



# 2020 COVID-19-Related Lockdown: the Relationships Between Coping Strategies, Psychological Adjustment and Resilience Among a Non-clinical Sample of British Adults

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## Abstract

To curb COVID-19 infections, the British government enforced a series of lockdowns resulting in restrictions on movement and socialisation. This study assessed which groups may have been at higher risk of emotional distress among a non-clinical sample of British adults. It also examined which coping strategies, if any, related to more positive psychological adjustment and higher resilience scores. A cross-sectional, correlational study was carried out. Using a convenience sample, an online survey was conducted in April–June 2020. One hundred ninety-four participants completed the Brief COPE (coping), the GAD-7 (anxiety), the PHQ-9 (depression), the CD-RISC (resilience), and provided demographic information. Participants used mainly coping strategies considered to be adaptive. They exhibited mild/moderate anxiety and depression symptoms, and moderate resilience scores. However, some individuals displayed significantly higher distress symptoms and lower resilience scores than others, especially those aged under 35 (particularly 18–24), those not working, those who were single and/or childless. Results also show that coping strategies including substance use, behavioural disengagement and self-blame were associated with anxiety and/or depression symptoms, conversely, positive reframing related to lower anxiety symptomatology. Interventions promoting positive reframing may be helpful. Similarly, interventions promoting connection to others, a factor known to enhance resilience, may be beneficial. This is particularly relevant to groups who may be more at risk of psychological distress, such as young individuals.

**Keywords** COVID-19 · Lockdown · Coping · Resilience · Anxiety · Depression · Adversity

## Introduction

The COVID-19 pandemic has led the world in an unprecedented direction due to widespread policies of social distancing and lockdown. It has also resulted in major changes to the economy, political sector, workforce, education system and lifestyle (Nicola et al., 2020). These changes have impacted on the mental well-being of the population globally with many studies documenting an increase in emotional distress. A review of 16 studies, spanning five

countries (Lakhan et al., 2020), found an increase in depression, anxiety, stress and sleep disturbance in general populations. Similarly, in the UK, a longitudinal study of British households found that the prevalence of clinically significant mental distress rose from 18.9 to 27.3% (Pierce et al., 2020). For many, lockdown measures led to the experience of loneliness, known to exacerbate depression (Fortuna et al., 2020; Wu et al., 2020) and psychiatric disorders (Rains et al., 2020). Another UK-based study by Li and Wang (2020) also indicated a 29.2% prevalence in psychiatric morbidity in a non-clinical sample during the pandemic, with 36% of participants reporting feeling lonely, and, in particular, women and young people.

Other studies, however, point to a more heterogeneous response to the pandemic (Mancini, 2020). A meta-analysis by Pappa et al. (2022) indicates that prevalence rates for anxiety and depression symptoms in South Asian general populations were lower than those reported in China and Europe, suggesting that the emotional burden of the pandemic is

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experienced differently across nations. Furthermore, some age groups appear to be more at risk of mental health distress than others, including young (16–24 years old; Dewa et al., 2021) and older adults (50 years old and above; Zaninotto, et al., 2022) as well as women (Matud et al., 2022). Conversely, a meta-analysis of 25 studies covering Europe, North America, Asia and Oceania (Prati & Mancini, 2021) shows that although lockdown measures had a negative impact upon mental health, they had no impact upon positive psychological functioning or feelings of loneliness in general populations. This finding is supported by a study conducted with American adults which suggests that over the restrictions period, individuals actually perceived increased support from others rather than loneliness (Luchetti et al., 2020). Therefore, remaining cognisant of the plurality of responses to the pandemic is important in understanding individuals' experiences of lockdown and identifying those who may be at higher risk of psychological distress.

Nevertheless, based on the widespread evidence of the pandemic's negative psychological impact, the World Health Organisation (2021) stressed the need for an improved response to mental health issues. Epidemiologists agree that COVID-19 is here to stay, with some predicting that it will affect societies until 2025 and beyond (Scudellari, 2020); hence, preparing for and mitigating for the negative psychological impact of COVID-19 is paramount. Identifying coping strategies that can protect mental health, promote resilience and prevent distress under lockdown conditions can help achieve this goal.

Psychological resilience plays a crucial role when facing new and unforeseen circumstances. Resilience is defined as the positive adaptation in the context of significant adversity, a process that can also enable growth in the face of internal and external stressors (Bonanno et al., 2007). Research indicates that when faced with difficult events, some individuals adjust relatively well psychologically, whilst others develop severe mental health issues (Rutter, 2013). Many factors are thought to be implicated in resilience. These include demographic and psychological disposition, event-related characteristics, perceived social support to name but a few (e.g. Chen et al., 2020). The coping strategies used to deal with stressful events are also known to mediate the relationship between psychological adjustment and resilience (e.g. Wu et al., 2020). Coping is defined as the 'constantly changing cognitive and behavioural efforts necessary to manage, reduce or tolerate a troubled person-environment relationship' (Lazarus & Folkman, 1984, p. 152). Evidence suggests that some coping strategies promote better psychological adjustment than others (Carver & Connor-Smith, 2010). In particular, strategies that rely on engaging with the stressor (e.g. problem-focused, acceptance) rather than avoiding it (e.g. disengagement) are associated with better psychological

adjustment (Carver & Connor-Smith, 2010; Kirby et al., 2011). As such, coping strategies tend to be categorised as either 'adaptive' or 'maladaptive' based on their positive or negative relationships to psychological adjustment (Kirby et al., 2011).

