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Creative Adaptability and Emotional Well-Being During the COVID-19 Pandemic: An International Study

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The putative associations between creative adaptability and the experience of emotional well-being (i.e., a positivity ratio of more positive than negative emotions) was investigated during the COVID-19 pandemic outbreak with a sample of 1,432 adults from four countries: Israel (n = 310), United States (n = 312), Italy (n = 378), and China (n = 569). Country differences and a mediation model for creative adaptability predicting emotional well-being through creative self-efficacy, resilient coping, and emotion regulation (reappraisal and suppression) were examined. The findings point to slight differences in countries, which are potentially due not only to the culture but also to the phase of the pandemic. More consistently, creative adaptability was positively associated with creative self-efficacy, resilient coping, and reappraisal emotion regulation in all countries. Regarding mediation, in the Israeli, Italian, and Chinese samples, creative adaptability was positively related to resilient coping, which was positively related to emotional well-being. Similar relations were found for creative self-efficacy as a mediator in the United States and Chinese samples. In the Chinese sample, creative adaptability was positively associated with suppression, which was negatively associated with emotional well-being. These results are suggestive of the role of creative adaptability in dealing with the emotional burden associated with the COVID-19 crisis.

Keywords:

The Coronavirus pandemic (COVID-19) is not only a global public health crisis but has also been termed "a forced unplanned experiment" (Mills, 2020) since the first confirmed case in China in December 2019. As of August 2021, over 198 million COVID19 cases and 4 million confirmed deaths have been reported globally by the World Health Organization (WHO, 2021). To curtail the spread of the virus, countries worldwide have enforced isolation measures, quarantines, and social distancing. Numerous individuals have experienced financial losses along with a whole host of mental health problems including increased stress, anxiety, and depression (Brooks et al., 2020; Pfefferbaum & North, 2020; Shapiro et al., 2020). The overarching purpose of this study was to pinpoint the role of creative adaptability as a personal resource and probe its associations with the experience of more positive than negative emotions in adults considering the COVID-19 pandemic outbreak in four countries: Israel, United States, China, and Italy.

Emotional Well-Being: The Positivity Ratio

The *positivity ratio* refers to individuals' experience of more positive (e.g., joyful, relaxed, pleased) than negative emotions (e.g., afraid, sad, angry), and is a key indicator of a person's subjective emotional well-being (Diener, 2009; Jebb et al., 2020; Koydemir et al., 2021) and flourishing mental health (Fredrickson, 2013, p. 816). The positivity ratio construct is based on the notion that positive and negative emotions operate as independent constructs, and not as the opposite anchors of a single continuum (Bradburn, 1969; Watson et al., 1988). Relatedly, the notion of negativity bias refers to situations where the impact of adversities and negative emotions outweighs those of comparable pleasant events, and where positive emotions dissolve more rapidly than negative emotions (Vaish et al., 2008). Therefore, a larger number of positive emotional experiences are needed to counteract the impact of the negative ones (Baumeister & Sparks, 2008). In other words, to overcome the impact of negative emotions, people should have a high ratio of positive to negative emotions. Empirically, the positivity ratio was shown to be significantly associated with less psychological distress and lower helplessness in adults under stress (Shrira et al., 2011), greater life satisfaction in young adults (Shrira et al., 2016), more self-control skills (Orkibi et al., 2018; Orkibi & Ronen, 2015), more subjective happiness in adolescents (Rosenbaum et al., 2018), and with psychosocial resources (optimism, mastery, and social support) in adults in the wake of stressful events (Ben-Zur & Michael, 2020).

While experiencing a high positivity ratio is important to any individual, it is particularly crucial in times of crisis such as COVID-19 when many people experience stress and difficulties that are likely to increase their negative emotions (Brooks et al., 2020; Pfefferbaum & North, 2020; Shapiro et al., 2020; Yue & Cowling, 2021; Zacher & Rudolph, 2021), and thus reduce their positivity ratio. Whereas most studies have examined positive and negative emotions as separate constructs or as two components of subjective well-being (Busseri & Sadava, 2011; Diener, 1984), fewer studies have focused on the positivity ratio and, to the best of our knowledge, none have been

conducted on the positivity ratio in the context of the COVID-19 pandemic (cf. Waters et al., 2021; Zacher & Rudolph, 2021). Unlike most studies that have examined the positivity ratio as a predictor of other resources (Fredrickson, 2013), this study examined the positivity ratio as an outcome of a personal resource named creative adaptability.

Creative Adaptability

Personal resources play a crucial role in effectively adjusting to stressful events and crisis situations (Ben-Zur & Michael, 2020; Hobfoll, 1989; 2002; Schaefer & Moos, 1998). Creative adaptability is defined as an individual's cognitive-behavioral-emotional ability to respond creatively and adaptively to stressful situations (Orkibi, 2021). More specifically, cognitive creative adaptability refers to generating personally new and potentially effective ideas, perspectives, and thoughts; behavioral creative adaptability refers to executing personally new and potentially effective behaviors and actions; and emotional creative adaptability refers to generating personally new and potentially effective emotional reactions. This conceptualization draws on the notion that creativity is the ability to generate ideas, solutions, or products that are new and, at minimum, have the potential to be effective or useful (Smith & Smith, 2017). Inspired by Runco's (1996) theory of personal creativity, a response is considered new in terms of the individual's internal frame of reference and is considered effective or useful to the extent that it can maximize positive outcomes and minimize negative outcomes. There is initial evidence that creative adaptability is associated with greater well-being and lesser psychological stress (Orkibi, 2021). As in cognitive–behavioral therapy (Beck, 1976, 2011), in creative adaptability, cognitive–behavioral emotional responses are theorized to be interconnected and malleable, and therefore also germane to practice.

