Universidade do Minho
Escola de Psicologia

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The Psychological Impact of the COVID-19 Pandemic in Portugal: The Role of Personality Traits and Emotion Regulation Strategies

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Professora Doutora Sandra Carvalho
e co-orientação do
Professor Doutor Henrique Sequeira

junho de 2021

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(Joana Raquel Oliveira Meireles)

O Impacto Psicológico da Pandemia COVID-19 em Portugal: O Papel dos Traços de Personalidade e das Estratégias de Regulação Emocional

Resumo

Existe uma necessidade evidente de identificar fatores associados ao declínio global da saúde mental durante a pandemia COVID-19. Contudo, poucos estudos investigaram o papel de fatores disposicionais no impacto psicológico da pandemia na população geral. Neste sentido, o objetivo principal deste estudo foi identificar fatores de personalidade e de regulação emocional que afetam os níveis de depressão, ansiedade e stress durante a segunda vaga de COVID-19. Entre novembro (2020) e fevereiro (2021), foi disponibilizado um questionário online que avaliava os níveis de sintomatologia, traços de personalidade, estratégias de regulação emocional, dados sociodemográficos e fatores relacionados com a pandemia. Um total de 544 adultos residentes em Portugal foram incluídos neste estudo. Metade da amostra relatou níveis moderados a extremos de sintomatologia de depressão (52.6%), ansiedade (52.3%) e stresse (50.3%). O maior impacto psicológico foi observado em participantes que estavam desempregados, em modalidade de trabalho presencial, possuíam uma condição médica (neurológica ou outra), estavam positivos para COVID-19 na altura, estavam em confinamento social, apresentavam traços elevados de neuroticíssimo e relatavam desregulação emocional, com uso predominante de supressão emocional como estratégia de *coping*. Contrariamente, aqueles em modalidade de trabalho à distância, que moravam numa casa, apresentavam traços elevados de conscienciosidade e amabilidade e usavam reavaliação cognitiva como estratégia de *coping* emocional, apresentavam menor impacto psicológico. Estes resultados realçam a importância de diferenças individuais no estilo de personalidade e regulação emocional e o seu papel na forma como as pessoas lidam com um estado de pandemia. A comunidade científica, o governo e as autoridades de saúde devem concentrar-se no desenvolvimento de métodos eficazes para promover respostas emocionais mais adaptativas e reduzir desafios adicionais na comunidade portuguesa.

Palavras-chave: COVID-19; personalidade; regulação emocional; saúde mental

The Psychological Impact of the COVID-19 Pandemic in Portugal: The Role of Personality Traits and Emotion Regulation Strategies

Abstract

There is an evidente need for the identification of factors associated with worldwide decline in mental health during the COVID-19 pandemic. However, few studies investigated the role of dispositional factors on the psychological impact of the pandemic in the general population. Therefore, the main goal of this study was to identify personality and emotion regulation factors that affect levels of depression, anxiety, and stress during the second wave of COVID-19. Between November (2020) and February (2021), an online questionnaire was disseminated to evaluate levels of symptomatology, personality traits, emotion regulation strategies, sociodemographic characteristics, and pandemic-related factors. A total of 544 adults residing in Portugal were included in this study. Half of them reported moderate to extreme levels of depression (52.6%), anxiety (52.3%), and stress (50.3%). The greatest psychological distress was observed in those who were unemployed, in presential work, had a medical condition (neurological or other), were positive for COVID-19 at the time, were in social confinement, had high traits of neuroticism and reported emotional dysregulation, with predominant use of emotional suppression as a coping strategy. Contrarily, those in remote work, who lived in a house, showed high traits of conscientiousness and agreeableness and used cognitive reappraisal as an emotional coping strategy, had less psychological distress. These results highlight the importance of individual differences in personality and emotion regulation style and their role in how people deal with a state of pandemic. The scientific community, the government and health authorities must focus on developing effective methods to promote more adaptive emotional responses and reduce additional challenges in the Portuguese community.

Key-words: COVID-19; emotion regulation; mental-health; personality

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The Psychological Impact of the COVID-19 Pandemic in Portugal: The Role of Personality Traits and Emotion Regulation Strategies

The coronavirus disease 2019 (COVID-19) outbreak was officially declared a global pandemic on March 11, 2020, by the World Health Organization (WHO Health, 2020). The subsequent restrictions of person-to person contact implemented by several countries (Y. Huang et al., 2020) proved to be effective in dropping rates of infection and hospitalization (Hsiang et al., 2020). Nevertheless it brought additional socioeconomic challenges (Buheji et al., 2020) and profound psychological distress (Wu et al., 2021). In Portugal, the first lockdown period occurred between March 18th and May 3rd, 2020 (XXII Governo – República Portuguesa, 2020), however, the lifting of restriction throughout the summer caused the appearance of a second wave of COVID-19 (Direção-Geral da Saúde, 2020).

Although infection rates started to decrease throughout December, a sudden increase in cases and health services overload lead Portuguese authorities to announce a second lockdown in January 15th, 2021 (XXII Governo – República Portuguesa, 2021). The expected consequences of containment strategies, including feelings of boredom, frustration, loneliness, fear, and financial insecurity, are considered risk factors for mental health issues (Brooks et al., 2020). In line with this, during past epidemics social isolated people exhibited high prevalence of psychological distress (Hawryluck et al., 2004; Jeong et al., 2016). Hence, investigating the psychological impact of the COVID-19 pandemic and associated factors is critical to minimize the negative effects on mental health (Holmes et al., 2020).

Mental health involves a state of emotional well-being that allows people to respond appropriately to environmental demands and it presumes a relative freedom from disabling symptoms. Following COVID-19 outbreak, the prevalence of depression, anxiety, and stress symptoms increased (Bonati et al., 2021; Brailovskaia et al., 2021; C. H. Liu et al., 2020; Zheng et al., 2021). A metanalysis show that the COVID-19 pandemic increased mental health problems at a global level (Wu et al., 2021). Portugal is no exception, Paulino and colleagues (2021) showed that 49.2% of participants reported moderate to severe psychological impact with 11.7%, 16.9%, and 5.6% presenting moderate to severe symptoms of depression, anxiety, and stress, respectively.

Previous studies have shown that certain pandemic-related factors could be important predictors of mental health. Worry about becoming infected, infecting others, and extensive periods of containment measures were the first to be identified as risk factors for depression, anxiety, and stress (Fancourt et al., 2020; Henssler et al., 2020; Zheng et al., 2021). The disruptions in the way people socialize, work and live could cause emergence of negative emotions that are often distressing. People passed the majority of the time at home, which was particularly upsetting for people living in urban environments with no access to green spaces (Moreira et al., 2020; Xiong et al., 2020), and for those with significant reductions on social supporting systems (Wang et al., 2021).