Some studies have examined the ways individuals managed lockdown situations and how they have adjusted to these. A USA-based study found that resilience scores were greater among those who spent time outside, exercised more, perceived more social support, slept better and prayed more often (Killgore et al., 2020a). Similarly, staying socially connected and modifying routines was shown to be helpful during the pandemic (Finlay et al., 2021), with social connectedness reported to reduce stress and fatigue during lockdown (Nitschke et al., 2020). However, no measure of coping/coping strategies was included in these studies.

Research focusing specifically on the relationship between coping strategies and psychological adjustment during the pandemic has yielded inconsistent results. Some studies suggest that problem-focused coping alongside positive cognitions and prosocial behaviours are associated with positive psychological well-being (Guo et al., 2020), whilst others indicate that the use of problem-focused alongside avoidant coping correlate with higher depressive symptoms (Dawson & Golijani-Moghaddam, 2020; Fluharty et al., 2021). Finally, some studies indicate that avoidant coping accounts for the difficulty in adjusting psychologically to the pandemic (Dewa et al., 2021). Beside yielding inconsistent results, none of these studies included a measure of resilience. More research is, therefore, needed to assess the link between coping and psychological adjustment as well as resilience during lockdowns.

The first lockdown (March 2020) is of particular interest because it was the most restrictive one (Brown & Kirk-Wade, 2021). Therefore, the aims of the study were twofold: (1) to identify groups that may be at higher risk of emotional distress and (2) to assess which coping strategies, if any, are associated with better psychological adjustment and resilience. The findings can inform the development of effective interventions and resources to enhance resilience and prevent mental health problems in non-clinical adult populations, especially in those at higher risk of emotional distress.

## Method

### Design

A quantitative cross-sectional design was utilised. Data were collected using an online quantitative survey.

## Participants and Recruitment

Participants were recruited through researchers' personal and professional networks, and social media such as LinkedIn and Facebook. Inclusion criteria included being over 18 and living in the UK. Power calculations were used to determine sample sizes based on an effect size of 0.15, an alpha value of 0.05, a power value of 0.80 and a maximum of 20 predictors (14 Brief COPE, 4 demographic and 2 mental health variables). A minimum of 157 participants were required. Altogether, 213 participants started the online survey, with 194 completing it (91.1%). Given that the recruitment advert was shared across researchers' networks and social media, it is not possible to assess how many individuals would have seen the advert, and thus to calculate a response rate. Via the recruitment advert, participants were directed to the secure Qualtrics website ([www.qualtrics.com](http://www.qualtrics.com)) where they could find information about the study. Participants were then asked questions to elicit their consent to participate. A pilot study established survey completion to be 20–25 min. Participants were also asked if they would be willing to take part in a complementary qualitative survey (Taylor et al., 2022).

## Measures

Participants were asked questions about their current situation (e.g. self-isolation, living arrangements, working status). They were also asked to rate their mental health (e.g. anxiety and depression symptoms) and resilience levels, and indicate the coping strategies they used during the 2020 lockdown. Demographic questions completed the survey (e.g. gender, age).

Robust and reliable scales were used to measure key variables. Anxiety symptoms were assessed using the General Anxiety Disorder-7 questionnaire (GAD-7; Spitzer et al., 2006), which consists of seven statements rated on a 0 'not experienced at all' to 3 'experienced nearly every day' scale. GAD-7 has good psychometric properties with internal reliability between 0.85 and 0.92 (Spitzer et al., 2006). The Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001) was used to measure depression symptoms. Comprised of 9 statements with scores also ranging from 0 'not experienced at all' to 3 'experienced nearly every day', the scale's reliability is reported to be between 0.86 and 0.89 (Kroenke, et al., 2001). To evaluate resilience levels, the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was utilised. The scale has 21 items rated on a 0 'not true at all' to 4 'true nearly all the time' scale, and has good psychometric properties with internal reliability reported to be 0.89 (Connor & Davidson, 2003). Finally, the Brief COPE (Carver, 1997) was used to measure coping strategies. The scale is made of 28 items measuring 14

coping strategies (e.g. 'acceptance', 'behavioural disengagement') and is scored using a four-point scale (1 'I haven't been doing this at all' to 4 'I've been doing this a lot'). The Brief COPE subscales' internal reliability have been reported to be between 0.50 and 0.90 (Carver, 1997).