Candidate Mediators

According to the conservation of resources theory, personal resources tend to generate gains in other resources, which in turn may result in greater well-being (Hobfoll, 2002, 2011). Similarly, creative adaptability is a personal resource that was posited here to positively associate with other personal resources, which in turn should positively associate with the positivity ratio. Four candidate mediators were examined in parallel in this study: creative self-efficacy (CSE), resilient coping, and two emotion regulation strategies (see Figure 1).

CSE refers to an individual's self-belief in his or her ability to be creative when required by a situation (Tierney & Farmer, 2002). CSE is rooted in Bandura's (1997) social–cognitive theory, which posits that strong efficacious beliefs enhance human wellbeing because people who have high confidence in their capabilities perceive difficulties as challenges to be mastered rather than as threats to be avoided. Accordingly, CSE is thought to build on successful creative tasks and has been suggested as a possible mediator that can account for the ways in which personal factors contribute to creativity outcomes (Karwowski & Barbot, 2016; Qiang et al., 2020)

as well as health and posttraumatic growth outcomes (Forgeard & Benson, 2019; Orkibi & Ram-Vlasov, 2019). Recently, CSE was found to mediate the association between Israeli adults' creative adaptability and their well-being (Orkibi, 2021). In this respect, it is possible that people's creative adaptation to a stressful situation may enhance their self-perceived ability to be creatively efficacious (i.e., CSE), which may in turn contribute to their well-being. The same study also suggested that creative adaptability buffered the impact of adults' concerns about the Coronavirus on their well-being, and that students' creative adaptability predicted lower psychological stress over time across a 2-week interval when the Coronavirus was on the rise and the lockdown restrictions were tightened (Orkibi, 2021). Based on these empirical findings and the conservation of resources theory, we expected that participants' creative adaptability would enhance their perceived CSE, which in turn would enhance their positivity ratio.

Resilient coping refers to the self-perceived capability to cope with and bounce back from stressful situations (Sinclair & Wallston, 004). This conceptualization draws on Polk's (1997) theory of resilience in the field of nursing, which suggests that situational resilience includes the self-perceived capability to adaptively cope with stressful situations. Studies have shown that resilient coping predicts psychological well-being in adults and the elderly (Mayordomo et al., 2016; Tomás et al., 2012), and that increases in adults' resilient coping are related to decreases in their intrusive posttraumatic thoughts over time (Sinclair et al., 2020). Resilient coping in adults was also negatively associated with depression (Sinclair et al., 2016) and negative emotions, and positively associated with positive emotions (Fung, 2020). Based on these empirical findings and the conservation of resources theory, we expected that participants' creative adaptability would enhance their perceived capability to resiliently cope with stress, which in turn would enhance their positivity ratio.

Figure 1
Theorized Mediation Model
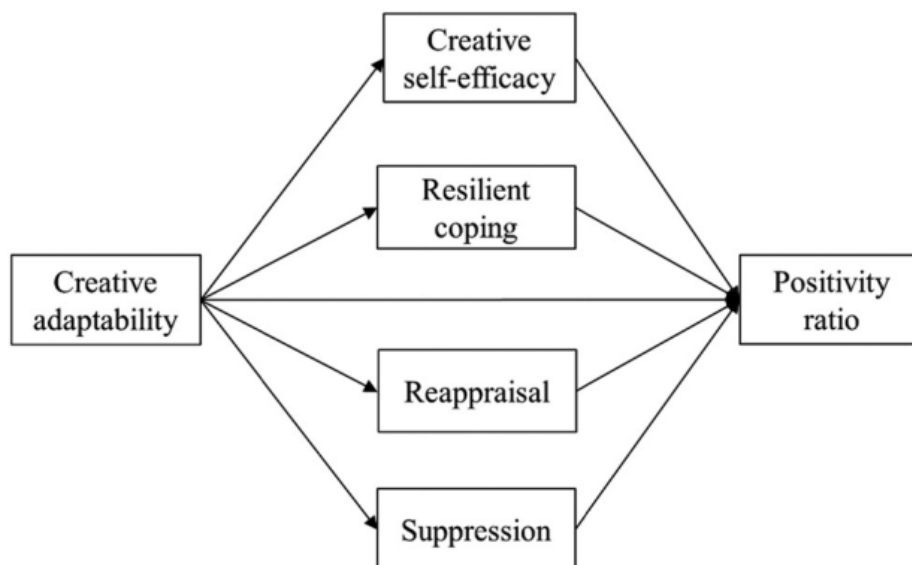
Emotion regulation (ER) refers to "attempts to influence which emotions one has, when one has them, and how one experiences or expresses these emotions" (Gross, 2015, p. 5). Two commonly used and frequently studied ER strategies were posited to serve as candidate mediators in this study. The first ER strategy is cognitive reappraisal, which refers to cognitive reframing of situations to adjust emotions (Gross & John, 2003). Research suggests that the use of reappraisal is adaptive since it has generally been found to be associated with positive outcomes such as positive emotions, negative mood regulation, looking for something good during stressful events, life satisfaction, and well-being indicators, and negatively associated with maladaptive outcomes such as negative emotions, depression, and rumination (Gross, 2014; Gross & John, 2003). The second ER strategy is expressive suppression, which refers to the inhibition of emotional expression (Gross & John, 2003). Research has generally shown that suppression is a maladaptive strategy because it is positively associated with negative outcomes such as inauthenticity, negative emotions, and depression, and negatively associated with positive emotions and adaptive outcomes such as regulation of negative moods, life satisfaction and well-being indicators (Gross, 2014; Gross & John, 2003). However, within work on learning, the use of suppression in disliked courses was found to be associated with positive emotions (Ben-Eliyahu & Linnenbrink-Garcia, 2013), suggesting that there may be benefits to the use of suppression in aversive situations such as the COIVD-19 pandemic. Therefore, these two ER strategies were tested in our model. We expected that participants' creative adaptability would enhance their ER, which in turn would enhance their positivity ratio.