The study of individual differences in the psychological impact of the current pandemic mainly focused in sociodemographic characteristics. Being female (Xiong et al., 2020; Zheng et al., 2021), divorced, widowed, separated (Tan et al., 2020; Xiong et al., 2020), lower educated (Paulino et al., 2021; Xiong et al., 2020), unemployed (Paulino et al., 2021; Zheng et al., 2021), and having a preexisting psychological or physical disorder (Xiong et al., 2020; Yan et al., 2021; Zheng et al., 2021) significantly predicted worse psychological outcomes. Although prior research has investigated situational and individual risk factors for mental health, such as pandemic-related factors and sociodemographic characteristics, little is known about dispositional factors, such as personality and emotion regulation, and their role in how people respond to the current pandemic.

Personality Traits, Mental Health, and the COVID-19 Pandemic

Research on individual differences has emphasized the importance of personality traits in understanding the way people think, feel and behave in response to life events. One of the most widely used personality models in psychological research is Big Five personality traits. This theory defines personality according to five broad traits, neuroticism (e.g., tendency to experience negative affect and psychological distress), extraversion (e.g., tendency to be social, assertive, positive, and active), openness (e.g., tendency to seek and appreciate unfamiliar experiences), agreeableness (e.g., tendency to be altruistic, sympathetic, and cooperative), and conscientiousness (e.g., tendency to be responsible, organized, persistent, and goal-oriented). Personality traits have been systematically linked to psychopathology and positive mental health. Specifically, individuals with higher levels of neuroticism and lower levels of conscientiousness are more likely to develop anxiety,

depressive, and substance use disorders (Kotov et al., 2010). Contrarily, individuals with higher levels of agreeableness and extraversion are more likely to present positive mental health, serving has protective factors (Lamers et al., 2012).

Some authors have study individual differences according to personality traits during the current crisis. For instance, high scores in the neuroticism index are accompanied by a tendency to experience negative affect (Kroencke et al., 2020), lower subjective wellbeing (Zager Kocjan et al., 2021), higher perceived threat of contracting COVID-19 (S. Liu et al., 2021) and overestimation of the risk of serious illness (Nikčević et al., 2021). Furthermore, extroverts reported increased levels of stress during lockdown (S. Liu et al., 2021), however, they also tend to comply less with containment measures (Carvalho et al., 2020) and worry less about the risk of contracting the disease, which has been linked to more positive psychological outcomes (Nikčević et al., 2021). Contrarily, individuals with high scores of agreeableness or consciousness tend to comply more with containment measures (Carvalho et al., 2020; Zajenkowski et al., 2020) and subsequently report lower perceived risk and concern about being infected, which results in lower levels of self-reported anxiety and depression (Nikčević et al., 2021). Personality traits shape the way individuals perceive, judge and act within their environment (Hughes. et al., 2020), and may also impact the available resources to deal with stressfully events. For instance, low neuroticism and higher levels of extraversion, openness, agreeableness and conscientiousness have been linked with use of adaptative responses to emotional eliciting situations (Barańczuk, 2019).

Emotion Regulation, Mental Health, and the COVID-19 Pandemic

When facing emotional eliciting situations people adopt, either consciously or unconsciously, specific cognitive and behavioral strategies to modulate the magnitude and/or type of emotions experienced (Gratz & Roemer, 2004; Gross, 1998). Depending on the strategies selected, outcomes may change. Use of adaptative emotion regulation strategies negatively associate with prevalence of anxiety, depression, and stress related disorders (Aldao et al., 2010) while maladaptive emotion regulation has been linked to the maintenance of clinical disorders (Garnefski & Kraaij, 2006).

Some strategies are more advantageous in a variety of contexts, such as cognitive reappraisal (i.e., propensity to construct potentially emotion-eliciting events in a way that changes its emotional impact), problem-solving (i.e., active coping to change or remove the

source of distress), and acceptance (i.e., receptive and nonjudgmental attitude towards one's emotional experience) (Aldao et al., 2010; Garnefski & Kraaij, 2006). In contrast, suppression (i.e., disposition to inhibit the emotional expressive behavior while emotionally aroused), rumination (i.e., intrusive and repetitive thought focused on the emotional experience), and avoidance (i.e., disregard of emotional states) have been considered disadvantageous strategies, resulting in incapacity to cease emotional states or even leading to its amplification (Aldao & Nolen-Hoeksema, 2010).

The tendency to use certain emotion regulation strategies may play an important role on explaining mental health decline during the COVID-19 pandemic. Jiang and colleagues reported that presence of stress-related symptoms following the outbreak was predicted by higher use of suppression and lower use of cognitive reappraisal (Jiang et al., 2020). Additionally, anxiety related to SARS-CoV-2 was positively associated to use of maladaptive emotion regulation strategies (Jungmann & Witthöft, 2020). Furthermore, during the early stage of COVID-19 pandemic, individuals with higher difficulties in using adaptive emotion regulation (i.e., emotion dysregulation) were more prone to experience loneliness (Groarke et al., 2020), predicting depressive symptoms one month later (Groarke et al., 2021).

Aims and Hypothesis

Firstly, we assessed the short-term psychological impact of the COVID-19 outbreak in the general population living in Portugal during the second wave, evaluating levels of depression, anxiety, and stress, as assed by the Depression Anxiety Stress Scale – 21 (DASS-21) form. We hypothesize a negative impact on psychological health of the Portuguese population, expressed by mild to severe levels of stress, depression and anxiety.

Secondly, we aimed to explore the relationship between personality traits, emotion regulation strategies and levels of depression, anxiety and stress. We hypothesized that the levels of symptomatology will positively relate to emotional suppression, emotion dysregulation and neuroticism, while a negative relationship was expected with cognitive reappraisal strategy, extroversion, conscientiousness and agreeableness personality traits. We further expect that adaptative emotion regulation strategies (i.e., cognitive reappraisal) will be positively related to extraversion, agreeableness, and conscientiousness and negatively correlate with neuroticism, while maladaptive emotion regulation strategies (i.e.,

emotional suppression, and emotion dysregulation) will positively relate with neuroticism and negatively relate to extraversion, agreeableness, and conscientiousness personality traits.

Thirdly, we studied the role of personality and emotion regulation in predicting levels of depression, anxiety and stress. We hypothesized that neuroticism, emotion dysregulation, and emotional suppression, will predict increased symptomatology while extraversion, agreeableness, conscientiousness, and cognitive reappraisal will predict lower symptomatology.