## Ethical Considerations

Ethical approval was obtained from the University of West London Ethics Committee. In accordance with the British Psychological Society guidelines (British Psychological Society, 2017) on Internet research, participants were informed they could skip questions, withdraw from the study at any time, and that their data would be anonymised, kept confidential and stored in line with the Data Protection legislation. Given the potential for distress, a list of support organisations was supplied on completion of the study.

## Data Analysis

Data were analysed using SPSS, version 24. To address the first research objective and to identify groups that may be at higher risk of psychological distress, *t*-test and analysis of variance (ANOVA) analyses were conducted. Based on frequency analyses, variables for age, marital status, presence of children and working status were recoded into two categories (18–34 years old vs. over 35; in a relationship vs. not in a relationship; children vs. no children; working vs. not working).

To address the second research objective and to assess which coping strategies were associated with psychological adjustment and resilience, correlation and hierarchical multiple linear regression analyses were carried out. Hierarchical multiple linear regression was conducted to ascertain to what extent variables of interest (independent variables (IVs)) explained the variance in the dependent variable (DV), whilst taking into account/controlling for other variables (Tabachnick & Fidell, 2021). IVs and DVs were specific to each regression model. The DVs were anxiety symptomatology for model 1, depression symptomatology for model 2 and resilience scores for model 3. The IVs used in each model were based on significant associations with the DVs identified through *t*-tests, ANOVA and correlation tests. Demographic IVs were entered first in the regression models because they are 'control' or 'constant' variables; coping strategies were entered second and mental health state third. This enabled the research team to understand the contribution of coping strategies and mental health state to the variance in DVs (anxiety symptoms, depression symptoms and resilience scores) above and beyond that of demographic variables (Tabachnick & Fidell, 2021).

Diagnostics tests were run to verify the robustness of the regression analyses. Collectively, the normal distribution of

residuals, the linear relationships between pairs of variables, the absence of high correlations between IVs, the relationships between predicted values and residuals, as well as the VIF collinearity statistics, indicated that assumptions of normality of residuals, linearity, homoscedasticity and multicollinearity respectively were met.

*p*-values < 0.05 were considered statistically significant, and effect sizes (ES) were estimated using Cohen's *d* formula: small  $\leq 0.2$ ; medium  $\geq 0.3 \leq 0.5$ ; large  $\geq 0.8$ .

## Results

### Participants' Profile

Participants' demographic profile and an overview of their situation during the 2020 lockdown are displayed in Table 1. The majority of participants were women, from a White ethnic background, well-educated and in a relationship. Most were confined at home and living with family. Just over one in ten participants had lost someone to COVID-19.

### Coping, Anxiety, Depression and Resilience Scores

The use of coping strategies, anxiety and depression symptomatology as well as resilience scores are shown in Table 2. All scales displayed satisfactory levels of internal reliability with Cronbach's alpha values above the minimum requirement of 0.5 (Nunnally, 1978), except for the 'self-distraction' subscale in the Brief COPE ( $\alpha = 0.43$ ), which was, consequently, excluded from further analysis. Cronbach's alpha values for the subscales acceptance, venting and denial were also relatively low (above 0.5 but below 0.6); thus, results based on these variables need to be interpreted with caution. Participants used mainly strategies considered to

**Table 2** Cronbach's values, mean scores and standard deviations for the Brief COPE, GAD-7, PHQ-9 and CD-RISC

Measure	$\alpha$ value	Mean	SD
Coping (Brief COPE, range 2–8)			
Self-distraction	0.43*	5.43	1.72
Active coping	0.74	<b>5.48</b>	1.67
Denial	0.59	2.56	1.11
Substance use	0.94	3.00	1.61
Emotional support	0.81	4.74	1.78
Instrumental support	0.83	3.91	1.68
Behavioural disengagement	0.78	2.98	1.54
Venting	0.58	3.98	1.51
Positive reframing	0.75	<b>5.54</b>	1.76
Planning	0.72	<b>5.07</b>	1.77
Humour	0.92	4.10	2.02
Acceptance	0.56	<b>6.51</b>	1.38
Religion	0.84	3.60	1.96
Self-blame	0.71	3.33	1.59
Anxiety (GAD-7), range 0–21	0.91	8.08	5.94
Depression (PHQ-9, range 0–27)	0.90	8.38	6.92
Resilience (CD-RISC, range 0–100)	0.93	63.12	15.68

$\alpha$  value, Cronbach's alpha values; *SD*, standard deviation; Brief COPE: values above the mid-point (>5) in bold; GAD-7: scores 5 = mild, 10 = moderate,  $\geq 15$  severe anxiety; PHQ-9: scores 5 = mild, 10 = moderate, 15 = moderately severe, 20 = severe depression; CD-RISC: higher scores = higher levels of resilience

