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One year of COVID-19: A longitudinal study of individual and relational factors of psychological adjustment of individuals living in a romantic relationship in Portugal during the COVID-19 pandemic

Ana Paula Relvas PhD[1,2] | Alda Portugal PhD[2,3] | Laura Lacomba-Trejo PhD[4] | Sofia Major PhD[5,6] | Luciana Sotero PhD[1,2] | Rafaela Agostinho MSc[1] | Marta Moreira MSc[1] | Ashley K. Randall PhD[7]

[1]Faculty of Psychology and Education Sciences, University of Coimbra, Coimbra, Portugal

[2]Centre for Social Studies, University of Coimbra, Coimbra, Portugal

[3]Department of Psychology, Faculty of Arts and Humanities, University of Madeira, Funchal, Portugal

[4]Department of Developmental and Educational Psychology, Faculty of Psychology and Speech Therapy, Universitat de València, València, Spain

[5]Faculty of Social and Human Sciences, University of Azores, Ponta Delgada, Portugal

[6]Center for Research in Neuropsychology and Cognitive Behavioral Intervention, University of Coimbra, Coimbra, Portugal

[7]School of Counseling and Counseling Psychology, Arizona State University, Tempe, Arizona, USA

Abstract

This longitudinal study explored the impact of COVID-19 on individuals in romantic relationships. The sample spans three waves: first confinement ($n = 52$), deconfinement ($n = 49$), and second confinement ($n = 26$). The study tested sociodemographic factors, psychological adjustment (anxiety, depression, stress, well-being), COVID-19 threat perception, dyadic coping, and relationship quality. Results from repeated measures ANOVA and fuzzy set qualitative comparative analysis (fsQCA) models revealed a decline in anxiety, depression, and stress symptoms, coupled with improved relationship quality over time. Well-being and dyadic coping remained stable, while COVID-19 threat perception increased. QCA models emphasized the predictive power of initial mental states (anxiety, depression, stress, and well-being at W1) on subsequent adjustment. Notably, shorter relationship duration, healthcare worker status, and not having

Correspondence
Alda Portugal, PhD, Centre for Social Studies, University of Coimbra, Coimbra, Portugal.
Email: alda.portugal@staff.uma.pt

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children, when combined with prior mental states, explained increased symptoms and diminished well-being. The study underscores the significance of addressing these factors in individuals navigating romantic relationships during the pandemic.

KEYWORDS
COVID-19 threat perception, dyadic coping, fsQCA, longitudinal study, psychological adjustment, relationship quality

INTRODUCTION

After the May 5th, 2023 statement by the World Health Organization (WHO) recognizing the end of the COVID-19 pandemic, it is now important to analyze what impacted human lives during the pandemic period and how people lived, felt, and gave meaning to this process, namely with regard to the confinement/deconfinement phases. In 2020, COVID-19 reached the level of a pandemic (World Health Organization, 2020) after several cases of pneumonia were identified in China and spread globally (Ludwig & Zarbock, 2020). As we all recall, the main clinical symptoms of the virus are fever, cough, dyspnea, headaches, pneumonia, total or partial loss of smell, and decreased taste. In numerous cases, infection with the SARS-CoV-2 virus resulted in people's deaths (Direção Geral de Saúde DGS General Directorate for Health, 2021; Zhou et al., 2020). The mortality rate from this disease in 2020 was 69.0 deaths per 100,000 residents in Portugal (Instituto Nacional de Estatística INE National Institute of Statistics, 2021). To face this situation, two periods of confinement were decreed, the first from March to June 2020 (DL n.14-A/2020, March 18) and the second from January to March 2021 (DL. n.6-B/2021, January 13).

The measures, then taken, varied according to the stage of development of the pandemic, which included social distancing, use of personal protective equipment (i.e., mask), hand hygiene, the closure of schools and certain workplaces, and recommended teleworking (Direção Geral de Saúde DGS General Directorate for Health, 2021) with the most important being confinement to the home. This last measure impacted the life of the population at various levels, such as the lack of distinction between one's place of leisure and one's place of work and the need for parents to provide greater assistance to their children. Contacts with the extended family and social networks were also reduced, and short/medium-term planning became difficult, meaning that individuals living in an intimate relationship tended to live so closely as to feel captive alongside the other (Relvas, Portugal, Major, et al., 2020).

Healthy intimate or romantic relationships are inextricably linked to physical and emotional health. The most frequent difficulties encountered by couples were decreased well-being (Sels et al., 2022) and increased stress, given the extent to which COVID-19 is a stressor that may reduce satisfaction in the relationship and perhaps the general sense of well-being (Tepeli Temiz & Elsharnouby, 2022), along with anxiety and depression (Vindegaard & Benros, 2020). It can also be expected that external stress related to COVID-19 has constituted a challenge to relationship quality (Pietromonaco & Overall, 2021; Pietromonaco & Overall, 2023). The constraints posed by COVID-19 can put the dynamics of the couple's relationship to the test,

directing them to a different reality regulated by new routines and demands (Balzarini et al., 2023). The quality of the couple's relationship was thus exposed to these challenges and interferences (Vale & Bisconti, 2021). Namely, couples would begin to spend more time together, which may have contributed to their becoming more aware of their partner's irritating habits, along with their divergent attitudes, incompatible desires, or differences in interests (Schokkenbroek et al., 2021).

The inability to leave home or to distance oneself from one's partner within the home may have resulted in feelings of restriction and lesser independence within the relationship (Schokkenbroek et al., 2021). In this sense, the pandemic period proved to be a challenge to the psychological well-being of many individuals (Donato et al., 2021). It is a period characterized by fears, concerns, and uncertainties that affect the population (Sampogna et al., 2021). Framing this data, Pietromonaco and Overall (2023) analysis of couples' adaptation to COVID-19 is guided by the vulnerability-stress-adaptation (VSA) model (Karney & Bradbury, 1995), which suggests that the extent to which the pandemic disrupts couples' ability to adapt to pandemic-related challenges will depend on the amount and severity of pandemic-related stress along with enduring personal vulnerabilities" (p.73). On the other hand, it is well established that dyadic coping (DC) is a relevant factor in promoting couples' resilience when facing stress (Bodenmann, 2008). So, following these two theoretical assumptions, it is easy to assume that positive DC could buffer a related COVID-19 psychological distress, and then help to promote adaptive relationships and individual well-being. However, the results found in the literature are contradictory, and studies on the evolution of the quality of relationships during the pandemic indicate that, in some cases, it increased, whereas in others, it decreased or remained unchanged (Randall et al., 2022). This divergence between couples' changes suggests that the way couples were affected may depend on a wide variety of factors (Estlein et al., 2022). For example, threat perception of the disease is based on perceived susceptibility, which is guided by one's belief of vulnerability and the possibility of contracting the disease. But this perception is also linked to the perceived severity. Therefore, any beliefs relating to disease-related changes can appear in the most diverse areas of life (Kan & Zhang, 2018; Pérez-Fuentes et al., 2020). The perceived threat of COVID-19 was positively associated with negative affect and emotional signals such as anxiety, stress, sadness, depression, anger, and hostility (Lacomba-Trejo et al., 2022; Pérez-Fuentes et al., 2020; Relvas et al., 2023). Shahnawaz et al. (2022) note that exaggerated threat perception can give rise to inappropriate or excessive anxiety regarding the severity of the symptom. In couples, the perceived threat of illness has been found to be associated with more psychopathology, less well-being, less DC, and poorer marital satisfaction (Pietromonaco & Collins, 2017). The study by Weitkamp et al. (2021), in turn, reveals that couples dealing with the experience of physical illness report the lack of DC as stressful. Role limitation due to issues of one's physical health has a significant effect on marital satisfaction, as reported by the results from Gharibi et al. (2016).

The structural characteristics of relationships act as resources to deal with stress (Pietromonaco & Collins, 2017), and DC particularly is significantly correlated with higher levels of relationship quality (Bodenmann, 2008). It is also associated with better communication in the relationship and is positively correlated with higher levels of relationship quality, well-being, and fewer psychological problems (Bodenmann et al., 2006; Bodenmann, 2008; Relvas, Portugal, & Sotero, 2020). Participants who feel more satisfied at the marital level seem to react to the pandemic in a more adaptive and realistic way (Relvas, Portugal, Major, et al., 2020).