Thus overall, four parallel candidate mediators (i.e., personal resources) were posited to account for the association between creative adaptability and the positivity ratio: CSE, resilient coping, and two emotion regulation strategies. Intercorrelations between these resources were expected in light of studies that have concurrently tested a number of psychosocial resources (Ben-Zur & Michael, 2020).

The Present Study

This study examined the uninvestigated relationship between creative adaptability (predictor) and the positivity ratio as an indicator of emotional well-being (outcome) during the COVID-19 pandemic outbreak in four countries: Israel, the United States, China, and Italy. Given the preliminary nature of a pandemic-related research, a priori hypotheses regarding country differences were not posited. However, given that different countries have implemented different national strategies to address COVID-19, and were at different points relative to a peak in the disease, we expected that country would likely play a role in the strength of these relationships. As seen in Figure 1, based on empirical findings and the conservation of resources theory, the relationship between creative adaptability and the positivity ratio was theorized to be mediated by four parallel mediators: CSE, resilient coping, reappraisal emotion regulation, and suppression emotion regulation. In this regard, we drew on Hayes' (2018) assertion that mediation analysis with cross-sectional data, despite its obvious limitations, is a legitimate and

worthwhile statistical procedure to better "understand what our data might be telling us about the processes we are studying" (p. 18). This study contributes to the literature by (a) simultaneously examining four candidate mediators, (b) advancing our theoretical understanding of how creative adaptability may relate to the positivity ratio, and (c) informing future stress-related interventions as to potential mechanisms of change.

Method

Procedure

In each country, participants were recruited in April 2020. In China, the first COVID-19 case was confirmed in December 2019 in Wuhan city, Hubei province (Liu et al., 2021). A sample of 569 adults was recruited using a roster of former students at universities and the researcher's own contact lists, which included a snowball sampling process. This sample was from 25 different provinces and regions in China, excluding Hubei province, where the outbreak was much more severe than in other regions (Liu et al., 2021). In the United States, the first COVID-19 case was confirmed in January 2020 on the West Coast (Holshue et al., 2020). In April 2020, the excess mortality rate across the country was about 30% (National Center for Health Statistics, 2021) and COVID-19 spread rapidly across the 50 U.S. states (Schuchat, 2020). A sample of 312 individuals was recruited from Amazon Mechanical Turk (Mturk), an online crowdsourcing service, but only from those who lived in the United States. Although nearly all 50 states were represented in the sample, most U.S. participants were from California, Texas, and New York; that is, states that were highly impacted during the time of data collection (Centers for Disease Control & Prevention, 2020). In Italy, the first COVID-19 case was confirmed in Northern Italy in February 2020; and after a peak of deaths in March 2020, the excess mortality rate in April 2020 was 36% (Alicandro et al., 2020). A sample of 378 students was recruited from a university located in Northern Italy, a region highly impacted by COVID-19. In Israel, the first COVID-19 case was confirmed in February 2020 (Last, 2020). A sample of 310 adults across the country was recruited from an online crowdsourcing service during the first peak of the outbreak of COVID-19, when no significant excess mortality rate had been recorded compared to previous years (Haklai et al., 2021). An e-survey platform was used in all countries and logging into the survey indicated the participants' consent. In each country, approval to conduct the study was obtained from the associated university's ethics committee (Israel # 397/16-1; US # 238-20-EX; Italy # 1E20C4701046EAE4A2 C0ECD 7CF45A37; China # AEECSDNU2020003).

Participants

In Israel, the participants ranged in age from 18 to 84 (M = 42, SD = 16), 51% were female, and 98% were Jewish, with 85% born in Israel. In terms of marital status, most participants (66%) were married or had a partner, 25.5% were single or had no partner, 6% were divorced or separated, and 2.5% "other." In addition, 60% had

children. Most participants (62%) indicated having an average socioeconomic status (SES).