Finally, we also evaluated the impact of sociodemographic characteristics and pandemic-related factors on psychological distress (levels of depression, anxiety, and stress). We hypothesized that being female, low educated, unemployed, divorced, widowed, with a medical condition, being currently positive for COVID-19, in social confinement, in quarantine, changes in relationship patterns, living in an apartment/social residency, no green or public spaces near the habitation would predict increased symptomatology.

Method

General Description

The present work takes part of a bigger longitudinal project entitled “The impact of the COVID-19 pandemic on physical, mental, social health and feeling of personal security: a longitudinal study”, approved by the Ethics Committee for Social and Human Sciences of the University of Minho (CEICSH 036/2020). The general goal of this project is to study the effect of COVID-19 pandemic in the general population living in Portugal, and it comprised 2 phases of evaluation (Phase I and Phase II).

Phase I

The aim of Phase I was to evaluate the short-term impact of the COVID-19 pandemic during the first lockdown for a period of 15 consecutive days (20th of April – 4th of May). In order to reach this goal, a bi-daily online assessment was conducted, using the Self-Assessment Manikin (SAM) and the Visual Analogue Scale (VAS). The SAM takes 1 minute to rate and consists of a picture-oriented 9-point scale used to assess the emotional state according to three features of emotional responses (i.e., valence, arousal and dominance) and the VAS entails a 10-level scale constructed with the purpose of monitoring possible

sources of discomfort, pain and restlessness at physical and mental level. A more extensive online questionnaire was used in the first and last assessments to obtain a better sample characterization. This questionnaire contained questions regarding sociodemographic characteristics, pandemic-related information, personality, emotion regulation, psychopathologic symptoms, mood, satisfaction with life, general health and social support. During a follow-up assessment one month after the initial evaluation (1st to 5th of June, 2020) the same online questionnaire was administer, covering the initial deconfinement period.

Phase II

The aim of phase II was to evaluate the long-term impact of the COVID-19 pandemic, specifically in the mental health of the Portuguese population (after 9 to 10 months of COVID-19 pandemic). To reach this goal, a follow-up assessment was initiated 6 months after initial evaluation (16th November, 2020 – 20th February) using the online questionnaire previously used in Phase I. It is noteworthy that this period covered the second wave of COVID-19 pandemic and subsequent implementation of a second lockdown in Portugal. For the purpose of this master thesis, only results obtain within Phase II were explored.

Participants

A total of 573 people participated in phase II of this study. After data inspection 28 responses were excluded due to missing data, and repeated answers. The final sample was composed of 544 (71.7% females) volunteers aged between 18 and 75 (M =31.65; SD = 14.91), and the majority resided in the north region of Portugal (77.2%), and had an educational level equal or superior to secondary school (84%). Half of the total sample were university students (50.2%) and about a third was employed (32.2%). Regarding work modality, more than half of the sample reported being either in remote work (32.9%) or on hybrid work (31.3%). Additionally, more than half of the sample was single (61.4%) and reported not having descendants (68.6%) or ascendents (75.7%) directly dependent on them, while the mean number of family members was 4 (SD = 1). About 73.9% of the total sample did not report any psychiatric, neurologic, or other medical conditions.

More than half of the participants reported to be currently complying with social confinement measures (54.6%). However, the majority was not in quarantine (96.1%) and

reported never being positive for COVID-19 (81.1%). Furthermore, several participants reported significant changes in their relationship patterns in comparison to pre-pandemic period (85.5%). Moreover, approximately half of the sample reported living in a house (44.7%) and the remaining participants reported living in apartments (55.1%) or social residencies (0.2%), with 11.1% reporting not having green or public spaces near the habitation (see Table 1).

Table 1

Distribution of Sociodemographics and Pandemic-Related Factors

Sample Characteristics	*n*	*%*
Sociodemographics		
Gender		
Female	390	71.7
Male	154	28.3
Region		
North	420	77.2
Center	98	18
South	20	3.7
Islands	6	1.1
Marital status		
Single	334	61.4
Married	152	27.9
Partnered	36	6.6
Divorced	18	3.3
Widowed	4	0.8
Educational level		
Inferior to 9th Grade	30	5.5
9th Grade	57	10.5
High school (12th grade)	215	39.5
Bachelor	116	21.3
Pre-Bologna Bachelor	33	6.1
Master	51	9.4
PhD	42	7.7
Occupation		

Student	273	50.2
Working Student	35	6.4
Employed	175	32.2
Unemployed	30	5.5
Retired	31	5.7
Work modality		
Presential	95	17.5
Hybrid (remote + presential)	170	31.3
Remote	179	32.8
Suspended	54	9.9
Unemployed	38	7
Unemployed due to COVID-19	8	1.5
Medical History [a]	142	26.1
Psychiatric Disease	51	9.3
Neurologic Disease	23	4.2
Other Condition	96	17.6
Pandemic-related factors		
In quarantine [a]	21	3.9
Social distancing [a]	297	54.6
Positive for COVID-19		
No/Do not Know	441	81.1
Currently	31	5.7
Previously	72	13.2
Housing Type		
House	243	44.7
Apartment	300	55.1
Social Residency	1	0.2
Green/Public Spaces [a]	484	89
Changes in Relationships [a]	465	85.5

Note. N= 544.

[a] Reflects the number and percentage of participants answering “yes” to this question.

Measures

The present section covers only the description of instruments used for the purpose of this study. All procedures here described followed the ethical requirements for human research in accordance with the Code of Ethical Principles for Medical Research Involving Humans Subjects outlined in the Declaration of Helsinki.

Sociodemographic Characteristics

This questionnaire was developed for the present project and has as primary goal the demographic, medical and academic/professional characterization of the participants. It contains 15 items of direct or multiple-choice answer that takes 3 minutes to fill and includes questions about age, sex, residency, marital status, educational degree, professional activity, changes in work regime, number of family member, number of people directly dependent on the respondent, and medical history.

Pandemic-Related Factors

This 20-item questionnaire ("questionnaire to evaluate life-style during quarantine", see Figure 1) evaluated participants' life-style, concerning physical health, mental health, interpersonal communication/social support and security. It included direct and multiple-choice answers with an expected completion time of 5 to 7 minutes. Pandemic-related factors were assessed using questions comprised in this questionnaire. Information regarding current or previous infection with SARS-CoV-2, social confinement, quarantine, housing type, outdoor space, and changes in relationship compared to pre-pandemic period were collected.