\*Score below the minimum threshold of 0.5, indicating low internal reliability

be 'adaptive' (Kirby et al., 2011), including acceptance, positive reframing, active coping and planning, with these subscales exhibiting mean scores above the mid-point of 5. Participants relied on denial, behavioural disengagement and substance use the least, with mean scores for these subscales

**Table 1** Participants' demographic and 2020 COVID-19 lockdown-related profile

	<i>n</i>	%	Mean	SD	Range
Demographic profile					
Gender— <i>female</i>	192	78.6			
Age	176		38.16	13.36	18–78
Ethnicity— <i>White</i>	193	76.3			
Education— <i>graduate level and above</i>	193	76.2			
Marital status— <i>in a relationship</i>	192	69.3			
Whether has children— <i>no</i>	178	55.6			
Working status— <i>currently working</i>	193	57.0			
Working— <i>managerial position</i>	193	66.5			
COVID-19 lockdown-related profile					
Confined at home	194	80.9			
Living arrangement— <i>living with family</i>	194	80.4			
Whether lost someone to COVID-19— <i>yes</i>	191	13.1			

*n*, number of participants; *SD*, standard deviation

below or equal to 3. According to the scoring guidelines for the GAD-7 and PHQ-9, anxiety and depression symptoms in this sample were mild to moderate overall (means scores between 5 and 10). Resilience scores were also moderate (between 60 and 79).

### Identifying Groups at Higher Risk of Distress

To identify groups that may be at higher risk of psychological distress, ANOVA and *t*-tests were conducted to assess associations between demographic variables (IVs) and the use of coping strategies, anxiety and depression symptomatology, as well as resilience scores (DVs). Results are displayed in Tables 3 and 4.

In this study, when compared to participants in the older age category (> 35 years old), those aged 18–34 displayed significantly higher usage of self-blame, venting and behavioural disengagement (small to medium effect size (ES):  $d=0.34$ ,  $0.36$  and  $0.57$  respectively). They reported higher anxiety and depression symptomatology (medium ES:  $d=0.64$  and  $0.72$ ), with both mean scores above the clinical threshold for moderate symptoms of anxiety and depression (5 and 10 respectively). Given the difference in scores based on age, the age variable was examined further and recoded into five categories with similar sample size: 18–24

( $n=30$ ), 25–34 ( $n=52$ ), 35–44 ( $n=32$ ), 45–54 ( $n=40$ ) and 55+ ( $n=22$ ). A one-way ANOVA analysis followed by Bonferroni post hoc tests was conducted, indicating that participants aged 18–24 years old exhibited the most distress of all age groups, including when compared to the 25–34 years old group who exhibited the second highest level of distress. These age differences were significant for anxiety ( $F(1,171 \text{ or } 175)=8.52$ ,  $p<0.001$ ), with 18–24 years old exhibiting significantly higher anxiety symptomatology compared to 25–34 years old ( $M=12.97$ ,  $SD=5.23$  vs.  $M=8.63$ ,  $SD=5.86$ ). Similar results were observed for depression ( $F(1,171 \text{ or } 175)=10.32$ ,  $p<0.001$ ), with 18–24 years old exhibiting significantly higher depression symptomatology compared to 25–34 years old ( $M=14.43$ ,  $SD=7.18$  vs.  $M=9.29$ ,  $SD=6.99$ ). Mean scores for both anxiety and depression symptoms for 18–24 years old were above the ‘moderate’ clinical threshold, and for depression, it was just under the ‘moderately severe’ threshold. Age differences were also significant for resilience ( $F(1,171 \text{ or } 175)=4.37$ ,  $p<0.01$ ), with 18–24 years old scoring significantly lower on resilience compared to 25–34 years old—the second lowest group ( $M=52.60$ ,  $SD=17.42$  vs.  $M=64.69$ ,  $SD=16.18$ ).

With regard to working status, compared to those not working, participants who were working exhibited