In the United States, the participants ranged in age from 19 to 70 (M = 38, SD = 12), 36% were female, 50% Christian, 22% Jewish, and 28% other. In terms of marital status, 68% were married or had a partner, 25% were single or had no partner, 5% were divorced or separated, and 2% other. In addition, 64% had children. Most participants (71%) indicated having an average SES. In China, the participants ranged in age from 20 to70 (M = 29, SD = 7.20), 60% were female, 43% indicated they were atheists, 39% indicated "no particular religion," and the remainder indicated other religions. In terms of marital status, 43% were married or had a partner, 30% were single or had no partner, 5 were divorced or separated, and 26.5% "other." In addition, 64% had no children. Most participants (57.5%) indicated having an average SES.

In Italy, the participants ranged in age from 18 to 80 (M = 35, SD = 13.16), 72% were female, 64% were Christian and 32% other (4% missing data). In terms of marital status, 58.5% were married or had a partner, 28% were single or had no partner, 4% were divorced or separated, and 4% other (6% missing data). In addition, 70% did not have children. Most participants (76%) indicated having an average SES.

Measures

Reliabilities for all scales were within an acceptable to high range as seen in Table 1. The accuracy of the translation of each scale was evaluated by comparing the original and the back-translated versions.

Creative Adaptability

This nine-item creative adaptability scale captures participants' adaptive cognitive-behavioral-emotional abilities (Orkibi, 2021). Participants were asked: "Please indicate to what extent each of the following statements describes how you usually are in stressful situations." Items were rated on a scale from 1 (not at all like me) to 5 (very much like me). Example items are: "I behave in ways that are new to me to better deal with the stressful situation I am in" and "I adopt a new emotional response to better deal with a stressful situation." The scale demonstrated good divergent validity from other constructs, excellent internal consistency reliability (a = .90), and good test–retest reliability (r = .71; Orkibi, 2021).

Creative Self-Efficacy

The six-item creative self-efficacy scale asks participants to indicate the extent to which they agree with each of the statements on a scale from 1 (strongly disagree) to 5 (strongly agree). Example items are: "I trust my creative abilities" and "I am sure I can deal with problems requiring creative thinking." The scale demonstrated high validity, strong internal consistency reliability (a = .81), and acceptable test–retest reliability (r = .54; Karwowski, 2016).

Resilient Coping

The four-item brief resilient coping scale captures tendencies to cope with stress in a highly adaptive manner. Items are rated on a scale from 1 (not at all like me) to 5 (very much like me). Example items are: "Regardless of what happens to me, I believe I can control my reaction to it" and "I believe I can grow in positive ways by dealing with difficult situations." The scale demonstrated good validity, acceptable internal consistency reliability (a = .64 to .76), and good test–retest reliability (r = .68 to .71; Sinclair & Wallston, 2004).

Emotion Regulation

The emotion regulation questionnaire (Gross & John, 2003) taps two emotion regulation strategies: a six-item reappraisal scale measures the ability to reframe a situation in order to adjust emotions (e.g., "I control my emotions by changing the way I think about the situation I'm in"), and a four-item suppression scale for the inhibition of emotion expression (e.g., "I control my emotions by not expressing them"). Items are rated on a scale from 1 (not at all like me) to 5 (very much like me). The scale demonstrated adequate convergent and discriminant validity, acceptable internal consistency reliability (reappraisal a = .79, suppression a = .73), and good test–retest reliability (r = .69; Gross & John, 2003).

Table 1
Partial Pearson's Correlations for the Entire Sample Controlling for Country

Variable	1	2	3	4	5	6	7
1. Creative adaptability	(.91)						
2. Creative self-efficacy	.49*	(.86)					
3. Resilient coping	.59**	.69**	(.76)				
4. Reappraisal ER	.59**	.51**	.64**	(.85)			
5. Suppression ER	.20**	.11**	.16**	.23**	(.79)		
6. Positivity ratio	.25**	.35**	.37**	.24**	−.05**	(.90)[a]	
7. Past event	.17**	.16**	.15**	.14**	.15**	−.10**	—

Note. N = 1,432. Partial Pearson's correlations controlling for country. ER = emotion regulation. Cronbach's alphas for the entire sample are on the diagonal in parentheses.
[a] similar Cronbach's alphas for the positive emotions and the negative emotions scales.
*p < .05. **p < .001.

Emotional Well-Being

Emotions were measured on a nine-item positive emotions (PE; e.g., joyful, calm) subscale and an eight-item negative emotions (NE; e.g., afraid, exhausted) subscale adapted from the Positive and Negative Affect Schedule (Watson et al., 1988) by the removal of three items. Participants were asked to think about what they had experienced during the previous month and indicate how often they felt each emotion. Items are rated on a scale from 1 (never) to 5 (always). The original scale's authors reported good validity, acceptable internal consistency reliability for the two subscales (all a . .80), and high test–retest reliability (r = .81 for NE and r = .79 for PE). As an indicator of emotional well-being, the positivity ratio in the current study was calculated by dividing the PE mean score by the NE mean score, such that a larger ratio (higher score) represented a greater number of positive over negative emotions (Orkibi & Ronen, 2015). When PE and NE are equally present, the positivity ratio score is 1.