Other variables, besides sociodemographic ones, may interfere with the different impacts of the pandemic (e.g., type of work, whether the couple has children, and how long they have

been together). Thus, it has been observed that professionals in the health and sanitation sector suffered more stress, anxiety, and depression and less well-being (Ceri & Cicek, 2020; Lai et al., 2020; Marques et al., 2021; Sethi et al., 2020). Also, with respect to the younger population, a shorter relationship time was associated with an increase in marital conflict (Luetke et al., 2020). Whether a couple had children or not was a complex variable, given how it could be seen as a risk factor for parents who had to deal with their children's difficulties as well as their own. Moreover, telework was mandatory for many parents, and at the same time, they had to take care of their children, which resulted in increased levels of stress (Lacomba-Trejo et al., 2020; Valero-Moreno et al., 2021). Parents of teenagers could also face increased challenges, given that the period of adolescence often entails social, emotional, and identity changes that can affect not only teenagers themselves but also their families. That said, parents had to support not only their needs but also the emotional needs of their children at this stage of development (Valero-Moreno et al., 2021). In contrast, having children can be seen as a protective variable, as it can be linked to fewer symptoms of anxiety, depression, and stress during COVID-19 in people living in an intimate relationship (Relvas, Portugal, Major, et al., 2020). Consequently, it has been observed how modifiable factors such as COVID-19 threat perception, couple DC and couple satisfaction, as well as sociodemographic factors can affect the mental health and well-being of couples during a pandemic (Cipolletta et al., 2022; Monge-Rodríguez et al., 2021). However, to our knowledge, no longitudinal studies addressing the interaction of all these issues have been conducted in the Portuguese population.

So, the literature shows that COVID-19, as a factor of global uncertainty, has exposed couples to high levels of stress. Its impact has affected both individual and relational psychological well-being, as well as the experience of conjugality (Lacomba-Trejo et al., 2022; Pérez-Fuentes et al., 2020; Pietromonaco & Overall, 2021; Shahnawaz et al., 2022; Tepeli Temiz & Elsharnouby, 2022; Vindegaard & Benros, 2020). On the other hand, there is also evidence that modifiable (e.g., dyadic variables and mental health) and non-modifiable variables (e.g., sociodemographic, cultural, and professional data), can play a part in the process of couples' impact and adaptation to COVID-19 (Ceri & Cicek, 2020; Lacomba-Trejo et al., 2020; Lai et al., 2020; Luetke et al., 2020; Marques et al., 2021).

The present study, therefore, has two main goals: (a) to determine whether there are changes in well-being, stress, anxiety, depression, COVID-19 threat perception, DC, and relationship quality throughout the first year of the pandemic in Portuguese individuals living in a couple relationship. Data were collected at three different times (wave 1/W1, wave 2/W2, and wave 3/W3), corresponding to the 1st, 2nd, and 3rd (de)confinement Decrees in Portugal (see Method Section); and (b) to assess the contribution of modifiable factors (COVID-19 threat perception, DC and relationship quality) and non-modifiable factors (type of work, time in relationship and having or not children) to well-being, stress, anxiety and depression in our participants. Accordingly, we established the following hypotheses:

H1(a). Symptoms of anxiety, depression, and stress will increase while well-being will decrease along the three waves (W1, W2, and W3) of the study.

H1(b). The perceived threat of illness will increase, and DC and relationship quality will decrease throughout confinement (W1 to W3).

H2. Increased symptoms of anxiety, depression, and stress, as well as lower levels of well-being in W3, will be predicted by (a) high levels of stress, depression, and anxiety,

and low levels of well-being in W1, (b) in combination with being a health professional, having children, having a relationship of shorter duration, having a high COVID-19 threat perception and low DC skills, and relationship quality.

METHOD

Procedures

We recruited participants through institutional websites (e.g., webpage of [University Blinded for review]) and social networks (e.g., Facebook). E-consent was obtained from all participants before completing the questionnaires. Data were collected online via Qualtrics during the three waves related to confinement (W1 and W3) and deconfinement (W2) in Portugal (namely, W1: April–May 2020; W2: June–August 2020; W3: February–March 2021). Participation lasted approximately 20 min. The study approved by the Ethics and Deontology Research Committee of the [University Blinded for review] was registered on the 3rd of April 2020.

Participants

Participants were recruited according to four inclusion criteria: (a) being at least 18 years of age, (b) living in Portugal, (c) being in a romantic relationship for at least 1 year, and (d) living with their partner. People who answered the online questionnaire were invited to leave a piece of contact information if they wanted to participate in the longitudinal study. Ninety-four participants gave their contact information, but 42 were excluded because they either did not complete the survey and, since responses from both partners can be correlated due to their shared experiences, we also excluded one partner from each couple to ensure the data's independence (information gathered by means of the inclusion of a code).

So, W1 included 52 participants ($M_{age} = 40.75$, SD = 9.43), with 15.4% being male ($n = 8$) and 84.6% ($n = 44$) being female. The majority (86.5%, $n = 45$) held a university degree, and 59.6% ($n = 31$) of the participants reported having children. In W2, there were 49 participants ($M_{age} = 40.43$, SD = 9.26), with 16.3% being male ($n = 8$) and 83.7% ($n = 41$) being female. The majority (87.8%, $n = 43$) had a university degree. Additionally, 61.2% ($n = 30$) of the participants reported having children. Finally, W3 comprised 26 participants ($M_{age} = 40.62$, SD = 11.16), with 15.4% being male ($n = 4$) and 84.6% ($n = 22$) being female. The majority (88.5%, $n = 23$) held a university degree, and 61.5% ($n = 16$) of the participants reported having children.

Data collection

The variables analyzed were as follows:

(a) **Sociodemographic variables**

An ad hoc questionnaire was developed with questions concerning the following information: age, gender, profession (being a health professional or not), having children or not, and length of the relationship as a couple.

(b) **Psychological variables**

The *Depression, Anxiety, Stress Scales* (DASS) was used to assess symptoms associated with anxiety, depression, and stress in young adults and adults (Lovibond & Lovibond, 1995; Portuguese version: Pais-Ribeiro et al., 2004). These emotional states are evaluated using a set of three 4-point Likert-type (0—*Did not apply to me at all* to 3—*Applied to me very much, or most of the time*) subscales. Each of these subscales is composed of seven items making a total scale of 21 items. The result of each dimension is obtained by the sum of the responses for each item (Apóstolo et al., 2007). The questionnaire showed adequate psychometric properties (Pais-Ribeiro et al., 2004). The Cronbach's α in the current study for stress was 0.92 (W1 and W2) and 0.93 (W3); for Anxiety, it was 0.79 (W1), 0.91 (W2), and 0.96 (W3); and for depression, 0.91 (W1) and 0.94 (W2 and W3).

The *Warwick-Edinburgh Mental Well-being Scale* (WEMWBS) was used to measure mental well-being focused entirely on positive aspects of mental health (Portuguese version: NHS Health Scotland, University of Warwick, University of Edinburgh and University Fernando Pessoa and City Council of Viana do Castelo, 2012). This instrument contains 14 items covering hedonic (happiness, life satisfaction) and eudemonic (positive functioning) aspects of mental health. Mental well-being is measured on a 5-point Likert-type scale (1—"*Never*" to 5—"*Always*"), taking into account how the individual felt in the last 2 weeks. There are no reversed items. The overall WEMWBS score is obtained by adding the scores for each item, with a minimum score of 14 and a maximum score of 70 points. Thus, a higher score is associated with a better level of well-being (Tennant et al., 2007). The questionnaire showed adequate psychometric properties (Tennant et al., 2007); Cronbach's α in the current study was 0.93 (W1), 0.95 (W2), and 0.93 (W3).

The *Brief Disease Perception Questionnaire* (B-IPQ) evaluates the representations of the disease, cognitive and emotional (Broadbent et al., 2006), and in this study, it was adapted to the perception of the threat of COVID-19, consisting of eight response items. This version consists of a continuous response scale from 0 to 10 points (with 0 being, e.g., "*Not at all emotionally affected*" to 10 being "*Extremely emotionally affected*"). It is a scale that reveals good psychometric properties (Valero-Moreno et al., 2020). In this study, Cronbach's α was not calculated because only item 8 (*To what extent has the COVID-19 pandemic affected you emotionally [e.g., made you angry, scared, upset or depressed]*?) was used as it was the only item measuring the emotional response to the perception of COVID-19.