**Table 3** Differences in mean scores for the Brief COPE, GAD-7, PHQ-9 and CD-RISC by age and working status

Measure	Age			Working status		
	Mean		<i>t</i> value	Mean		<i>t</i> value
	18–34 ( $n=82$ )	35+ ( $n=94$ )		Working ( $n=109$ )	Not working ( $n=83$ )	
Coping (Brief COPE, range 2–8)						
Active coping	<b>5.29</b>	<b>5.69</b>	–1.58	<b>5.79</b>	<b>5.08</b>	2.94**
Denial	2.59	2.49	0.55	2.44	2.72	–1.71
Substance use	2.89	3.12	–0.93	3.08	2.89	0.82
Emotional support	4.98	4.62	1.34	4.90	4.54	1.38
Instrumental support	4.22	3.73	1.90	3.93	3.88	0.19
Behavioural disengagement	3.45	2.57	3.72***	2.66	3.41	–3.22**
Venting	4.29	3.76	2.34*	3.96	4.00	–0.17
Positive reframing	<b>5.48</b>	<b>5.62</b>	–0.53	<b>5.72</b>	<b>5.31</b>	1.58
Planning	<b>5.01</b>	<b>5.17</b>	–0.60	<b>5.10</b>	<b>5.04</b>	0.25
Humour	4.24	3.83	1.38	4.43	3.67	2.61*
Acceptance	<b>6.29</b>	<b>6.67</b>	–1.79	<b>6.68</b>	<b>6.29</b>	1.94
Religion	3.65	3.63	0.06	3.44	3.80	–1.23
Self-blame	3.66	3.12	2.19*	3.06	3.69	–2.63*
Anxiety (GAD-7), range 0–21)	10.22	6.39	4.43**	6.48	10.19	–4.43***
Depression (PHQ-9, range 0–27)	11.17	6.16	5.00**	6.52	10.81	–4.34**
Resilience (CD-RISC, range 0–100)	60.27	65.03	–1.96	66.06	59.25	2.91**

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$ ; *t*-values in italics: equality of variances not assumed; Brief COPE: ‘Self-distraction’ subscale removed due to low internal reliability; values above the mid-point (>5) in bold; GAD-7: scores 5=mild, 10=moderate,  $\geq 15$  severe anxiety; PHQ-9: scores 5=mild, 10=moderate, 15=moderately severe, 20=severe depression; CD-RISC: higher scores=higher levels of resilience



**Table 4** Differences in mean scores for the Brief COPE, GAD-7, PHQ-9 and CD-RISC by marital status and whether have children

Measure	Marital status			Whether have children		
	Mean		<i>t</i> value	Mean		<i>t</i> value
	Single ( <i>n</i> = 59)	Married/partnered ( <i>n</i> = 132)		Without children ( <i>n</i> = 82)	With children ( <i>n</i> = 82)	
Coping (Brief COPE, range 2–8)						
Active coping	<b>5.27</b>	<b>5.58</b>	– 1.18	<b>5.35</b>	<b>5.65</b>	– 1.15
Denial	2.68	2.51	0.95	2.58	2.52	0.35
Substance use	2.69	3.14	– 1.93	2.85	3.10	– 1.09
Emotional support	4.25	4.97	– 2.61*	4.65	4.81	– 0.60
Instrumental support	3.66	3.99	– 1.27	3.94	3.82	0.46
Behavioural disengagement	3.54	2.74	3.00**	3.24	2.61	2.95**
Venting	3.97	3.98	– 0.05	4.11	3.77	1.49
Positive reframing	<b>5.59</b>	<b>5.52</b>	0.28	<b>5.42</b>	<b>5.72</b>	– 1.12
Planning	<b>5.14</b>	<b>5.04</b>	0.35	<b>5.00</b>	<b>5.24</b>	– 0.88
Humour	4.44	3.97	1.49	4.09	3.94	0.52
Acceptance	<b>6.36</b>	<b>6.57</b>	– 1.00	<b>6.33</b>	<b>6.85</b>	– 2.59*
Religion	3.66	3.56	0.31	3.74	3.44	1.00
Self-blame	3.88	3.08	2.82**	3.46	3.19	1.10
Anxiety (GAD-7), range 0–21)	9.47	7.45	2.20*	9.06	6.65	2.73**
Depression (PHQ-9, range 0–27)	11.31	7.09	3.68***	9.58	6.71	2.93**
Resilience (CD-RISC, range 0–100)	59.63	64.62	– 2.05*	61.09	65.84	– 2.03*

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; *t*-values in italics: equality of variances not assumed; Brief COPE: ‘Self-distraction’ subscale removed due to low internal reliability values above the mid-point ( $> 5$ ) in bold; GAD-7: scores 5 = mild, 10 = moderate,  $\geq 15$  severe anxiety; PHQ-9: scores 5 = mild, 10 = moderate, 15 = moderately severe, 20 = severe depression; CD-RISC: higher scores = higher levels of resilience

significantly lower anxiety and depression symptomatology (medium ES:  $d = 0.64$  and  $0.62$ ), and higher resilience scores (small ES:  $d = 0.43$ ). They also made greater use of active coping and humour (small ES:  $d = 0.41$  and  $0.37$ ) and lower use of behavioural disengagement and self-blame (small ES:  $d = 0.48$  and  $0.40$ ).

Compared to single participants, those in a relationship displayed higher use of emotional support and lower use of behavioural disengagement and self-blame (medium ES:  $d = 0.40$ ,  $0.52$  and  $0.50$  respectively). They also reported lower anxiety and depression symptomatology (small to medium ES:  $d = 0.34$  and  $0.61$ ), and higher resilience scores (small ES:  $d = 0.32$ ). A similar pattern emerged for participants who had children. When compared to those without children, they exhibited lower anxiety and depression symptomatology and higher resilience scores (small ES:  $d = 0.41$ ,  $0.42$  and  $0.30$  respectively). Those with children also relied on acceptance to a greater extent and on behavioural disengagement to a lesser extent (small ES:  $d = 0.38$  and  $0.41$ ).