When the PE score exceeds the NE score, the positivity ratio is above 1, whereas when the NE score exceeds the PE score, the positivity ratio is below 1. Note that this calculation merely reflects the ratio of positive to negative emotions; we did not use the highly criticized mathematical formula for calculating a specific critical positivity ratio (Fredrickson & Losada, 2005).

Sociodemographic and Background Information

Sociodemographic data provided by the participants included age, gender, religion, marital status, children, and financial status. In addition, to control for the impact of potentially stressful events other than the COVID-19 pandemic, participants were asked about life events experienced in the previous year (yes or no) on a 21- item version of the Social Readjustment Rating Scale (Holmes & Rahe, 1967). The items were selected by consensus by three judges to minimize redundancy and the cognitive burden on the respondents. Example items are: "major personal injury or illness" and "natural disaster (fire, earthquake, storm, flood, etc.)."

Data Analysis

The data analysis consisted of several phases. First, a normality analysis was conducted for all the variables, followed by the computation of the means, standard deviations, and correlations for each country. Because the descriptive statistics indicated that the variables did not depart substantially from normality, parametric tests were used in the analyses (Kim, 2012). Next, a Multivariate Analysis of Variance (MANOVA) was computed to determine whether the observed means differed across countries. This procedure was used to test the multiple dependent variables simultaneously in one model, avoid inflation of the overall Type I error rate, and because multivariate analyses provide more power than a series of ANOVAs (Pituch & Stevens, 2016, p. 250), especially for correlated variables (Meyers et al., 2013, p. 227). Common method variance and invariance tests, followed by a multigroup mediation analysis, were performed using the Mplus v.8.3 package (Muthén & Muthén, 2018). The fully standardized indirect effects (with 1,000 bootstrap resampling) indicated effect sizes for mediation analyses (Kelley & Preacher, 2012). Note that a handful of participants who did not respond correctly to attention check items (e.g., "please select strongly disagree") were removed from the final dataset.

Results

Preliminary Validation Tests

Because all the study variables were measured using self-report Likert-type scales, common method variance was examined (Podsakoff et al., 2012). We tested a bifactor model versus the original four mediating factor structure (see Wang & Wang, 2020, pp. 96–102). To reduce factor complexity and overcome undesired factor correlations, we used the parceling technique, which increases shared variance and normality as a substitute for intensive modifications (Bandalos & Finney, 2001; Hall et

al., 1999). Table 2 (upper part) shows changes in the CFI (.009 , .01) and in the RMSEA (.005 , .01), based on which we could not argue that the latent common method factor improved the model fit above the minimum threshold (DCFI , .001, DRMSEA , .001; Conway & Lance, 2010; Lindell & Whitney, 2001).

To verify cross-country similarity in factor perceptions, the lower part of Table 2 provides measurement invariance test results for the four mediating factors within the multiple-group framework (Fuller et al., 2016; Hong et al., 2003). The results show that the metric constraint (factor loadings across countries were set to be equal) did not make a meaningful difference; that is, DCFI , .01 (Wang & Wang, 2020, pp. 254–257), whereas the scalar model (loadings and intercepts were set to be equal) did make a difference. This means that although respondents differed by the factor levels, the participants in the four countries perceived the factors similarly. These preliminary tests provided credence to the use of the four mediating indicators in the final hypothesis testing models.

Table 2
Preliminary Common Method Variance and Cross-Country Invariance Tests

Model	χ2 (df)	CFI	TLI	RMSEA	SRMR	ΔCFI	ΔRMSEA
Common method variance							
Four factor CFA model	319.85 (48)	.967	.955	.062	.036	—	—
Bifactor model	246.18 (43)	.976	.963	.057	.042	−.009	.005
Four-factor invariance test							
Configural invariance	630.80 (193)	.952	.934	.079	.054	—	—
Metric invariance	650.42 (217)	.952	.942	.074	.063	.000	.005
Scalar invariance	894.74 (241)	.928	.921	.086	.074	.024	−.012

Note. Degrees of freedom in parentheses.

Intervariable Correlations

Pearson's correlations were computed for the entire sample controlling for country (see Table 1), and for each country separately (see online supplemental material Tables S1–S4). As seen in Table 1, the largest positive correlations ($ .50; Cohen, 1992) were for creative adaptability with resilient coping and reappraisal emotion regulation. The positivity ratio had positive small to medium correlations with creative adaptability, CSE, resilient coping, and reappraisal emotion regulation. A test of multicollinearity indicated that all tolerance values exceeded .10 and that the variance inflation factor values were less than 10, thus indicating that multicollinearity was not present among these independent variables (Meyers et al., 2013).

Country Differences

To determine whether the observed means differed across countries, a MANOVA was calculated and indicated significant differences between countries, Wilks' Lambda (18, 4033.82) = .68, p , .001, hp 2 =.13, power = 1.00. As presented in Table 3, Israel reported the lowest levels of creative adaptability. China reported the lowest levels of creative self-efficacy, whereas the United States had the highest levels. Israel and China reported lower levels of resilient coping and emotion regulation reappraisal; however, in terms of suppression, Israel and Italy were similar, but lower than the

United States and China. Italy experienced the lowest positivity ratio, whereas the United States reported the highest levels.