The *Perceived Relationship Quality Component Inventory* (PRQC) assesses relationship quality, considering satisfaction, commitment, intimacy, trust, passion, and love as its main components (Crespo, 2007; Fletcher et al., 2000). In this study, we used the Portuguese short version of the PRQC, which showed adequate psychometric properties (Crespo, 2007). This questionnaire consists of six items (e.g., "How much do you trust your partner?") scored from one (*not at all*) to seven (*extremely*) (Fletcher et al., 2000), and the total score is obtained by calculating the average mean score (Crespo, 2007). The Cronbach's α in the current study was 0.94 (W1), 0.92 (W2), and 0.96 (W3).

The *Dyadic Coping Inventory* (DCI) was used to assess strategies of partners' DC while experiencing stress (Bodenmann, 2008; Portuguese version: Vedes et al., 2013). The DCI consists of 37 items rated on a 5-point Likert-type scale ranging from one "*Very rarely*" to five "*Very often*". The scale has five subscales/dimensions. Each subscale and total score were calculated through the mean of the items (recoding items 7, 10, 11, 15, 22, 25, 26, 27 and excluding items 36 and 37 since these items evaluate how satisfied individuals are with their DC, although are not used to describe DC behavior itself). This questionnaire reveals adequate psychometric properties (Bodenmann, 2008). In this study, we used the results for Positive Dyadic Coping

(PDC). PDC consists of three dimensions: Dyadic Coping (DC) focused on emotion (items 5, 6, and 7), DC with support focused on the problem (items 8 and 13), and DC delegated by the partner (items 12 and 14). The result is obtained by the sum of each of these three dimensions divided by seven (Vedes et al., 2013). The Cronbach's α of PDC in the present study was 0.72 (W1), 0.78 (W2), and 0.78 (W3).

Data analysis

To analyze the data, SPSS software version 27 (IBM SPSS Statistics) was used. There were no missing data because items were forced choice (participants were required to answer all the items to complete the survey). Descriptive statistics, independent samples *t*-tests, and repeated measures ANOVA were carried out for the variables under study. In this sense, the assumption of homogeneity of variances was met in all cases, as Levene's test was found to be non-significant. To observe how values at the beginning of the pandemic may or may not predict mental health and well-being, we used fuzzy set analysis—fsQCA v.4 (Pappas & Woodside, 2021). fsQCA evaluates how various causal conditions contribute to a specific outcome. Using Boolean logic, QCA determines the impact of the combination of variables on an outcome, allowing the observation of different paths leading to the same result (equifinality). It also identifies necessary causes and sufficient conditions for an outcome. In necessity analysis, conditions that must be present for a specific outcome to occur are identified. In sufficiency analysis, combinations of conditions that, although not necessary, can produce a specific outcome are established. This approach quantifies the variance explained by a combination of conditions (coverage) and the goodness of fit (consistency) (Eng & Woodside, 2012; Ragin, 2008).

To perform QCA, raw data from participants' responses are transformed into fuzzy sets. As suggested in the literature, all missing data are removed, and constructs (variables) are calculated by multiplying their item scores. Before analysis, values must be recalibrated between 0 and 1. This recalibration is crucial because it can affect the final outcome by changing the number of observations that meet a specific result. Only two values are used: 0 (indicating the absence of the characteristic completely out of the set) and 1 (indicating the presence of the characteristic, completely in the set). For recalibration or the direct calibration method (Ragin, 2008) with more than two values, three thresholds are considered: 0 (completely out of the set), 0.5 (midpoint, neither in nor out), and 1 (completely in the set). This process is widely used in the literature (Eng & Woodside, 2012). For continuous variables, percentiles 10, 50, and 90 are used. After transformation, tests for necessary and sufficient conditions are applied. Sufficient conditions are calculated using a truth table algorithm (Eng & Woodside, 2012).

fsQCA generates three solutions: complex (most restrictive), parsimonious (least restrictive), and intermediate (recommended) (Ragin, 2008). Coverage measures the variance explained by combinations of conditions, and consistency indicates the reliability of the model. Raw coverage shows how many cases are explained by the conditions, while unique coverage indicates how many cases are explained by a specific combination of conditions. The most important condition is chosen based on raw coverage. In necessity analysis, consistency (≥0.90) shows the suitability of a condition to predict a specific outcome, while coverage measures the variance explained by a condition (Ragin, 2008). For sufficiency, a model is informative when consistency is around or above 0.74 (Eng & Woodside, 2012).

RESULTS

Descriptive statistics and comparisons of means

Independent samples *t*-tests were conducted to compare the scores on the dependent variables in W1 between participants who took part in all three waves and those who only participated in W1. The results showed no statistically significant differences in Anxiety, $t(55) = 1.02$, $p = 0.315$), Depression, $t(55) = 0.70$, $p = 0.489$), Stress, $t(55) = 0.86$, $p = 0.394$), or Well-Being, $t(54.09) = 1.42$, $p = 0.162$), indicating that the trends in the results are not due to differences in the samples participating at each time point.

Repeated measures ANOVA analysis determined that anxiety, depression, and stress symptomatology were higher in W1 than in W3 and higher in W2 than in W3, with a decrease being observed. On the other hand, it was observed that satisfaction with the partner increased over time, as it was lower in W1 versus W2 and lower in W2 versus W3. However, COVID-19 threat perception increased from W2 to W3 in a statistically significant manner. On the other hand, positive DC and well-being remained stable over time. A more detailed analysis of this issue can be found in Table 1.

Fuzzy-set qualitative comparative analysis (FSQCA)

We conducted necessary and sufficiency analyses to predict high and low levels of Anxiety, Depression, Stress, and Well-being at W3 of COVID-19 in Portuguese individuals living in a romantic relationship. We tried to ascertain the variables that at W1 could influence W3. Thus, based on the previous literature, the following were considered for the couple: having children or not, the length of the relationship, one's profession (working in a health profession or not), and one's previous mental state (anxiety, depression, stress, and well-being at W1).

Analysis of necessary conditions

We conducted analyses of the necessary conditions for high and low levels of Anxiety (W3), Depression (W3), Stress (W3), and Well-being (W3). We observed that in the case of the presence of anxiety at W3, the following were necessary conditions: not being a health professional, having PDC (W1), and relationship quality (W1). In the case of the absence of depression at W3, the necessary condition was not being a healthcare professional and not experiencing depression at the beginning of confinement (W1). The rest of the analyses did not result in any necessary condition since the consistency was <0.90 (see Supplementary File, Table S1).

Analysis of sufficiency conditions

Knowing that an fsQCA model is informative when consistency is around 0.74 (Ragin, 2008), all the models performed were informative (see Supplementary File, Table S2). Most relevant paths will be explained in the text.

TABLE 1 ANOVA reported measures of anxiety, depression, stress, well-being, threat perception, relationship quality, and dyadic coping of individuals with couples.

