandemic. *Journal of Affective Disorders*, *283*(283), 156–164. https://doi.org/10.1016/j.jad.2021.01.055

Villanueva-Silvestre, V., Vázquez-Martínez, A., Isorna-Folgar, M., & Villanueva-Blasco, V. J. (2022). Problematic Internet use, depressive symptomatology and suicidal ideation in university students during COVID-19 confinement. *Psicothema*, *34*(4), 518–527. https://doi.org/10.7334/psicothema2022.40

Villatoro, A. P., Wagner, K. M., Salgado de Snyder, V. N., Garcia, D., Walsdorf, A. A., & Valdez, C. R. (2022). Economic and social consequences of COVID-19 and mental health burden among Latinx young adults during the 2020 pandemic. *Journal of Latinx Psychology*, *10*(1), 25–38. https://doi.org/10.1037/lat0000195

Waterschoot, J., Morbée, S., Vermote, B., Brenning, K., Flamant, N., Vansteenkiste, M., & Soenens, B. (2022). Emotion regulation in times of COVID-19: A person-centered approach based on self-determination theory. *Current Psychology*, *13*, 1–15. http://doi.org/10.1007/s12144-021-02623-5

Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). The PTSD checklist for DSM-5 (PCL-5). *National Center for PTSD*. Retrieved from http://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp

Weiss, N. H., Tull, M. T., Viana, A. G., Anestis, M. D., & Gratz, K. L. (2012). Impulsive behaviors as an emotion regulation strategy: Examining associations between PTSD, emotion dysregulation, and impulsive behaviors among substance dependent inpatients. *Journal of Anxiety Disorders*, *26*, 453–458. https://doi.org/10.1016/j.janxdis.2012.01.007

Xiang, Y. T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry*, *7*(3), 228–229. https://doi.org/10.1016/s2215-0366(20)30046-8

Xu, C., Xu, Y., Xu, S., Zhang, Q., Liu, X., Shao, Y., Xu, X., Peng, L., & Li, M. (2020). Cognitive reappraisal and the association between perceived stress and anxiety symptoms in COVID-19 isolated people. *Frontiers in Psychiatry*, *11*, 858. https://doi.org/10.3389/fpsyt.2020.00858

Ye, B., Zhao, S., Zeng, Y., Chen, C., & Zhang, Y. (2022). Perceived parental support and college students' depressive symptoms during the COVID-19 pandemic: The mediating roles of emotion regulation strategies and resilience. *Current Psychology*, *5*, 1–12. https://doi.org/10.1007/s12144-022-03049-3

Yun, P., Xiaohong, H., Zhongping, Y., & Zhujun, Z. (2021). Family function, loneliness, emotion regulation, and hope in secondary vocational school students: a moderated mediation model. *Frontiers in Public Health*, *9*, 722276. https://doi.org/10.3389/fpubh.2021.722276

Yıldırım, M., & Güler, A. (2020). COVID-19 severity, self-efficacy, knowledge, preventive behaviors, and mental health in Turkey. *Death Studies*, *46*(4), 979–986. https://doi.org/10.1080/07481187.2020.1793434

Zeng, Y., Ye, B., Zhang, Y., & Yang, Q. (2021). Family cohesion and stress consequences among Chinese college students during COVID-19 pandemic: A moderated mediation model. *Frontiers in Public Health*, *9*, 703899. https://doi.org/10.3389/fpubh.2021.703899

How to cite this article: Brites, R., Brandão, T., Hipólito, J., Ros, A., & Nunes, O. (2024). Emotion regulation, resilience, and mental health: A mediation study with university students in the pandemic context. *Psychology in the Schools*, *61*, 304–328. https://doi.org/10.1002/pits.23055