Mediation Analysis

To test our mediation hypotheses, we built a path analysis model within a multiple-group framework to examine each country. This multiple-group analysis enabled simultaneous examination of the same mediation model across the different countries. We examined the mediational model presented in Figure 1 with creative adaptability as the independent variable predicting the positivity ratio, mediated by CSE, resilient coping, suppression, and reappraisal. The model control indicators were gender and life events experienced in the previous year. The model fit was good: v2 (8) = 11.24, p = .188; CFI = .99, TLI = .98; RMSEA = .03, SRMR = .01). The mediation results by country are shown in Table 4 and Figure 2. Creative self-efficacy mediated the relationship between creative adaptability and the positivity ratio in the U.S. and Chinese samples. However, whereas in the U.S. sample there was full mediation with a nonsignificant direct effect, in China the mediation complemented a direct effect between creative adaptability and the positivity ratio (b = .15, p , .01).

Creative self-efficacy was not a significant mediator in the Israeli and Italian samples. Resilient coping mediated the relationship between creative adaptability and the positivity ratio in Israel, China, and Italy. However, whereas in Israel and Italy there was full mediation with a nonsignificant direct effect, in China the indirect effect complemented a direct effect between creative adaptability and the positivity ratio (b = .15, p , .01). Resilient coping was not a significant mediator in the U.S. sample. Suppression was a significant mediator only in the Chinese sample, with a direct effect between creative adaptability and the positivity ratio (b = .15, p , .01) indicating partial mediation. Surprisingly, reappraisal was not a significant mediator in any of the samples.

Discussion

This study examined the uninvestigated relationship between creative adaptability (predictor) and the positivity ratio as an indicator of emotional well-being (outcome) during the COVID-19 pandemic in four countries: Israel, United States, China, and Italy. Overall, the findings point to the potential role of creative adaptability in dealing with the emotional burden associated with crises such as the COVID-19 pandemic. In addition, the study examined the relationships between variables in four different countries, thus allowing for both generalizability and a more fine-grained interpretation of these relationships. Creative adaptability was positively associated with CSE, resilient coping, reappraisal emotion regulation, and the positivity ratio in all countries.

Drawing on conservation of resources theory (Hobfoll, 2002, 2011), we also examined four parallel candidate mediators (i.e., personal resources) that were posited to mediate the relationship between creative adaptability and the positivity ratio; namely,

CSE, resilient coping, and two emotion regulation strategies (reappraisal and suppression). In Italy, China, and Israel, creative adaptability was associated with a higher positivity ratio through resilient coping, whereas in the United States, this association was mediated through CSE. Multiple mediation paths were only found for China. Whereas CSE and resilient coping replicated the findings for the other countries, the mediation through suppression of emotion regulation was idiosyncratic to China. Overall, the finding that creative adaptability was positively related to suppression, which in turn was negatively related to the positivity ratio, may suggest that the more emotion regulation suppression is used, the more the ratio of positive to negative emotions decreases. This finding aligns with others that view suppression as a maladaptive strategy that negatively predicts positive emotions and the regulation of negative mood (Gross & John, 2003). However, given findings that suppression can promote positive emotions when people engage in disliked tasks (Ben-Eliyahu & Linnenbrink-Garcia, 2013), it may have benefits for disliked behaviors that are necessary to protect oneself and others from COVID-19, such as filing for unemployment compensation, wearing a face mask, social distancing, or quarantining. Further research is needed to examine the usefulness of suppression as an emotion regulation strategy as it relates to behaviors in specific crisis situations. Thus, suppression may lead to lower levels of positive emotions whereas necessary behaviors may be carried out even if undesired.

Table 3
Summary of MANOVA Results

Variables	1. Israel ($n = 310$)	2. United States ($n = 312$)	3. China ($n = 569$)	4. Italy ($n = 244$)	Total ($N = 1,435$)	F (η_p^2)	Post hoc difference
Creative adaptability	3.06 (.73)	3.61 (.62)	3.55 (.62)	3.41 (.68)	3.43 (.69)	47.66 (0.09)	1 < 2, 3, 4 1,4 < 2, 3
CSE	3.73 (.68)	4.03 (.76)	3.42 (.65)	3.76 (.81)	3.68 (.75)	54.03 (0.10)	3 < 1 < 2 3 < 4 < 2
Resilient coping	3.52 (.69)	3.86 (.66)	3.55 (.62)	3.74 (.57)	3.64 (.65)	21.49 (0.04)	1, 3 < 2, 4
Reappraisal ER	3.40 (.69)	3.78 (.65)	3.52 (.59)	3.68 (.60)	3.58 (.64)	23.67 (0.05)	1, 3 < 2, 4
Suppression ER	2.82 (.86)	3.39 (.89)	3.04 (.70)	2.69 (.97)	3.01 (.86)	39.46 (0.08)	1, 4 < 2, 3 3 < 2
Positivity ratio	1.37 (.57)	1.60 (1.03)	1.34 (.58)	1.20 (.55)	1.37 (.71)	16.54 (0.03)	4 < 1, 3 1, 3, 4 < 2

Note. For each country and total sample, the means are above the standard divisions in parentheses. CSE = creative self-efficacy; ER = emotion regulation. For significant country differences, all p values < .001 and power 1.00.