	W1	W2	W3		Pairwise comparisons						
	M (SD)	*M* (SD)	*M* (SD)	Wilks Lambda	η^2	Time		(I-J)	Error	LLCI 95%	ULCI 95%
Anxiety	9.09 (2.84)	8.52 (2.33)	2.61 (3.69)	0.17	0.83	W1	W2	0.57	0.47	−0.66	1.79
						W1	W3	6.45*	0.64	4.83	8.13
						W2	W3	5.91*	0.66	4.21	7.61
Depression	9.82 (2.42)	9.78 (4.80)	3.78 (4.67)	0.28	0.72	W1	W2	0.04	0.88	−2.23	2.32
						W1	W3	6.04*	0.80	3.97	8.12
						W2	W3	6.00*	1.19	2.92	9.08
Stress	13.22 (4.52)	12.26 (3.43)	6.22 (4.92)	0.18	0.82	W1	W2	−0.96	0.93	−1.45	3.36
						W1	W3	7.00*	0.83	4.86	9.14
						W2	W3	6.04*	0.77	4.04	8.05
Well-being	52.14 (8.46)	51.43 (9.45)	48.95 (7.96)	0.76	0.24	W1	W2	0.71	1.44	−3.05	4.48
						W1	W3	3.19	1.44	−0.56	6.95
						W2	W3	2.48	1.21	−0.69	5.64
COVID-19 threat perception	37.96 (6.14)	37.00 (5.60)	40.16 (5.64)	0.76	0.24	W1	W2	0.96	1.16	−2.02	3.94
						W1	W3	−2.20	1.31	−5.57	1.17
						W2	W3	−3.16*	1.14	−6.10	−0.22
Relationship quality	37.78 (5.73)	109.87 (12.53)	105.48 (12.29)	0.02	0.95	W1	W2	72.09*	1.91	−77.03	−67.15
						W1	W3	67.70*	3.30	−76.25	−59.14
						W2	W3	4.39	2.63	−2.43	11.21
Positive dyadic coping	4.16 (0.57)	3.98 (0.53)	3.96 (0.62)	0.73	0.27	W1	W2	0.18	0.08	−0.02	0.38
						W1	W3	0.20	0.08	−0.10	0.42
						W2	W3	.02	0.06	−0.14	0.18

Note: ηp2, partial eta square; W1, 2–3 weeks of confinement; W2, 6 weeks of confinement; W3, 9 weeks of confinement; LLCI, lower limit confidence interval; ULCI, upper limit confidence interval.

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

Anxiety

In the prediction of high levels of anxiety at W3, a pathway was found that predicted 37% of the cases. This pathway resulted from the interaction between the absence of relationship quality, absence of children, short relationship time, and absence of COVID threat perception at W1 with the presence of anxiety (W1). In the prediction of low levels of anxiety at W3, seven paths were found that predicted 79% of the cases of low levels. The first pathway, which explained 33% of the variance, resulted from the interaction between the absence of COVID-19 threat perception (W1), absence of anxiety (W1), not being a health professional, and having a longer relationship.

Depression

Regarding the prediction of high levels of depression at W3, we observed four paths that explained 72% of the cases. The pathway that explained the most cases (32%) was the interaction between the presence of depression at W1 with the absence of children and with a shorter relationship time. The case of low levels of depression obtained five pathways that explained 80% of the low levels of depression. The most relevant one explained 44% of the cases through the interaction between the absence of COVID-19 threat perception (W1), the absence of depression (W1), not being a health professional, and having a relationship of longer duration.

Stress

In the explanation of high-stress levels at W3, three paths were obtained that explained 59% of the cases of high stress levels. The most important one explained 29% of the cases through the interaction between low relationship quality (W1), low positive DC (W1), shorter relationship time, and the presence of COVID-19 threat perception (W1), stress (W1), and children. As for the absence of stress at W3, seven paths were obtained that explained 75% of the variance. The most relevant explained 38% of the cases through the absence of stress (W1), absence of COVID-19 threat perception (W1), not being a health professional, and having high positive DC (W1).

Well-being

On the other hand, six paths were obtained that explained 67% of the cases of high levels of well-being at W3. The most important path (36%) resulted from the interaction between the high quality of the relationship (W1), the high positive DC (W1), the high level of well-being (W1), a longer relationship time, the absence of perception of the threat of COVID-19, and not being a health professional. Likewise, six paths were observed that predicted 68% of the cases of low levels of well-being (W3). The most important path (36%) arose from the interaction between the absence of relationship quality (W1), absence of positive coping (W1), absence of well-being (W1), and not being a health professional.

DISCUSSION

To our knowledge, few published studies have addressed the study of how relational variables (relationship quality and positive DC) and individual variables (COVID-19 threat perception and symptoms of anxiety, depression, or stress) present at the beginning of confinement influence anxiety, depression, or stress symptoms in W3 in individuals living in a romantic relationship. Our work is a longitudinal study that assesses these variables at three points in time (W1, W2, and W3).

The first hypothesis (H1) stated that the perceived threat of illness would increase and that DC and relationship quality would decrease throughout the first year of COVID-19 impact. For these reasons, we also think that symptoms of anxiety, depression and stress will increase while well-being will decrease (Lacomba-Trejo et al., 2022; Pérez-Fuentes et al., 2020; Pietromonaco & Collins, 2017; Pietromonaco & Overall, 2021; Randall et al., 2022; Shahnawaz et al., 2022; Tepeli Temiz & Elsharnouby, 2022; Vindegaard & Benros, 2020).

The main results indicate that contrary to what was expected [H1(a)], symptoms of anxiety, depression, and stress in individuals living in an intimate relationship decreased over time.

This means that at the beginning of confinements, these participants felt more stress, anxiety, and depression than over time. This may have happened because, despite the stress experienced at home due to the pandemics, people have adapted positively to the adversity. A cross-sectional study conducted by Randall et al. (2022) to analyze COVID-19 psychological distress across 27 countries also found that Portuguese participants did not report higher post-COVID-19 psychological distress during the early phases of the pandemic (March–July 2020). Only five out of 27 countries showed a result comparable to the Portuguese one. These findings prompt us to consider the specificities of being a couple in Portugal. To understand this positive adaptation to adversity, we hypothesize that people in Portugal felt secure with the government's policies and guidelines regarding the pandemic and may trust the national health system. This hypothesis is supported by a study conducted by Gonçalves et al. (2021): the authors concluded that Portuguese participants had a positive perception of government communication, especially women, who trusted the government more and had a better opinion about the authorities' communication. It is important to note that the majority of our sample was composed of women. This hypothesis suggests that not only individual or relational coping and resilience matter but also the larger sociocultural context factors.

Previous literature emphasizes that most people who face complex trauma or sustained stress over time will not develop a mental health problem (Bonanno & Mancini, 2012). Our results seem to confirm this, suggesting that the existence of coping strategies may help to buffer couples from the adverse effects of the pandemic. Nevertheless, this decrease in symptoms of anxiety, depression, or stress is accompanied by an increase in the perceived quality of the relationship, also contrary to expectations (Xiang et al., 2022). This first set of findings may point to couples' resilience when facing trauma and a sense of threat, maybe through the use of DC (Lindblom et al., 2024). So, the double contradiction to our hypotheses' assumptions may express the interplay between the couples' functioning and psychological adjustment when facing adversity. This conclusion is in line with Pietromonaco and Overall model (Pietromonaco & Overall, 2021; Pietromonaco & Overall, 2023). Some cross-sectional studies indicate that relationships may have deteriorated (Li et al., 2020), but to our knowledge there are no longitudinal studies on the perception of the relationship quality throughout the period of confinement. In contrast, well-being and positive DC remained stable over time in our study, possibly because the values were already quite high at baseline, as confirmed for Portuguese individuals in a transcultural study (Randall et al., 2022).

One curious finding was that COVID-19 threat perception increased over time. We believe that this may be due to increased public awareness of the phenomenon, as well as increased perception of risk and the possibility of the virus affecting them personally or their families (Luo et al., 2021). The fact that the three waves of data collection follow the sequence confinement–deconfinement–confinement may help to explain this result. Also, the role of the media in this regard may have had some influence, as people were suddenly exposed to images and information for which they were not prepared (Figueiredo & Massano-Cardoso, 2021). The continuous recounting in the news (or on social networks) of just how many people were profoundly affected or had died, as well as the dissemination of information on the social, employment, and economic consequences that the pandemic was having on the population, is believed to have accentuated the public's perception of how threatening COVID-19 indeed was (Malecki et al., 2020).

On the other hand, the second hypothesis (H2), which sustained that high levels of stress, depression, or anxiety and low levels of well-being in W1 of confinement, in combination with (a) being a health professional, (b) having children, (c) having a relationship of shorter

duration, (d) having a high COVID-19 threat perception, and (e) low coping skills and relationship quality, will predict increased symptoms of anxiety, depression and stress in W3, as well as lower levels of well-being, was partially fulfilled. Thus, through the QCA models, we were able to observe which variables present at the beginning of the confinement predicted the levels of anxiety, stress, depression, and well-being in W3. This hypothesis was broadly fulfilled as higher levels of anxiety, depression, stress, or lower well-being earlier; together with a high threat perception of COVID-19; along with low relationship quality or low positive coping in the first wave; in interaction with short-term partner relationships and health work, were especially relevant in predicting higher levels of anxiety, depression and stress, or lower levels of well-being later. As Pietromonaco and Overall (2021) sustained, QCA models emphasize the predictive power of initial mental states (anxiety, depression, stress, and well-being at W1) on subsequent adjustment. The importance of PDC is also confirmed by these results.