### Assessing Relationships Between Coping, Psychological Adjustment and Resilience

Pearson’s correlation analyses were run to examine the relationships between coping strategies, anxiety and depression

symptomatology, and resilience. This analysis was used to determine the IVs to be used in the regression analyses. Correlations analyses are displayed in Table 5. As expected, anxiety symptoms were positively correlated with depression symptoms ( $r = 0.79$ ,  $p < 0.01$ ) and coping strategies considered ‘maladaptive’ (e.g. self-blame  $r = 0.64$ ,  $p < 0.01$  and behavioural disengagement  $r = 0.59$ ,  $p < 0.01$ ). Anxiety symptomatology was negatively correlated with resilience  $r = -0.50$ ,  $p < 0.01$  and ‘adaptive’ coping strategies (e.g. positive reframing  $r = -0.20$ ,  $p < 0.01$  and acceptance  $r = -0.23$ ,  $p < 0.01$ ), although correlation coefficients were weaker.

Similarly, depression symptoms were positively correlated with ‘maladaptive’ coping strategies (e.g. self-blame  $r = 0.65$ ,  $p < 0.01$  and behavioural disengagement  $r = 0.65$ ,  $p < 0.01$ ), and negatively correlated with resilience  $r = -0.50$ ,  $p < 0.01$  and ‘adaptive’ coping strategies (e.g. active coping  $r = -0.27$ ,  $p < 0.01$  and acceptance  $r = -0.19$ ,  $p < 0.01$ ). Resilience was positively correlated with ‘adaptive’ coping strategies (e.g. positive reframing  $r = 0.44$ ,  $p < 0.01$  and active coping  $r = 0.40$ ,  $p < 0.01$ ), and negatively correlated with ‘maladaptive’ ones (e.g. self-blame  $r = -0.43$ ,  $p < 0.01$  and behavioural disengagement  $r = -0.43$ ,  $p < 0.01$ ). Correlations for coping strategies exhibited the expected pattern whereby ‘adaptive’ coping

**Table 5** Correlations between the Brief COPE, GAD-7, PHQ-9 and CD-RISC

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Anxiety GAD-7 (1)	1														
Depression PHQ-9 (2)	.79**	1													
Resilience CD-RISC (3)	-.50**	-.50**	1												
Active coping (4)	-.15*	-.27**	.40**	1											
Denial (5)	.35**	.31**	-.19**	-.04	1										
Substance use (6)	.16*	.19**	-.05	.06	.097	1									
Emotional support (7)	.01	-.11	.24**	.34**	-.11	.15*	1								
Instrumental support (8)	.20**	.04	.15*	.34**	-.02	.15*	.56**	1							
Behavioural disengagement (9)	.59**	.65**	-.43**	-.31**	.39**	.114	-.08	.01	1						
Venting (10)	.32**	.22**	-.05	.25**	.09	.21**	.35**	.45**	.14	1					
Positive reframing (11)	-.20**	-.17*	.44**	.57**	.02	.082	.33**	.27**	-.20**	.28**	1				
Planning (12)	.15*	.05	.21**	.56**	.08	.125	.29**	.41**	-.02	.40**	.43**	1			
Humour (13)	.05	.02	.16*	.22**	-.01	.138	.197**	.12	.02	.20**	.25**	.14	1		
Acceptance (14)	-.23**	-.19**	.34**	.47**	-.19*	.053	.27**	.21**	-.29**	.11	.39**	.28**	.17*	1	
Religion (15)	.01	-.03	.151*	.11	.05	-.067	.155*	.24**	.06	.19**	.25**	.27**	.01	.03	1
Self-blame (16)	.64**	.65**	-.43**	-.15*	.35**	.072	-.06	.05	.62**	.23**	-.10	.19*	.05	-.20**	.09

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; Brief COPE: 'Self-distraction' subscale removed due to low internal reliability

strategies positively correlated with each other (e.g. active coping and planning  $r=0.56$ ,  $p<0.01$ ) and ‘maladaptive’ ones correlated with each other (e.g. behavioural disengagement and self-blame  $r=0.62$ ,  $p<0.01$ ).

Hierarchical multiple linear regression analyses were conducted to examine the contribution of the different variables to the significant association observed between the DVs of interest and the IVs. The hierarchical regression models are displayed in Table 6.