Table 4
Mediation Model Results

Country	Mediator	IV → MV	MV → DV	IV → DV	Indirect	95% CI indirect	Total
Israel	Resilient coping	.57*** (.04) $R^2 = .35$***	.38*** (.09)	−.05 (.07) $R^2 = .21$***	.21** (.05)	[.11, .33]	.15** (.06)
United States	CSE	.51*** (.05) $R^2 = .26$***	.32*** (.07)	.03 (.08) $R^2 = .29$***	.16*** (.05)	[.08, .26]	.27*** (.06)
China	CSE	.63*** (.04) $R^2 = .41$***	.16** (.05)	.15** (.05) $R^2 = .23$***	.10** (.03)	[.04, .17]	.39*** (.04)
	Resilient coping	.67*** (.03) $R^2 = .46$***	.26*** (.07)	.15** (.05) $R^2 = .23$***	.18*** (.05)	[.08, .28]	.39*** (.04)
	Suppression	.25*** (.06) $R^2 = .10$***	−.14* (.06)	.15** (.05) $R^2 = .23$***	−.04* (.02)	[−.08, −.01]	.39*** (.04)
Italy	Resilient coping	.52*** (.06) $R^2 = .28$***	.32*** (.09)	−.03 (.09) $R^2 = .17$***	.17** (.05)	[.07, .27]	.17** (.06)

Note. Fully standardized coefficients are presented. Standard errors in parentheses; 95% confidence interval (CI) in square brackets. CSE = creative self-efficacy; IV = independent variable is creative adaptability; MV = mediating variable; DV = dependent variable is positivity ratio.
*$p < .05$. **$p < .01$. ***$p < .001$.

Figure 2
Mediation Analysis Results

2a: Israel

2b: US

2c: China

2d: Italy
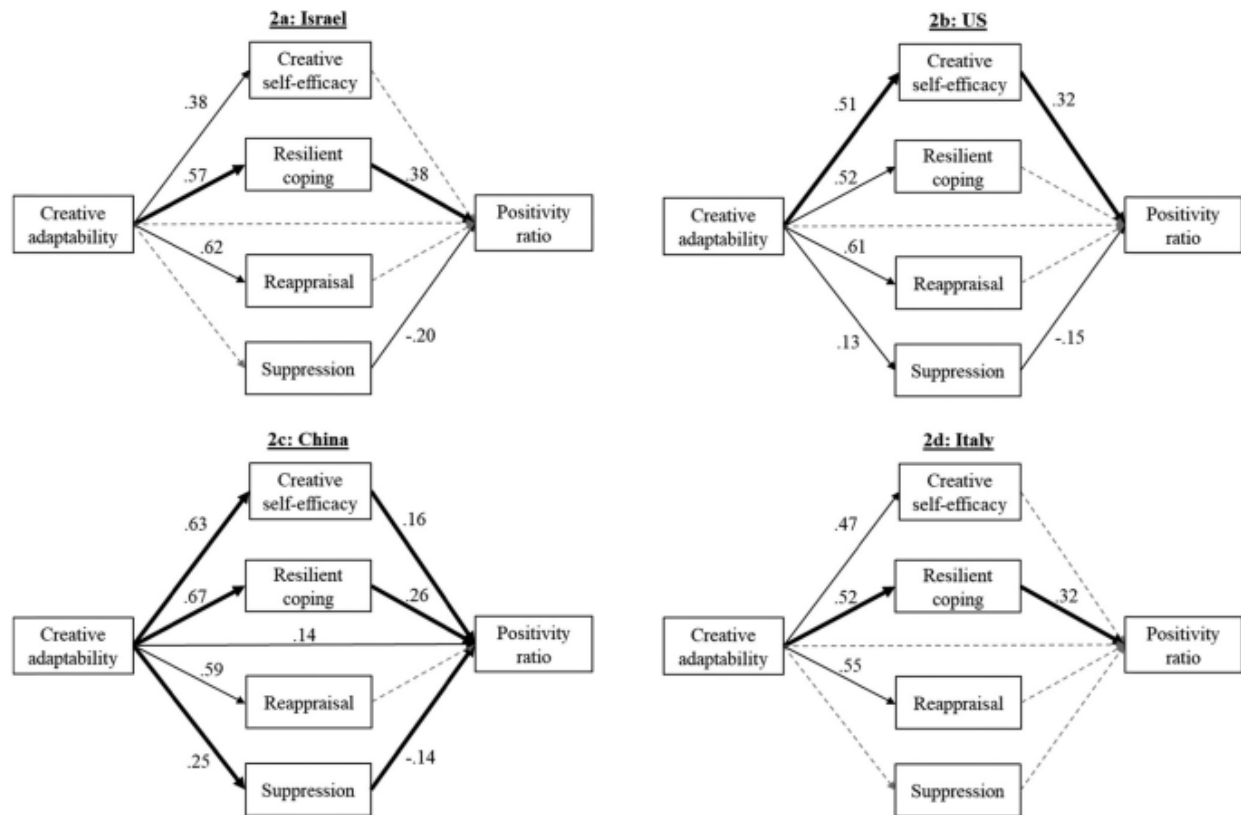
Note. Significant paths were all <.05. Significant mediation paths are thicker in bold. Dashed grayed paths were not significant. Control variables (gender and past events) were omitted for clarity and brevity.