Contrary to our hypothesis (H2), not having children predicted high levels of anxiety, stress, and depression in W3, and their presence predicted the absence of anxiety, depression, and stress or the presence of well-being at the third assessment. This finding matches the first results from the Relvas, Portugal, Major, et al. (2020) transcultural study in a different and much bigger sample of Portuguese individuals living in an intimate relationship. We may suppose that dealing with children during confinement should have been very stressful because adults had to deal with their own fears, stressors, and pressures, and, at the same time, accompany children or adolescents in this process (Aguiar et al., 2021). However, it is possible that the increased cohabitation may have generated warmer bonds between the members of the family. Additionally, while the presence of children might buffer relationship difficulties by shifting focus onto the children and potentially fostering a healthy triangulation process (Relvas, Portugal, & Sotero, 2020), it is also worth considering that having children could act as a protective factor in its own right. Children may contribute to the relationship not just by alleviating stress or serving as a buffer, but by providing meaningful connections that enhance the overall quality of the relationship. Further research is needed to explore these various relational and socioeconomic conditions. Future studies should also differentiate between the experiences of people living with their children and those who do not, to better understand the impact of these factors. In fact, this problem is extremely complex and may not easily be reduced to the explanation of the presence or absence of children in the household, so in the future, other variables related to maternity or paternity should be studied (e.g., number of children, ages, presence of physical or mental health problems in the children) along with socioeconomic aspects (e.g., available space at home, access to technological tools allowing the children to follow online classes, other dependents, loss of work, and death of loved ones during the confinement).

As a result of this complexity, in the case of high levels of stress, we found several results combining the presence or absence of children and short and long-term relationships, with high levels of stress at the beginning, high COVID-19 threat perception, and the absence of relationship quality and/or positive DC. The results lead us to reflect upon the contribution of relationship variables to symptoms of anxiety, depression, stress, and well-being, as the contribution of previous psychological states to the evolution of this symptomatology or well-being over time is clearly observed (Balzarini et al., 2023).

Again, consistent with the Pietromonaco model (Pietromonaco & Overall, 2021, 2023), which claims that pre-existing vulnerabilities in the members of the couple predict the actual adaptation to stress, these results lead us to direct special attention to people with previous mental health problems or with high levels of anxiety, depression, or stress, as well as to groups

such as health workers or couples in relationships of shorter durations. Specifically, studies have consistently pointed out that the presence of a mental health problem before confinement was central to the exacerbation of symptomatology during the pandemic (Buneviciene et al., 2022; Khan et al., 2022). Other studies have shown how healthcare workers suffered from greater pressures as caregivers, a lack of resources, and significant stress due to the increased possibility of infection or death, not only that of family members or colleagues but one's own (Marques et al., 2021). It would be interesting for future research to consider the specific type of healthcare work these professionals were practicing, as some may have been working on the front line and others not. Previous research has indicated that nurses and doctors suffered high levels of stress while healthcare workers who worked remotely were less stressed (Søvold et al., 2021).

LIMITATIONS AND FUTURE STUDIES

Despite its contributions, our work has certain limitations. One of them is related to the representativeness of the sample. Most of the participants in our study are female and have a university degree. This aspect aligns with trends in online survey response rates (Wu et al., 2022). Considering this, the results should be interpreted with caution, limiting any generalization. Additionally, the sample size and participant dropout could be considered limitations. Almost half of the sample dropped out from W1 to W3, and although this is common in longitudinal studies (Hogan et al., 2004), we conducted mean comparisons between participants who responded in all waves and those who only participated in the first wave to determine if there were differences in the scores of the dependent variables in W1. It was found that the groups were equivalent in this regard. Another aspect that can help to explain the relevant drop-out from W2 to W3 is the fact that W3 matches a second lockdown after a deconfinement period (W2). Besides, it may be possible that there was some exhaustion of inquiries by people because there was a great increase in the number of studies and surveys on the psychological impact of COVID-19 at this time, even supported by national funding agencies, such as the Foundation for Science and Technology for example. However, the present study employed the qualitative comparative methodology, which is suitable for small sample size studies (Rosati & Chazarreta, 2017). Furthermore, the present work was carried out using a convenience sample, which makes the generalization of the results more limited. Therefore, further studies are needed to continue investigating these variables longitudinally, using a probabilistic sample that allows for a better representation of the characteristics of individuals living in a romantic relationship during situations of severe crisis, such as the COVID-19 pandemic. Future work should increase the sample size so that causal predictive analyses can be carried out and theories established to help us better understand how individuals living in an intimate relationship function in situations of adversity. Similarly, in the future, some variables should be controlled for and other aspects should be evaluated, as in the assessment of other personal strengths such as resilience, personal coping skills, or even the type of relationship attachment.

If some other national and international research supports our results, protocols can be developed to identify those individuals living in a romantic relationship who are at risk and to promote and care for their mental health at an early stage. This work helps us to detect which variables contribute to the increase in psychological distress and the decrease in well-being in the face of confinement in our study's participants.

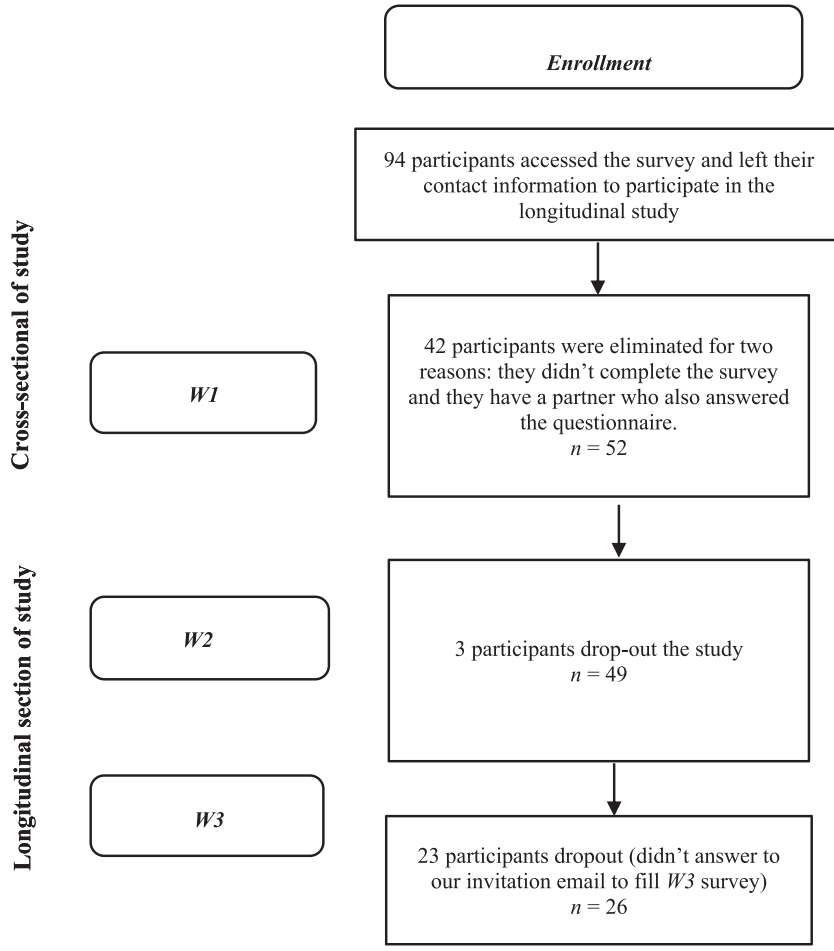

FIGURE 1 Flowchart of study participants and dropouts.