Personality

The NEO-FFI (Portuguese version of Magalhães et al., 2014) is a measure developed to characterize the cognitions, behaviors and emotions of the participants regarding five personality dimensions, namely: Neuroticism ($\alpha = 0.90$); Extraversion ($\alpha = 0.78$); Openness ($\alpha = 0.76$); Agreeableness ($\alpha = 0.86$); and Conscientiousness ($\alpha = 0.90$). The instrument has 60 items rated in a 5-point Likert scale, ranging from 0 (strongly disagree) to 4 (strongly agree), and takes approximately 15 minutes to complete. The scores obtain in each personality trait can range from 0 to 48 with higher scores representing a greater presence of the trait in a person's personality and lower scores indicate the opposite (e.g., scoring 11 in neuroticism

represents a person with low neuroticism, while scoring 22 represents a person with high neuroticism).

Emotion Regulation

The Difficulties of Emotion Regulation Scale (DERS-18; Portuguese version of Coutinho, Ribeiro, Ferreirinha, & Dias, 2010) is a 18-items measure that assesses levels of emotion dysregulation according to six dimensions (each with an $\alpha > 0.75$.), awareness (i.e., lack of understanding of one's own emotions), clarity (i.e., difficulty to clarify the nature of the emotion experienced), non-acceptance (i.e., difficulties on accepting one's emotional state), strategy (i.e., absence of effective emotion regulation strategies), goals (i.e., inability to engage in goal-directed activities while experiencing negative emotions), and impulse (i.e., incapability to manage impulses during overwhelming experience of emotions). Items are scored on a 5-point scale with higher scores representing worst adjustment. This scale can be interpreted using each dimension or the sum of all dimensions that gives a general measure of emotion dysregulation. This measure takes 3-5 minutes to fill.

The Emotion Regulation Questionnaire (ERQ; Portuguese version of Vaz, Martins, & Martins, 2008) is a 10- item scale that measures individual differences in the dispositional use of two emotion regulation strategies: cognitive reappraisal ($\alpha = 0.76$) and emotional suppression ($\alpha = 0.65$). This 8-point Likert scale, ranging from 1 (totally disagree) to 8 (totally agree) takes only 2 minutes to complete. Example items for cognitive reappraisal and emotional suppression include: "I control my emotions by changing the way I think about the situation I'm in", and "I control my emotions by not expressing them", respectively. Scores can range between 6 to 48 for cognitive reappraisal and 4 to 32 for emotional suppression with higher scores representing higher disposition to use the relative emotional regulation strategy.

Psychological Distress

The Depression, Anxiety, and Stress Scale (DASS-21; Portuguese version of Pais-Ribeiro, Honrado, & Leal, 2004) was used to measure psychological distress and is subdivided in three domains, namely, Depression ($\alpha = 0.85$), Anxiety ($\alpha = 0.74$), and Stress ($\alpha = 0.81$), each of them comprising 7 items. Each item describes an emotionally negative symptom (e.g., "I found it difficult to relax") that are rated according to the degree of appliance to the respondent, ranging from 0 (not applied at all) to 3 (applied to me most of

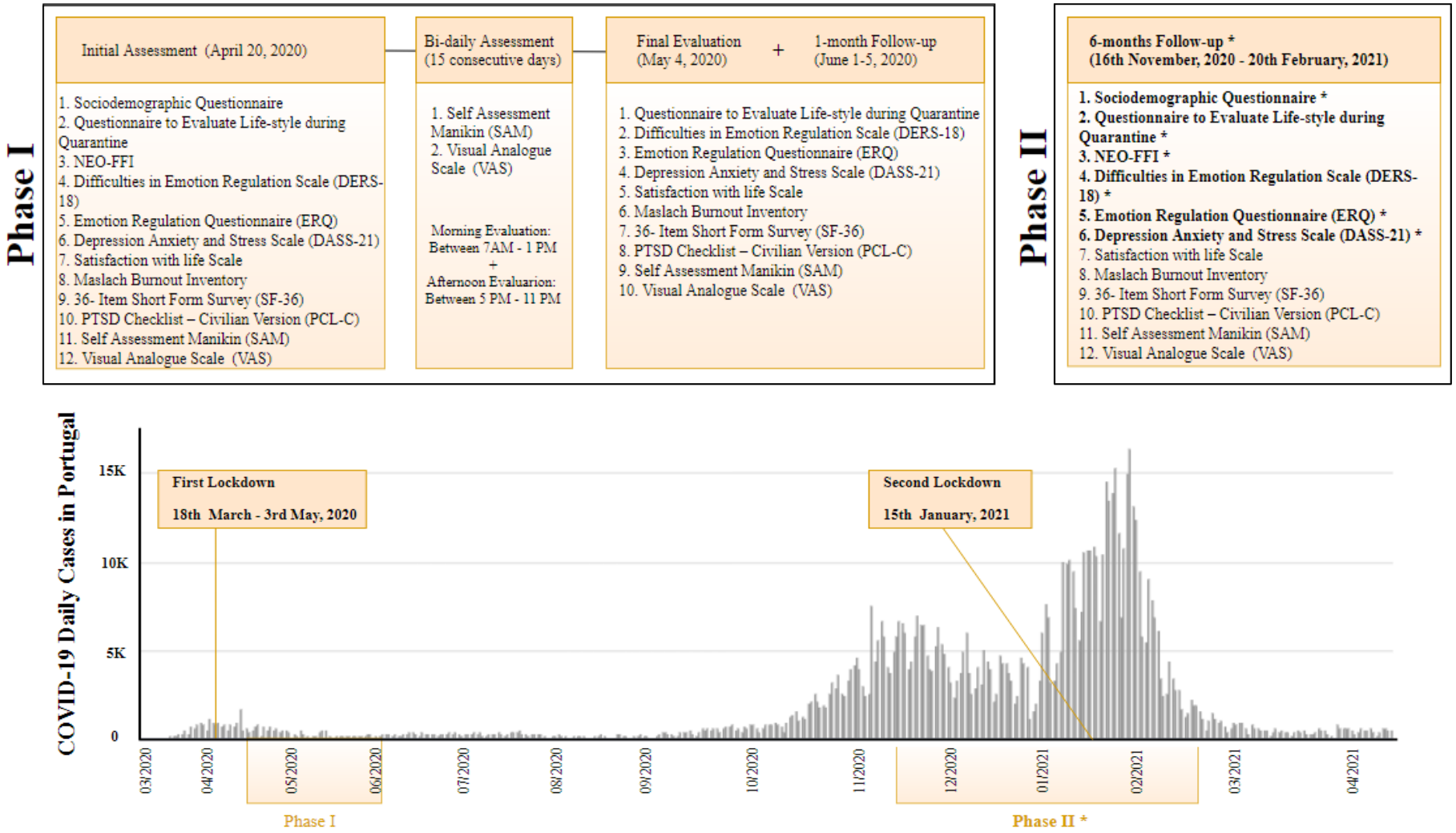
the times). The final score for each scale can range between 0 to 21, and further categorized into normal depression (0 – 4), anxiety (0 – 3), and stress (0 – 7) symptomatology to extremely severe levels of depression (equal or superior to 14), anxiety (equal or superior to 10), and stress (equal or superior to 17). The sum of all three domains gives a general measure of psychological distress. The completeness of the total scale takes only 2 minutes.