Anxiety symptomatology was positively associated with working status ( $p<0.05$ ), active coping ( $p<0.05$ ), instrumental support ( $p<0.05$ ), venting ( $p<0.05$ ), self-blame ( $p<0.05$ ) and depression symptoms ( $p<0.001$ ). This indicates that not working, higher usage of active coping, instrumental support, venting and self-blame, as well as higher depression symptomatology related to anxiety symptoms. Anxiety was negatively associated with positive reframing ( $p<0.01$ ), indicating that higher levels of positive reframing related to lower anxiety symptomatology. The regression model was a significant fit for the data—i.e. the differences between the observed and predicted values were small and unbiased, meaning that the distribution of residuals were

equal across the range of values—( $F(16, 146)=23.62$ ,  $p<0.001$ ) and accounted for 72% of the variance in anxiety symptoms.

Depression symptomatology was positively associated with substance use ( $p<0.05$ ), behavioural disengagement ( $p<0.05$ ), self-blame ( $p<0.05$ ) and anxiety symptoms ( $p<0.001$ ), indicating that higher levels on these variables were associated with higher depression symptoms. Depression symptomatology was also negatively associated with age ( $p<0.05$ ) and active coping ( $p<0.05$ ), suggesting that as the age of participants and/or their levels of active coping increase, depression symptomatology decreases. The model was also a significant fit for the data ( $F(14, 148)=23.23$ ,  $p<0.001$ ) and accounted for 71% of the variance in depression symptoms.

Finally, resilience scores were only negatively predicted by anxiety symptoms ( $p<0.05$ ), indicating that higher anxiety symptomatology related to lower levels of resilience. None of the other IVs were statistically significant. The model was a significant fit for the data ( $F(17, 145)=7.50$ ,  $p<0.001$ ) and accounted for 47% of the variance in resilience scores. However, when removing anxiety and

**Table 6** Hierarchical multiple linear regression analyses to assess the relationships between demographic and coping variables with anxiety symptomatology (model 1), depression symptomatology (model 2) and resilience scores (model 3)

Independent variables	Anxiety (model 1)		Depression (model 2)		Resilience (model 3)	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1 (demographics)	0.15***		0.20***		0.07*	
Age		-0.01		-0.14*		-0.10
Marital status		0.07		-0.08		0.02
Working status		0.10*		0.01		-0.04
Number of children		-0.03		0.02		0.08
Step 2 (coping-Brief COPE))	0.44***		0.39***		0.35***	
Active coping		0.14*		-0.15*		0.10
Emotional support						0.04
Positive reframing		-0.20**		0.09		0.16
Planning		0.03				0.09
Humour						0.07
Acceptance		-0.06		0.09		0.05
Religion						0.08
Denial		0.07		0.01		0.02
Substance use		0.01		0.10*		
Instrumental support		0.14*				0.01
Behavioural Disengagement		0.04		0.13*		-0.05
Venting		0.11*		-0.04		
Self-blame		0.15*		0.16*		-0.15
Step 3 (psychological state)	0.13***		0.13***		0.05**	
Anxiety (GAD-7)				0.52***		-0.24*
Depression (PHQ-9)		0.52***				-0.13
Resilience (CD-RISC)		-0.11		-0.09		
Total $R^2$	0.72***		0.71***		0.47**	
N	162		162		162	

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



depression symptoms from the model (i.e. step 2 of model 3) and using only demographics and coping measures as IVs, resilience was positively associated with positive reframing ( $p < 0.01$ ) and negatively related to self-blame ( $p < 0.001$ ). This indicates that in the absence of anxiety and depression symptoms, higher levels of positive reframing and lower levels of self-blame were associated with resilience.

## Discussion

The study aims were to identify groups who may be at higher risk of psychological distress in a non-clinical sample of British adults during the 2020 COVID-19-related lockdown, and to assess which, if any, coping strategies were associated with better psychological adjustment and resilience. Overall, the results indicated that the levels of anxiety and depression symptomatology were relatively low among the study participants, but that some groups exhibited higher levels of psychological distress than others. The results also showed that participants used mostly strategies considered to be ‘adaptive’ and that these were associated with lower depression scores. Strategies, either ‘adaptive’ or ‘maladaptive’, that required more engagement with the stressor, were associated with anxiety symptomatology, and those focused on avoidance more closely related to depressive symptoms.

The groups shown to be at higher risk of psychological distress than others in this study included single individuals, those without children, those aged 18–34 years old (particularly 18–25) and those not working. These findings support some existing evidence of the pandemic’s impact on the mental health of these groups (Dewa et al., 2021; Li & Wang, 2020) and suggest that being older, employed, living with a partner and/or having childcare responsibility may act as a buffer against distress in a lockdown situation.

In this study, young adults (18–25 years old) exhibited the highest level of distress. This supports findings from a large UK survey by Pierce et al. (2020), which showed that 18–24-year-olds suffered the greatest increase in mental health distress during the pandemic. This may be due to feelings of loneliness caused by the lockdown restrictions on socialisation, which have been shown to have a particularly detrimental effect on young individuals (Lee et al., 2020; Li & Wang, 2020). The findings also suggest that resilience levels is higher in mature adults compared to young people, which supports much of the general literature on resilience (e.g. Bonanno et al., 2007).