Clinical implications

The results of this longitudinal study suggest that individuals in romantic relationships develop resilience and adaptive coping mechanisms in response to prolonged stress, as evidenced by the decrease in anxiety, depression, and stress symptoms over time. The stability in well-being and DC underscores their importance as protective factors, indicating that clinical interventions should focus on maintaining and strengthening these areas. Despite the reduction in psychological distress, the perception of the COVID-19 threat increased, highlighting the need to address persistent fear and anxiety through psychoeducation and cognitive-behavioral strategies. Additionally, the duration of the relationship and the absence of children were predictors of higher distress levels, suggesting that newer couples and those without children may benefit from more targeted support, such as couples counseling and family therapy. Healthcare workers who exhibit higher levels of stress require regular mental health check-ups and access to counseling services. Finally, the importance of initial mental health states emphasizes the need for early intervention and continuous monitoring, especially in the early stages of a crisis, to maintain mental well-being and relationship quality. As such, prevention programs and

TABLE 2 Sufficiency analysis for high and low levels of anxiety, depression, stress, and well-being.

	High levels of anxiety	**Low levels of anxiety**			**High levels of depression**			**Low levels of depression**			**High levels of stress**			**Low levels of stress**								
Frequency cut-off point 1	**Consistency cut-off point 0.81**	**Consistency cut-off point 0.98**			**Consistency cut-off point 0.83**			**Consistency cut-off point 0.81**			**Consistency cut-off point 0.82**			**Consistency cut-off point 0.87**			**Highs levels of well-being Consistency cut-off point .85**			**Low levels of well-being Consistency cut-off point .83**		
	1	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Length of relationship long	○	●	○	○	○	○	○	●	○		○	●	○		●	●	●	●	○		○	○
Presence of children	○				○					●	●	○	●					●			○	●
Healthcare worker		○		○			●	○	○	○				○	○	○	○	○	○	○	○	
High levels of the variable at W1 (anxiety, depression, stress, or well-being)	●	○	○		●	●	●	○	○	○	●	●	●	○	○	○	●		●	○	○	
COVID-19 threat perception	○	○	○					○			●	●	●	○	○		○	○	●			●
Positive dyadic coping			●	●		○			●	●	○			●		●	●		●	○		○

(Continues)

TABLE 2 (Continued)

	High levels of anxiety	Low levels of anxiety			High levels of depression			Low levels of depression			High levels of stress			Low levels of stress			Highs levels of well-being			Low levels of well-being		
Frequency cut-off point 1	**Consistency cut-off point 0.81**	**Consistency cut-off point 0.98**			**Consistency cut-off point 0.83**			**Consistency cut-off point 0.81**			**Consistency cut-off point 0.82**			**Consistency cut-off point 0.87**			**Consistency cut-off point .85**			**Consistency cut-off point .83**		
Relationship quality	○		●			○	○		●	●	○		○			●	●		○		○	
Raw coverage	0.37	0.33	0.30	0.30	0.32	0.31	0.30	0.44	0.32	0.29	0.29	0.19	0.14	0.38	0.36	0.23	0.36	0.33	0.21	0.36	0.26	0.19
Unique coverage	0.37	0.12	0.04	0.04	0.22	0.20	0.22	0.14	0.02	0.08	0.26	0.19	0.12	0.03	0.08	0.06	0.08	0.09	0.05	0.11	0.09	0.03
Consistency	0.81	0.99	0.99	0.88	0.94	0.88	0.94	0.91	0.87	0.96	0.89	0.89	0.82	0.92	0.98	0.99	0.99	0.89	0.98	0.92	0.99	0.96
Overall consistency	**0.81**			**0.95**			**0.92**			**0.86**			**0.87**			**0.94**			**0.93**			**0.91**
Overall coverage	**0.37**			**0.79**			**0.72**			**0.80**			**0.59**			**0.75**			**0.67**			**0.68**

Note: Expected vector according to Fiss nomenclature (2010). For high levels of anxiety, depression, and stress, and for low levels of well-being: 1-0, 1-0, 1, 1, 1, 0, 0. For low levels of anxiety, depression and stress and high levels of well-being: 1-0, 1-0, 0, 0, 0, 1, 1.

clinical interventions in future pandemics or natural disasters need to consider the importance of enriching and fortifying couple relationships because they seem to be a critical resource for mental health and well-being.

Conclusions

In conclusion, we would like to highlight that our work points to the relevance of non-modifiable factors (e.g., profession, children), previous factors such as the level of anxiety, depression, stress, and well-being, along with current modifiable factors such as COVID-19 threat perception and relationship variables (positive DC and relationship quality), which can contribute to the improvement or worsening of psychological distress (symptoms of anxiety, depression and stress), as well as an individual's well-being. Especially important is the contribution of levels of anxiety, depression, stress, and well-being at the beginning of confinement (Figure 1 and Table 2).

ORCID

Ana Paula Relvas https://orcid.org/0000-0001-9011-2230
Alda Portugal http://orcid.org/0000-0001-8951-2077
Laura Lacomba-Trejo http://orcid.org/0000-0002-1990-9711
Sofia Major https://orcid.org/0000-0002-4643-2170
Luciana Sotero https://orcid.org/0000-0001-8393-2775
Ashley K. Randall https://orcid.org/0000-0003-3794-4163

REFERENCES

Aguiar, J., Matias, M., Braz, A. C., César, F., Coimbra, S., Gaspar, M. F., & Fontaine, A. M. (2021). Parental burnout and the COVID-19 pandemic: how Portuguese parents experienced lockdown measures. *Family Relations*, *70*(4), 927–938. https://doi.org/10.1111/fare.12558

Apóstolo, J., Mendes, A., & Rodrigues, M. (2007). Propriedades psicométricas da escala de depressão, ansiedade e stresse (DASS-21), numa amostra não clínica [Psychometric properties of the Depression, Anxiety and Stress scale (DASS-21), in a non-clinical sample]. *Revista Investigação em Enfermagem*, *15*, 66–76.

Balzarini, R. N., Muise, A., Zoppolat, G., Di Bartolomeo, A., Rodrigues, D. L., Alonso-Ferres, M., Urganci, B., Debrot, A., Bock Pichayayothin, N., Dharma, C., Chi, P., Karremans, J. C., Schoebi, D., & Slatcher, R. B. (2023). Love in the time of COVID: perceived partner responsiveness buffers people from lower relationship quality associated with COVID-related stressors. *Social Psychological and Personality Science*, *14*(3), 342–355. https://doi.org/10.1177/19485506221094437

Bodenmann, G. (2008). Dyadic coping and the significance of this concept for prevention and therapy. *Zeitschrift für Gesundheitspsychologie*, *16*(3), 108–111. https://doi.org/10.1026/0943-8149.16.3.108

Bodenmann, G., Pihet, S., & Kayser, K. (2006). The relationship between dyadic coping and marital quality: a 2-year longitudinal study. *Journal of Family Psychology*, *20*(3), 485–493. https://doi.org/10.1037/0893-3200.20.3.485

Bonanno, G. A., & Mancini, A. D. (2012). Beyond resilience and PTSD: mapping the heterogeneity of responses to potential trauma. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*(1), 74–83. https://doi.org/10.1037/a0017829

Broadbent, E., Petrie, K. J., Main, J., & Weinman, J. (2006). The brief illness perception questionnaire. *Journal of Psychosomatic Research*, *60*(6), 631–637. https://doi.org/10.1016/j.jpsychores.2005.10.020

Buneviciene, I., Bunevicius, R., Bagdonas, S., & Bunevicius, A. (2022). The impact of pre-existing conditions and perceived health status on mental health during the COVID-19 pandemic. *Journal of Public Health*, *44*(1), e88–e95. https://doi.org/10.1093/pubmed/fdab248

Ceri, V., & Cicek, I. (2021). Psychological well-being, depression and stress during COVID-19 pandemic in Turkey: a comparative study of healthcare professionals and non-healthcare professionals. *Psychology, Health & Medicine*, *26*(1), 85–97. https://doi.org/10.1080/13548506.2020.1859566

Cipolletta, S., Andreghetti, G., & Mioni, G. (2022). Risk perception towards COVID-19: A systematic review and qualitative synthesis. *International Journal of Environmental Research and Public Health*, *19*(8), 4649. https://doi.org/10.3390/ijerph19084649

Crespo, C. (2007). *Rituais familiares e o casal: Paisagens inter-sistémicasFamily rituals and the couple: Inter-systemic landscapes.* [Doctoral thesis, University of Lisbon]. https://repositorio.ul.pt/handle/10451/42437