Procedure

Recruitment occurred via social media (Facebook, Instagram), and through university dissemination via institutional email. The study was also available in the credit platform for the psychology students of the University of Minho. People aged 18 years or older, and residing in Portugal during the COVID-19 pandemic were invited to participate in the study and provided an online questionnaire link or QR code that was administer via Goggle Forms. The questionnaire was available from November 16, 2020 to February 20, 2021 and took approximately 45 minutes to complete. Participants were informed that the study aimed to evaluate the impact of COVID-19 pandemic in physical and mental health, feelings of personal security and social support. Explicit permission of the participants was obtained prior to the completion of the questionnaire through online consent. During data collection, Portugal faced the second wave of COVID-19, a particular critical period. At the time Portugal was considered the country in Europe with higher infection and mortality rates, and health services were overloading, leading the government to announce of a second lockdown. Figure 1 presents information regarding the development of COVID-19 pandemic in Portugal, coupled with a schematic representation of the study design, highlighting in bold and with an asterisk the moments and instruments explored in the current study.

Figure 1.

Schematic representation of "The impact of the COVID-19 pandemic on physical, mental, social health and the feeling of personal security: a longitudinal study" and COVID-19 daily reported cases in Portugal since the outbreak.



Data Analysis

Descriptive statistics (means, standard deviations, and percentages) were used to describe the sample demographic characteristics, and study variables. Next, relationship between the three levels of psychological distress, namely depression, anxiety, and stress and dispositional factors (personality and emotion regulation) were examined using Pearson's bivariate correlations. Finally, multiple linear regression analyses were conducted to test correlates of depression, anxiety, and stress symptomatology. To include qualitative data in the models, variables were dummy coded. Prior to conducting the multiple regression analyses, we examined variables for missingness using Littles test of missing completely at random (MCAR) (Little, 1998) and found that data was MCAR (x^2 = 42.430, DF= 33, p =.126); therefore, missing data were handled with complete case analysis (Hughes et al., 2019). Assumptions for multiple regression, and presence of influential cases were tested as recommended by Field (2020). All assumptions were met except for homoscedasticity (i.e., the variance of the regression error is constant) thus, robust standard errors were obtained using the method HC3 (Astivia & Zumbo, 2019; Long & Ervin, 2010). All statistical analysis were conducted using SPSS, version 26.

Results

Descriptive and Bivariate Correlations between Psychological Distress, Personality, and Emotion Regulation

Table 1, 2 and 3 present descriptive and correlational statistics of key variables for the overall sample. The results reveal that psychological distress, characterized by depression, anxiety, and stress symptomatology was above normal range in more than half of the sample (Table 2). Moderate to extreme depression, anxiety and stress symptoms were reported by 52.6%, 52.3%, and 50.3% of the respondents, respectively. To further characterize the sample, personality traits were categorized into groups according to NEO-FFI scoring. The majority of the sample presents high to very high levels of neuroticism (82.1%).

Table 2

Distribution of Psychological Distress and Personality Traits.

Measures	Normal		Mild		Moderate		Severe		Extreme	
DASS-21	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Psychological Distress	168	30.9	77	14.2	94	17.3	121	22.2	84	15.4
Depression	200	36.8	58	10.7	113	20.8	75	13.8	98	18
Anxiety	175	32.2	85	15.6	58	10.7	58	10.7	168	30.9
Stress	196	36	74	13.6	97	17.8	128	23.5	49	9
	Very Low		Low		Normal		High		Very High	
NEO – FFI	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Neuroticism	4	0.7	11	2	82	15.1	221	40.6	226	41.5
Extraversion	22	4	70	12.9	245	45	157	28.9	50	9.2
Openness	6	1.1	83	15.3	334	61.4	101	18.6	20	3.7
Agreeableness	126	23.2	137	25.2	168	30.9	75	13.8	38	7
Conscientiousness	80	14.7	162	29.8	227	41.7	54	9.9	21	3.9

Note. N=544.

We examined the bivariate relationship among the measures of psychological distress, personality and emotion regulation (see Table 3). The results revealed that neuroticism showed the expected positive correlation with depression, anxiety and stress, while extraversion, agreeableness, and conscientiousness showed the expected negative correlations. Openness showed a negative correlation with depression and anxiety symptomatology; however, no statistically significant result was found with stress.

As anticipated, adaptative emotion regulation strategies (i.e., cognitive reappraisal) showed a negative correlation with levels of depression, anxiety, and stress, while maladaptive emotion regulation strategies (i.e., emotional suppression and emotion dysregulation) showed a positive correlation with levels of symptomatology. The dimensions of emotion dysregulation, except for awareness, presented significant positive correlations with levels of depression, anxiety and stress. Adaptative emotion regulation strategies showed negative correlations with neuroticism, and positive correlations with extraversion, openness and conscientiousness, while maladaptive emotion regulation strategies showed positive relation with neuroticism, and a negative correlation with the remaining personality traits. No statistically significant relationship was found between neuroticism and the awareness, neither between openness and goals.