In this study, those who were working, were in a relationship and/or had childcare responsibility exhibited better mental health than their counterpart. Being in a relationship and caring for someone else have been shown to be protective factors against adversity, whilst unemployment and financial concerns appeared as risk factors for resilience

and emotional well-being (Coulombe et al., 2020). The study findings, however, contrast evidence indicating that parental responsibility during the pandemic was associated with emotional distress, in particular among parents of adolescent children (Ben Brik et al., 2022).

Participants in this study used mostly coping strategies considered to be ‘adaptive’. This may account for the relatively low levels of anxiety and depression symptomatology displayed by participants overall, although due the study design being cross-sectional, causation cannot be inferred. Still, this hypothesis supports the literature on coping, which points to a relationship between the use of ‘adaptive’ coping strategies and positive psychological adjustment, including resilience, and conversely the use of ‘maladaptive’ coping strategies and psychological distress (Carver & Connor-Smith, 2010). Indeed, in this study, positive reframing was negatively associated with anxiety symptoms, substance use and behavioural disengagement were positively associated with depression symptoms, and self-blame positively related to both anxiety and depression symptomatology. However, interestingly, active coping and instrumental support, both considered to be ‘adaptive’ coping strategies, also positively related to anxiety symptoms, suggesting that ‘adaptive’ strategies, in that instance problem-focused, can be associated with distress symptoms. It is also possible that individuals displaying anxiety symptoms may be more likely to engage in active coping and instrumental support.

Collectively, the findings indicate that coping strategies that rely on a high level of cognitive engagement with the stressor (whether adaptive or not) are associated with anxiety symptoms, whereas those based on avoidance are more closely related to depressive symptoms. This complements evidence suggesting that engaging with stressors may buffer against feelings of helplessness (Dijkstra & Homan, 2016), although it may not protect against anxiety. Furthermore, the results show that relying on engagement-focused coping strategies that aim to control the stressor (e.g. active coping) rather than adjust to it (e.g. positive reframing) may be detrimental to mental health. This might be exacerbated by the uncontrollable nature of the lockdown. Indeed, research shows that perceived control mediates the relationship between coping and psychological adjustment (Dijkstra & Homan, 2016) and that, when coping with uncontrollable negative events, acceptance is more adaptive than active coping (Nakamura & Orth, 2005). Together, the findings underline the complexity of coping processes and cast doubt on the usefulness of categorising coping strategies as either ‘adaptive’ or ‘maladaptive’.

This study has implications. Given that positive reframing was the only coping strategy associated with lower anxiety symptomatology, activities that promote positive reframing may be helpful to cope in situations like COVID-19-related lockdowns. These may include

gratitude-based activities, encouraging individuals to focus on positive elements in their life (Seligman et al., 2005), practising mindfulness (Garland, et al., 2009) or undertaking cognitive behavioural therapy or acceptance commitment therapy (Heimberg & Ritter, 2008). In parallel, given that lockdown restrictions had a detrimental impact on socialisation (Killgore et al., 2020b), social connectedness and belonging, particularly among younger age groups (Taylor et al., 2022), interventions that promote a sense of connection, such as social prescribing, mutual help groups, may be beneficial. Indeed, Coulombe et al. (2020) suggest that social participation, whether group membership or volunteering can be protective factors when facing difficult events. This supports some of the resilience literature which posits that focusing on individual resources alone is insufficient and that more consideration should be made of collective resilience and of environmental factors that promote it, in particular those at the community level (Ungar & Theron, 2020). This is particularly relevant to the youngest age group, which has been more negatively impacted by lockdown than other age groups, as shown in the present study and the wider literature (Lee et al., 2020; Li & Wang, 2020).

The study has limitations. The cross-sectional design meant that causality between variables could not be established. The use of convenience sampling limits the generalizability of the findings. The sample was self-selected, hence prone to recall and social desirability bias, and lacked representativeness (strongly biased towards white middle-class female), which may be due to the fact that participants were partly recruited from the researchers' networks. However, the findings provide important insights into how a non-clinical sample coped with the 2020 COVID-19-related lockdown in the UK. This is still relevant because at the time of writing, cases of COVID-19 in the UK are still very high (almost 10,000 weekly, gov.uk, 2022). The fact that COVID-19 is a global pandemic and that new variants are regularly identified, mean that people will need to be supported in developing effective strategies to cope with possible future lockdowns or restrictions.

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

## Declarations

**Ethics Approval** Ethical approval from this study was obtained from the University of West London, School of Human and Social Sciences, Ethics committee. Reference number: UWL/REC/PSW-00941.

**Conflict of Interest** The authors declare no competing interests.

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