Direção Geral de Saúde [(DGS] General Directorate forHealth). (2021). *DGS divulga orientação relativa ao uso obrigatório de máscaras* [DGS publishes guidance regarding the mandatory use of masks]. Serviço Nacional de Saúde (National Service of Health). https://www.sns.gov.pt/noticias/2021/10/04/covid-19-uso-de-mascara-2/

Donato, S., Parise, M., Pagani, A. F., Lanz, M., Regalia, C., Rosnati, R., & Iafrate, R. (2021). Together against COVID-19 concerns: the role of the dyadic coping process for partners' psychological well-being during the pandemic. *Frontiers in Psychology*, *11*, 1–9. https://doi.org/10.3389/fpsyg.2020.578395

Eng, S., & Woodside, A. G. (2012). Configural analysis of the drinking man: fuzzy-set qualitative comparative analyses. *Addictive Behaviors*, *37*(4), 541–543. https://doi.org/10.1016/j.addbeh.2011.11.034

Estlein, R., Gewirtz-Meydan, A., & Opuda, E. (2022). Love in the time of COVID-19: a systematic mapping review of empirical research on romantic relationships one year into the COVID-19 pandemic. *Family Process*, *61*, 1208–1228. https://doi.org/10.1111/famp.12775

Figueiredo, S., & Massano-Cardoso, I. (2021). November. *Revista Portuguesa de Investigação Comportamental e Social*, *7*(2), 89–102. https://doi.org/10.31211/rpics.2020.7.2.225

Fletcher, G. J. O., Simpson, J. A., & Thomas, G. (2000). The measurement of perceived relationship quality components: a confirmatory factor analytic approach. *Personality and Social Psychology Bulletin*, *26*(3), 340–354. https://doi.org/10.1177/0146167200265007

Gharibi, M., Sanagouymoharer, G., & Yaghoubinia, F. (2015). The relationship between quality of life with marital satisfaction in nurses in social security hospital in Zahedan. *Global Journal of Health Science*, *8*(2), 178–184. https://doi.org/10.5539/gjhs.v8n2p178

Gonçalves, G., Piñeiro-Naval, V., & Persici Toniolo, B. (2021). Em quem confiam os portugueses? A gestão da comunicação governamental na pandemia Covid-19. *Comunicação e Sociedade*, *40*, 169–187. https://doi.org/10.17231/comsoc.40(2021).3251

Hogan, J. W., Roy, J., & Korkontzelou, C. (2004). Handling drop-out in longitudinal studies. *Statistics in Medicine*, *23*(9), 1455–1497. https://doi.org/10.1002/sim.1728

Instituto Nacional de Estatística ([INE]National Institute of Statistics). (2021). *Síntese INE @ Covid-19*. https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=531507533&DESTAQUESmodo=2

Kan, T., & Zhang, J. (2018). Factors influencing seasonal influenza vaccination behaviour among elderly people: a systematic review. *Public Health*, *156*, 67–78. https://doi.org/10.1016/j.puhe.2017.12.007

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, methods, and research. *Psychological Bulletin*, *118*(1), 3–34. https://doi.org/10.1037/0033-2909.118.1.3

Khan, Y. S., Jouda, M., Albobali, Y., Osman Abouelseoud, M., Souid, A., AlMeraisi, M. J., & Alabdulla, M. (2022). COVID-19 pandemic fears and obsessive-compulsive symptoms in adolescents with pre-existing mental disorders: an exploratory cross-sectional study. *Clinical Child Psychology and Psychiatry*, *27*(1), 89–103. https://doi.org/10.1177/13591045211017606

Lacomba-Trejo, L., Calderón-Cholbi, A., & Delhom, I. (2022). Analysis of predictors of stress during confinement by COVID-19 in Spain. *Actas Espanolas de Psiquiatria*, *50*(4), 169–177.

Lacomba-Trejo, L., Valero-Moreno, S., Postigo-Zegarra, S., Pérez-Marín, M., & Montoya-Castilla, I. (2020). Ajuste familiar durante la pandemia de la COVID-19: un estudio de díadas. *Revista de Psicología Clínica con Niños y Adolescentes*, *7*(3), 66–72. https://doi.org/10.21134/rpcna.2020.mon.2035

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors associated with mental health outcomes

among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, *3*(3), e203976. https://doi.org/10.1001/jamanetworkopen.2020.3976

Li, G., Tang, D., Song, B., Wang, C., Qunshan, S., Xu, C., Geng, H., Wu, H., He, X., & Cao, Y. (2020). Impact of the COVID-19 pandemic on partner relationships and sexual and reproductive health: Cross-sectional, online survey study. *Journal of Medical Internet Research*, *22*(8), e20961. https://doi.org/10.2196/20961

Lindblom, J., Korja, R., Karlsson, H., Karlsson, L., Karukivi, M., Pajulo, M., & Nolvi, S. (2024). Prepandemic to early COVID-19: changes in couple functioning and links with harsh parenting. *Journal of Family Psychology*, *38*, 536–547. https://doi.org/10.1037/fam0001184

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

Ludwig, S., & Zarbock, A. (2020). Coronaviruses and SARS-CoV-2: A brief overview. *Anesthesia and Analgesia*, *131*(1), 93–96. https://doi.org/10.1213/ANE.0000000000004845

Luetke, M., Hensel, D., Herbenick, D., & Rosenberg, M. (2020). Romantic relationship conflict due to the COVID-19 pandemic and changes in intimate and sexual behaviors in a nationally representative sample of American adults. *Journal of Sex & Marital Therapy*, *46*(8), 747–762. https://doi.org/10.1080/0092623X.2020.1810185

Luo, F., Ghanei Gheshlagh, R., Dalvand, S., Saedmoucheshi, S., & Li, Q. (2021). Systematic review and meta-analysis of fear of COVID-19. *Frontiers in Psychology*, *12*, 661078. https://doi.org/10.3389/fpsyg.2021.661078

Malecki, K. M. C., Keating, J. A., & Safdar, N. (2020). Crisis communication and public perception of COVID-19 risk in the era of social media. *Clinical Infectious Diseases*, *72*(4), 697–702. https://doi.org/10.1093/cid/ciaa758

Marques, M., Ferreira, R., Loureiro, L., Meneses, S., Duarte, F., Marques, A., & Fonseca, L. (2021). Saúde mental de profissionais de saúde, durante a primeira vaga COVID-19 [Mental health of health professionals during the first wave of COVID-19]. *Psicologia, Saúde & Doença*, *22*(3), 778–788. https://doi.org/10.15309/21psd220301

Monge-Rodríguez, F. S., Jiang, H., Zhang, L., Alvarado-Yepez, A., Cardona-Rivero, A., Huaman-Chulluncuy, E., & Torres-Mejía, A. (2021). Psychological factors affecting risk perception of COVID-19: Evidence from Peru and China. *International Journal of Environmental Research and Public Health*, *18*(12), 6513. https://doi.org/10.3390/ijerph18126513

Pais-Ribeiro, J., 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 [Contribution to the Portuguese adaptation study of the Lovibond and Lovibond Anxiety, Depression and Stress Scales (EADS) with 21 items]. *Psicologia, Saúde & Doenças*, *5*(2), 229–239.

Pappas, I. O., & Woodside, A. G. (2021). Fuzzy-set qualitative comparative analysis (fsQCA): Guidelines for research practice in information systems and marketing. *International Journal of Information Management*, (*58*), 102310. https://doi.org/10.1016/j.ijinfomgt.2021.102310

Pérez-Fuentes, M. C., Molero Jurado, M. M., Martos Martínez, Á., & Gázquez Linares, J. J. (2020). Threat of COVID-19 and emotional state during quarantine: Positive and negative affect as mediators in a cross-sectional study of the spanish population. *PLoS One*, *15*(6), e0235305. https://doi.org/10.1371/journal.pone.0235305

Pietromonaco, P. R., & Collins, N. L. (2017). Interpersonal mechanisms linking close relationships to health. *American Psychologist*, *72*(6), 531–542. https://doi.org/10.1037/amp0000129

Pietromonaco, P. R., & Overall, N. C. (2021). Applying relationship science to evaluate how the COVID-19 pandemic may impact couples' relationships. *American Psychologist*, *76*(3), 438–450. https://doi.org/10.1037/amp0000714

Pietromonaco, P. R., & Overall, N. C. (2023). How sociocultural contexts may shape the impact of the COVID-19 pandemic on couples' relationships. *Journal of Family Theory & Review*, *16*, 1–15. https://doi.org/10.1111/jftr.12523

Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.