Table 3

The Bivariate Correlations Analysis for Psychological Distress, Personality Traits, and Emotion Regulation.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DASS-21																				
1 Total DASS-21	24.26	14.86	_																	
2 Depression	7.62	5.63	.935**	_																
3 Anxiety	6.83	5.31	.939**	.815**	_															
4 Stress	9.82	4.98	.925**	.790**	.814**	_														
NEO-FII																				
5 Neuroticism	27.91	7.56	.538**	.542**	.448**	.514**	_													
6 Extraversion	28.72	5.97	-.296**	-.340**	-.263**	-.219**	-.397**	_												
7 Openness	27.08	4.81	-.108*	-.099*	-.119**	-0.84	.047	.021	_											
8 Agreeableness	29.20	7.11	-.421**	-.375**	-.404**	-.400**	-.176**	.214**	.383**	_										
9 Conscientiousness	30.57	6.43	-.315**	-.396**	-.250**	-.227**	-.292**	.306**	.214**	.354**	_									
ERQ																				
10 Cognitive Reappraisal	29.28	6.44	-.161**	-.196**	-.126**	-.123**	-.247**	.303**	.127**	.040	.214**	_								
11 Emotional Suppression	17.35	5.63	.335**	.323**	.336**	.276**	.130**	-.216**	-.233**	-.486**	-.222**	.076	_							
DERS-18																				
12 Total DERS-18	49.69	14.32	.588**	.591**	.519**	.533**	.529**	-.296**	-.198**	-.511**	-.412**	-.173**	.386**	_						
13 Awareness	6.55	2.72	.045	.060	.061	-.000	.014	-.153**	-.165**	-.204**	-.171**	-.305**	.243**	.315**	_					
14 Clarity	8.06	3.18	.370**	.367**	.342**	.325**	.342**	-.212**	-.156**	-.400**	-.338**	-.140**	.305**	.761**	.382**	_				
15 Goals	10.61	3.08	.430**	.441**	.331**	.431**	.552**	-.219**	.010	-.154**	-.272**	-.095*	.076	.677**	-.079	.360**	_			
16 Impulses	7.71	3.52	.524**	.489**	.472**	.506**	.362**	-.180**	-.241**	-.561**	-.341**	-.061	.341**	.841**	.065	.540**	.524**	_		
17 Non-acceptance	8.19	3.57	.510**	.531**	.455**	.436**	.432**	-.235**	-.155**	-.438**	-.315**	-.077	.389**	.842**	.141**	.541**	.478**	.682**	_	
18 Strategy	8.58	3.53	.606**	.613**	.532**	.549**	.548**	-.284**	-.148**	-.417**	-.338**	-.118**	.303**	.849**	.025	.493**	.605**	.731**	.714**	_

Note. Statistically significant correlations between variables are presented in different font colors. Orange font = negative correlation; Blue font = positive correlation; Total DASS-21 = general measure of psychological distress; Total DERS-21 = general measure of emotion dysregulation.

* $p < .05$. ** $p < .01$.

Correlates of Depression, Anxiety, and Stress Symptomatology

Table 4 illustrates multiple regression models constructed to investigate the role of pandemic-related factors, sociodemographics, personality traits, and emotion regulation strategies in predicting depression, anxiety and stress symptomatology.

Depression Correlates

The model was a significant predictor of depression symptomatology F (32, 509) = 21.544, p <.001 explaining 57.5% of depression scores variance. Participants who reported being currently positive for COVID-19, compared to participants that were never infected, presented significantly higher depression scores (B = 2.316, p <.01), however, no differences were found between participants who were never infected and those who were previously infected (B = -.015, p =.977). Unemployed participants reported significantly higher depression scores compared to participants in hybrid work (B = 2.278, p <.01). Higher neuroticism scores significantly predicting higher depression scores (B = .196, p<.001), while higher conscientiousness predicted significantly lower depression (B = -.102, p<.01). Higher scores in the dimension strategy (B =.371, p < .001) and higher use of emotional suppression (B = .090, p < .05) significantly predicting higher depression scores while higher tendency to use cognitive reappraisal (B = -.065, p < .05) significantly predict lower depression scores.

Anxiety Correlates

The model was a significant predictor of anxiety symptomatology, F (32, 506) = 16.151, p<.001, explaining 50.5% of anxiety scores variance. Participants complying with social confinement measures reported significantly higher anxiety compared to participants who were not following such measures (B= .852, p< .05). Moreover, individuals currently positive for COVID-19 reported higher anxiety compared to participants who were never infected (B= 3.083, p<.001) but no differences were found between participants who were previously infected and those who were never infected (B= -.118, p =.830). Participants that followed a presential work modality (B= 1.400, p <.05) and unemployed participants (B= 1.539, p < .05) score significantly higher in the anxiety subscale in comparison to participants who followed a hybrid work modality. Habitation played a role on anxiety levels, with people living in houses reporting lower anxiety in comparison to participants living apartments or social residencies (B = -.877, p <.05). Respondents reporting a neurologic disease (B= 2.290, p <.01) or other underlying condition (B = 1.000; p <.05) scored significantly higher in anxiety

compared to participants with no medical history. No differences were found between participants with psychiatric disease and no medical condition (B= -.127, p =.822). Only neuroticism was considered a significant predictor of anxiety (B = .190, p<.001) with higher neuroticism scores predicting higher scores in the anxiety subscale. Emotion Regulation, also significantly contributed to predicting the levels of anxiety, with high scores in the dimension strategy (B= .255, p<.05), and emotional suppression (B= .096, p <.05) significantly predicting higher anxiety scores.

Stress Correlates

The model was a significant predictor of stress symptomatology, F (32, 509) = 15.760, p<.001, explaining 49.8 % of stress scores variance. Participants who were currently positive for COVID-19, reported higher stress scores comparing to participants who were never infected (B= 2.066, p<.05). Work modality significantly predict levels of stress, with participants in remote work having significantly lower stress scores in compared to participants in hybrid work (B= -.994, p<.05). Regarding personality, higher neuroticism predicting higher stress scores (B= .220, p<.001) and higher agreeableness predicting lower stress levels (B= -.105, p <.01). Concerning emotion regulation, higher scores in the dimension impulsivity (B= .205, p<.05), and strategy (B= .184, p<.05) predicting higher stress scores.

Table 4

Pandemic-Related Factors, Sociodemographics, Personality, and Emotion Regulation Correlates of Depression, Anxiety, and Stress.