Surprisingly, reappraisal was not related to the positivity ratio in any of the countries, although reappraisal is thought to be an adaptive form of emotion regulation because it involves reframing the situation to enable positive emotions to surface. Because statistical suppression was suspected for reappraisal due to its relatively high correlation with resilient coping (r . .64), the same model was run without resilient coping for the entire sample (controlling for country) and for each country separately. The path from reappraisal to the positivity ratio became significant only for the analysis with the entire sample, but with a small effect and no mediation, therefore suggesting that a possible statistical suppression did not influence the interpretation of the final mediation model. Consistent with studies that have tested a number of psychosocial resources, intercorrelations between the four mediators were expected (Ben-Zur & Michael, 2020), since "their interrelations may boost the effects of each resource over and above its specific contribution to adaptability" (p. 128).

To better understand these findings, the timeline of data collection needs to be considered. All the data were collected in April 2020, a time when each country was at a slightly different phase of dealing with the pandemic. Whereas China was situated after its massive lockdown, Israel was at the peak of the first nationwide lockdown. At this same time, Italy was experiencing escalating mortality rates, and the whole country was

in lockdown (Saglietto et al., 2020). The United States never had an official lockdown, but recommendations concerning social distancing were already in place in certain states but not in others, with many businesses taking precautions and schools resorting to distance learning. Through the lens of the conservation of resources theory (Hobfoll, 2002, 2011), because individuals in China had endured a long lockdown, they may have had opportunity to exercise more personal resources in their attempt to manage the stressful situation. Israel and Italy were in a somewhat similar situation of a nationwide mandated lockdown, which possibly made participants from these countries vulnerable to the loss of personal resources that can occur when resources are threatened or lost. Although the United States was under "stay-at-home" and "shelter-in-place" mandates in some states to reduce the spread of the disease (FINRA, 2020), small businesses and some leisure activities were still open in certain areas of the country, which perhaps gave individuals a sense of being in control, which could have been associated with more positive emotions (Xiu et al., 2021). Specifically, because people in the United States could travel freely, it is likely that they could employ their creative adaptability to actually do things, which may have contributed to their sense of CSE.

Specifically, efficacy beliefs are triggered when individuals encounter a performance situation (e.g., the need to adapt to the pandemic), which results in a self-judgment about their ability to respond to the demands at hand (Beghetto & Karwowski, 2017). Thus, helpful creative adaptability may have enhanced their perceived CSE. In turn, it is possible they felt more positive than negative emotions since they could engage in everyday activities despite the crisis. Further, because most states in the United States did not impose major restrictions, and many still believed that the nature of the virus and its effects were not serious, there may have been a lesser perceived need for various strategies to deal with the pandemic compared to other countries.

Limitations and Future Directions

The current study has several potential limitations. First, the cross-sectional data in this study preclude casual claims so that the results should be interpreted with the appropriate caveats and caution. That said, our theoretical framework does provide credence for the casual theoretical proposition (Hayes, 2018), especially because the relationships between the constructs did not require a significant amount of time to unfold, so that using a cross-sectional approach was appropriate (Spector, 2019). Second, the data in this study were collected entirely through self-reports, although there is evidence that self-report measures are far less problematic than some have assumed and are, nonetheless, appropriate for measuring self-perceptions and subjective experiences (Silvia et al., 2012). Future studies could include additional data to test for positive adaptation, for example, from significant others, colleagues, superiors, and so forth. The third limitation has to do with the ability to determine whether differences between countries were due to cross-cultural differences or other reasons. One issue concerns the timing of data collection. Whereas in April 2020 all the countries surveyed were dealing with COVID-19, the severity of the outbreak and the

response to the pandemic varied by country. Thus, it is difficult to differentiate between effects due to national culture and country and those due to the response to the pandemic. Another issue concerns the fact that data collection was conducted somewhat differently in each country. In Israel and the United States, the sample was based on working adults recruited using online crowdsourcing services, whereas in Italy it consisted of students and in China most of the participants were university alumni; but in all countries most participants indicated having an average SES. Thus, it is difficult to determine whether the differences across countries should be attributed to national culture or to the sampling procedure used. To enhance the possibility of interpreting cross-cultural differences, future multi-country studies should aim to have identical procedures in all countries. The fourth limitation is that this study also focused on a specific naturally occurring event, that of the COVID19 pandemic. Additional research on the role of creative adaptability in response to stressful events needs to be investigated across a wider variety of stressors including more minor and day-to-day difficult events.

Conclusion

The purpose of the current study was to examine the relationship between creative adaptability and the positivity ratio as an indicator of emotional well-being by focusing on four possible mediators based on the conservation of resources theory. Specifically, CSE, resilient coping, and two different emotion regulation strategies were tested in four different countries. Correlational results indicated that creative adaptability was related to all the mediators and to the outcome of the positivity ratio, when controlling for country. However, different mediation models emerged as a function of the country. Resilient coping was found to be an important mediator for all countries except for the U.S. sample, where CSE was the strongest mediator. These results suggest that creative adaptability is an important resource in managing stress resulting from the pandemic, as evidenced through its relationship to the positivity ratio. However, the specific mechanism by which this relationship manifests still needs additional investigation, and may differ depending on the culture, sample characteristics, and/or the nature of the stressor.

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