Randall, A. K., Leon, G., Basili, E., Martos, T., Boiger, M., Baldi, M., Hocker, L., Kline, K., Masturzi, A., Aryeetey, R., Bar-Kalifa, E., Boon, S. D., Botella, L., Burke, T., Carnelley, K. B., Carr, A., Dash, A., Fitriana, M., Gaines, S. O., ... Chiarolanza, C. (2022). Coping with global uncertainty: Perceptions of

COVID-19 psychological distress, relationship quality, and dyadic coping for romantic partners across 27 countries. *Journal of Social and Personal Relationships*, *39*(1), 3–33. https://doi.org/10.1177/02654075211034236

Relvas, A. P., Lacomba-Trejo, L., Portugal, A., Chiarolanza, C., Major, S., Rosa, C., Sotero, L., & Randall, A. K. (2023). YES, WE COPE: Dyadic coping as a mediator between perceived relationship quality and emotional representation of COVID-19. *Cognitive Therapy and Research*, *47*, 563–573. https://doi.org/10.1007/s10608-023-10379-4

Relvas, A. P., Portugal, A., Major, S., & Sotero, L. (2020). *Resultados preliminares sobre impacto psicossocial da COVID-19 em PortugalPreliminary results on the psychosocial impact of COVID-19 in Portugal*. Centro de Estudos Sociais da Universidade de Coimbra. https://www.ces.uc.pt/ficheiros2/files/RELATORIO_Resultados%20Preliminares%20sobre%20Impacto%20Psicossocial%20da%20COVID19%20em%20Portugal.pdf

Relvas, A. P., Portugal, A., & Sotero, L. (2020). "Relações amorosas". Palavras para lá da pandemia: Cem lados de uma crise"Love relationships". Words beyond the pandemic: one hundred sides of a crisis. https://ces.uc.pt/publicacoes/palavras-pandemia/?lang=1&id=30180

Rosati, G., & Chazarreta, A. (2017). El <I>Qualitative comparative Analysis</I> (QCA) como herramienta analítica. Dos aplicaciones para el análisis de entrevistas. *Revista Latinoamericana de Metodología de las Ciencias Sociales*, *7*, 018. https://doi.org/10.24215/18537863e018

Sampogna, G., Giallonardo, V., Del Vecchio, V., Luciano, M., Albert, U., Carmassi, C., Carrà, G., Cirulli, F., Dell'Osso, B., Menculini, G., Belvederi Murri, M., Pompili, M., Sani, G., Volpe, U., Bianchini, V., & Fiorillo, A. (2021). Loneliness in young adults during the first wave of COVID-19 lockdown: results from the multicentric COMET study. *Frontiers in Psychiatry*, *12*, 1–12. https://doi.org/10.3389/fpsyt.2021.788139

Schokkenbroek, J. M., Hardyns, W., Anrijs, S., & Ponnet, K. (2021). Partners in lockdown: relationship stress in men and women during the COVID-19 pandemic. *Couple and Family Psychology: Research and Practice*, *10*(3), 149–157. https://doi.org/10.1037/cfp0000172

Sels, L., Galdiolo, S., Gaugue, J., Geonet, M., Verhelst, P., Chiarolanza, C., Randall, A. K., & Verhofstadt, L. (2022). Intimate relationships in times of COVID-19: A descriptive study of Belgian partners and their perceived well-being. *Psychologica Belgica*, *62*(1), 1–16. https://doi.org/10.5334/pb.1088

Sethi, B. A., Sethi, A., Ali, S., & Aamir, H. S. (2020). Impact of coronavirus disease (COVID-19) pandemic on health professionals: Impact of COVID-19 on health professionals. *Pakistan Journal of Medical Sciences*, *36*(COVID19–S4), 6–11. https://doi.org/10.12669/pjms.36.COVID19-S4.2779

Shahnawaz, M., Nabi, W., Nabi, S., Afaq, M., Paul, M. A., War, F. A., & Shah, N. N. (2022). Relationship between intolerance of uncertainty and symptom severity in COVID-19 patients: the mediating role of illness perception and COVID-19 fear. *Current Psychology*, 1-8. https://doi.org/10.1007/s12144-022-03577-y

Søvold, L. E., Naslund, J. A., Kousoulis, A. A., Saxena, S., Qoronfleh, M. W., Grobler, C., & Münter, L. (2021). Prioritizing the mental health and well-being of healthcare workers: An urgent global public health priority. *Frontiers in Public Health*, *9*, 1–12. https://doi.org/10.3389/fpubh.2021.679397

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of Life Outcomes*, *5*(1), 63. https://doi.org/10.1186/1477-7525-5-63

Tepeli Temiz, Z., & Elsharnouby, E. (2022). Relationship satisfaction and well-being during the COVID-19 pandemic: examining the associations with interpersonal emotion regulation strategies. *Cognitive Therapy and Research*, *46*(5), 902–915. https://doi.org/10.1007/s10608-022-10317-w

Vale, M. T., & Bisconti, T. L. (2021). Minority stress and relationship well-being in sexual minorities: the varying role of outness on relationship and sexual satisfaction. *International Journal of Sexual Health*, *33*(3), 297–311. https://doi.org/10.1080/19317611.2021.1909684

Valero-Moreno, S., Castillo-Corullón, S., Montoya-Castilla, I., & Pérez-Marín, M. (2020). Primary ciliary dyskinesia and psychological well-being in adolescence. *PLoS One*, *15*, e0227888. https://doi.org/10.1371/journal.pone.0227888

Valero-Moreno, S., Lacomba-Trejo, L., Tamarit, A., Pérez-Marín, M., & Montoya-Castilla, I. (2021). Psychoemotional adjustment in parents of adolescents: a cross-sectional and longitudinal analysis of the impact of the COVID pandemic. *Journal of Pediatric Nursing*, *59*, e44–e51. https://doi.org/10.1016/j.pedn.2021.01.028

Vedes, A., Nussbeck, F. W., Bodenmann, G., Lind, W., & Ferreira, A. (2013). Psychometric properties and validity of the dyadic coping inventory in Portuguese. *Swiss Journal of Psychology*, *72*(3), 149–157. https://doi.org/10.1024/1421-0185/A000108

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: systematic review of the current evidence. *Brain, Behavior, and Immunity*, *89*, 531–542. https://doi.org/10.1016/j.bbi.2020.05.048

Weitkamp, K., Feger, F., Landolt, S. A., Roth, M., & Bodenmann, G. (2021). Dyadic coping in couples facing chronic physical illness: a systematic review. *Frontiers in Psychology*, *12*, 722740. https://doi.org/10.3389/fpsyg.2021.722740

World Health Organization. (2020). Mental health and psychosocial considerations during the COVID-19 outbreak, 18 March 2020 (WHO/2019-nCoV/MentalHealth/2020.1). World Health Organization. https://apps.who.int/iris/handle/10665/331490

Wu, M.-J., Zhao, K., & Fils-Aime, F. (2022). Response rates of online surveys in published research: a meta-analysis. *Computers in Human Behavior Reports*, *7*, 100206. https://doi.org/10.1016/j.chbr.2022.100206

Xiang, E., Zhang, X., Raza, S. A., Oluyomi, A., Amos, C. I., & Badr, H. (2022). Risk and resilience in couple's adjustment to the COVID-19 pandemic. *Journal of Social and Personal Relationships*, *39*(11), 3252–3274. https://doi.org/10.1177/02654075221094556

Zhou, P., Yang, X.-L., Wang, X.-G., Hu, B., Zhang, L., Zhang, W., Si, H.-R., Zhu, Y., Li, B., Huang, C.-L., Chen, H.-D., Chen, J., Luo, Y., Guo, H., Jiang, R.-D., Liu, M.-Q., Chen, Y., Shen, X.-R., Wang, X., ... Shi, Z. L. (2020). A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*, *579*(7798), 270–273. https://doi.org/10.1038/s41586-020-2012-7

SUPPORTING INFORMATION

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

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