	Depression Regression Model				Anxiety Regression Model				Stress Regression Model			
Correlates	B (RSE)	β	p	95% CI	B (SE)	β	p	95% CI	B (SE)	β	p	95% CI
Pandemic-related factors												
Positive for COVID-19 [a]												
Currently	**2.316 (.798) ****	.095	**.004**	[.747; 3.884]	**3.083 (.823) *****	.135	**.000**	[1.466; 4.701]	**2.066 (.946) ***	.097	**.029**	[.207; 3.926]
Previously	-.015 (.526)	-.001	.977	[-1.049; 1.018]	-.118 (.548)	-.088	.830	[-1.195; .959]	.237 (.463)	.016	.609	[-.673; 1.148]
Quarantine [b]	.104 (1.010)	.003	.918	[-1.881; 2.089]	-.594 (1.086]	-.021	.585	[-2.729; 1.540]	-.072 (1.039)	-.003	.944	[-2.113; 1.968]
Social Confinement [c]	.765 (.405)	.068	.059	[-.030; 1.560]	**.852 (.412) ***	.081	**.039**	[.042; 1.661]	.624 (.418)	.063	.136	[-.197; 1.446]
Living in a House [d]	-.351 (.355)	-.031	.323	[-1.048; .346]	**-.877 (.370] ***	-.083	**.018**	[-1.092; -.150]	-.267 (.356)	-.027	.453	[-.965; .432]
Green/Public Spaces [e]	-.053 (.586)	-.003	.928	[-1.204; 1.098]	.099 (.606)	.006	.870	[-1.092; 1.291]	-.685 (.537)	-.043	.203	[-1.739; .370]
Relationships Changes [f]	.045 (.467)	.003	.923	[-.873; .963]	.281 (.466)	.019	.546	[-.634; 1.197]	.825 (.483)	.059	.088	[-.124; 1.774]
Sociodemographics												
Gender [g]	-.534 (.431)	-.043	.216	[-1.38; .313]	-.788 (.402)	-.068	.051	[-1.579; .002]	-.443 (.404)	-.040	.273	[-1.236; .350]
Education [h]												
Less than High School	1.132 (.632)	.074	.074	[-.110; 2.374]	.646 (.646)	.045	.318	[-.623; 1.915]	.767 (.651)	.057	.239	[-.512; 2.045]
High School	-.751 (.434)	-.066	.084	[-1.604; .101]	-.732 (.440)	-.068	.097	[-.1597; .133]	-.614 (.413)	-.061	.137	[-1.425; .197]
Marital Status [i]												
Single	-.399 (.554)	-.035	.471	[-1.487; .688]	-.356 (.568)	-.033	.531	[-1.471; .759]	-.522 (.529)	-.051	.324	[-1.562; .518]
Divorced/Widowed	1.630 (.842)	.058	.053	[-.024; 3.284]	1.695 (.957)	.063	.077	[-.185; 3.576]	1.084 (.916)	.043	.237	[-.716; 2.883]
Work Modality [j]												
Remote	-.587 (.477)	-.049	.219	[-1.525; .351]	-.540 (.479)	-.048	.260	[-1.480; .400]	**-.994 (.464) ***	-.094	**.033**	[-1.906; -.082]
Presential	.506 (.559)	.034	.366	[-.593; 1.605]	**1.400 (.575) ***	.102	**.015**	[.271; 2.529]	.446 (.576)	.034	.439	[-.685; 1.577]
Suspended	1.012 (.737)	.054	.170	[-.435; 2.460]	.964 (.783)	.055	.219	[-.574; 2.502]	-.235 (.787)	-.014	.765	[-.1782; 1.311]
Unemployed	**2.278 (.685) ****	.114	**.001**	[.931; 3.624]	**1.539 (.769) ***	.081	**.046**	[.029; 3.049]	.377 (.669)	.021	.574	[-.938; 1.691]
Medical History [k]												
Psychiatric	-.339 (.612)	-.018	.580	[-1.540; .863]	-.127 (.563)	-.007	.822	[-1.232; .979]	-.544 (.503)	-.033	.279	[-1.532; .443]
Neurologic	.381 (.906)	.014	.674	[-1.398; 2.160]	**2.290 (.807) ****	.088	**.005**	[.705; 3.876]	1.085 (.889)	.044	.223	[-.661; 2.832]

Other condition	.274 (.515)	.018	.595	[-.737; 1.285]	**1.000 (.486) ***	.072	**.040**	[.044; 1.956]	.530 (.489)	.040	.279	[-.431; 1.491]
Personality												
Neuroticism	**.196 (.031) *** **	.265	**.000**	[.000; .135]	**.190 (.031) *** **	.275	**.000**	[.128; 2.52]	**.220 (.030) *** **	.337	**.000**	[.161; .280]
Extraversion	-.043 (.034)	-.046	.196	[.196; -.109]	-.032 (.036)	-.036	.386	[-.103; .040]	.022 (.034)	.026	.523	[-.045; .089]
Openness	.061 (.043)	.053	.149	[.149; -.022]	.026 (.046)	.024	.568	[-.064; .117]	.041 (.043)	.039	.340	[-.043; .124]
Agreeableness	-.029 (.036)	-.036	.425	[.425; -.099]	-.067 (.037)	-.091	.072	[-.140; .006]	**-.105 (.035) ** **	-.150	**.003**	[-.173; -.037]
Conscientiousness	**-.102 (.032) ** **	-.117	**.002**	[.002; -.165]	.045 (.036)	.055	.216	[-.026; .117]	.048 (.032)	.061	.139	[-.015; .111]
Emotion Regulation												
Awareness	-.111 (.080)	-.054	.165	[.165; -.269]	-.079 (.082)	-.041	.340	[-.239; .083]	-.115 (.078)	-.063	.138	[-.267; .037]
Clarity	.035 (.087)	.020	.693	[.693; -.137]	.093 (.085)	.056	.271	[-.073; .259]	.020 (.078)	.013	.796	[-.132; .173]
Goals	.092 (.082)	.051	.264	[.264; -.070]	-.038 (.079)	-.023	.626	[-.193; .116]	.147 (.081)	.091	.071	[-.012; .306]
Impulses	-.051 (.089]	-.032	.570	[.570; -.225]	.150 (.094)	.101	.113	[-.036; .336]	**.205 (.082) ***	.145	**.012**	[.044; .365]
Non-acceptance	.142 (.081)	.091	.079	[.079; -.016]	-.018 (.079)	-.012	.822	[-.172; .137]	-.093 (.073)	-.067	.205	[-.237; .051]
Strategy	**.371 (.089) *** **	.235	**.000**	[.000; .196]	**.255 (.098) ***	.172	**.010**	[.062; .447]	**.184 (.093) ***	.131	**.048**	[.001; .366]
Cognitive Reappraisal	**-.065 (.030) ***	-.075	**.031**	[.031; -.124]	-.049 (.033)	-.060	.136	[-.113; .015]	-.057 (.031)	-.073	.070	[-.118; .005]
Emotional Suppression	**.090 (.039) ***	.091	**.022**	[.022; .013]	**.096 (.040) ***	.103	**.018**	[.016; .175]	.065 (.038)	.074	.092	[-.011; .140]
Constant	1.343 (2.58)			[-3.725; 6.412]	-1.555 (2.905)			[-7.262; 4.151]	.899 (2.505)			[-4.022; 5.820]
Adj. R^2	.549				.474				.466			

Note. Statistically significant correlates are presented in bold with color. Orange font = risk factors; Blue font = protective factors; B = unstandardized coefficient; (RSE) = robust standard error using HC3 method; β = beta (standardized coefficient); CI = 95% confidence interval; Adj. R^2 = Adjusted R Square for final model;

[a] [b] [c] [e] [f] reference group is responding "no"; [d] reference group is "buildings" that include living in apartments or social residency; [g] reference groups is "female"; [h] reference group is "having a university degree" that includes bachelor, master, pre-bologna master, and PhD; [i] reference group is "married or partnered"; [j] reference group is "hybrid" work modality; [k] reference group is "no medical history"

*p<.05. ** p <.01. *** p<.001.

Discussion

In this study, we examined the relationship between situational and dispositional factors and subsequent psychological distress as assessed by depression, anxiety, and stress symptoms in the general population living in Portugal during the second wave of COVID-19 (and second lockdown). Results suggest high levels of depression, anxiety, and stress among the population. Previous research on the impact of COVID-19 pandemic in Portugal on mental health reported minimal prevalence of symptomatology (Paulino et al., 2021). This was compatible with another study where approximately 70% of the participants reported depression, anxiety, and stress within normal range (Moreira et al., 2020). These dissimilarities could portray the cumulative effect of several months of pandemic and the increased psychological burden of the second wave compared to the early stages of the COVD-19 pandemic in Portugal. However, it is possible that these results denote different sample characteristics, such as dispositional factors that could influence mental health. For instance, 82.1% of our sample reported high to very high levels of neuroticism, which could explain the higher prevalence of symptomatology.

Personality

Individuals with high neuroticism scores reported more psychological distress, as evaluated by DASS-21. Our results support previous research, showing that individuals with high neuroticism are more vulnerable to mental health problems (Kotov et al., 2010). People with high neuroticism tend to perceive COVID-19 pandemic as more threatful (S. Liu et al., 2021), appraise it more negatively (Modersitzki et al., 2020), and experience more negative emotions (Kroencke et al., 2020), contributing to the overall psychological distress. Contrarily, individuals with high scores of conscientiousness experience less depression symptoms. This finding supports the protective role of conscientiousness personality traits for mental health (Kotov et al., 2010). It is possible that individuals with higher conscientiousness traits felt more in control of their circumstances, and were able to overcome challenges due to their tendency to be more organized, persistence, and goal-oriented. Additionally, they are more likely to engage in positive appraisal about their efficacy to prevent COVID-19 (S. Liu et al., 2021), and find it easy to adhere to social distancing measures, all of which may contribute to overall experience of positive affect. Our results report that participants with higher agreeableness traits presented decreased levels

of stress during the second wave. These findings support that agreeableness is associated to higher subjective well-being, lower stress, and increase resilience (Zager Kocjan et al., 2021). Agreeable individuals are more likely to adhere to containment policies due to their prosocial nature which may lead to lower perceived threat of infecting others and contribute to low stress levels (Zheng et al., 2021).

It is possible that risk and protective role of certain personality traits are a reflection of individual differences in available resources to deal with stressfully events. Our findings may elucidate this relationship by showing that while high traits of neuroticism are associated to higher disposition to use maladaptive emotion regulation strategies, conscientiousness and agreeableness are associated to the tendency to use more adaptive emotion regulation strategies. These results are in line with previous research (Barańczuk, 2019; Panayiotou et al., 2014) and may partially explain why certain individuals present more rigid patterns of malfunctioning during the current pandemic.

Emotion Regulation

The present results support the idea that individuals who tend to engage more in adaptative emotion regulation strategies, such as cognitive reappraisal, present less depressive symptomatology. During a period of cumulative stress, the ability to use cognitive reappraisal to down-regulate negative emotions may serve as a protective factor against the development of depression (Troy et al., 2010). Cognitive reappraisal involves the ability to reframe emotional situations which is positively associated to cognitive flexibility, a protective factor against depression disorders (Gabrys et al., 2018). Thus, using cognitive reappraisal during the cumulative stressful situation, such as the current pandemic, may lead to more positive outcomes.

Contrarily, use of maladaptive emotion regulation predicts poorer mental health. For instance, emotional suppression predicts increased levels of depression, and anxiety. These findings support previous research showing a link between the use of emotional suppression and maintenance of anxiety and depression disorders (Aldao et al., 2010). Individuals who use emotional suppression lack in emotional sharing and tend to experience less social and emotional support from their peers (Dryman & Heimberg, 2018). This may explain the symptoms of depression, resultant from disconnection with others, which may have aggravated due to reduce social contact in the context of a pandemic. Additionally,

suppressing one's negative emotions is linked with worse functioning and more defensive, automatic, and impulsive reactions to negative experiences (Roth et al., 2014) which could contribute to increased anxiety.

Our results show that the absence of effective emotion regulation strategies predict higher depression, anxiety, and stress symptomatology. These findings were also reported by Hofmann and colleagues (2012). Individuals who lack effective strategies to cope with negative emotions can cultivate feelings of hopelessness, which are linked to depression. Additionally, this may create a barrier to proactively seeking solutions to deal with challenges experienced during the pandemic, which may lead anxiety and stress triggers to persist. Moreover, participants with higher impulsivity levels experienced heightened stress. The tendency that individuals with difficulties in controlling impulses show to behave in imprudent ways may explain stress levels. For instance, engage in social contact with others, which may increase worry about becoming infected (Zheng et al., 2021), or having interpersonal conflicts which could compromise the support system, could all contribute to experience stress symptomatology (C. H. Liu et al., 2020).

Sociodemographics Characteristics

Individuals with pre-existing medical conditions (neurologic or others) reported higher anxiety levels compared to those with no medical history. These results are in line with previous studies, such as the one by Fukase and colleagues (2021), reporting that individuals with an underlying disease that was associated with a higher risk of more severe COVID-19 experienced more negative emotions. These individuals have to take preventive measures more seriously due to the risk of developing life-threatening conditions if infected (Benussi et al., 2020; C. Huang et al., 2020). This could contribute to higher worry about their effectivity in preventing COVID-19, longer isolation periods, less social contact, and more abrupt routine changes than individuals with no medical history. The limited access to health services due to overload of COVID-19 cases during the second wave in Portugal, could also contribute to increase anxiety, especially among chronic patients under treatment plans or with regular need for medical assistance.

Participants in remote work reported less stress symptoms, compared to individuals in hybrid work. As shown by Zheng and colleagues (2021), the higher the perceived threat of contracting COVID-19 the higher the stress levels reported. Thus, the lower person-to-

person contact individuals in remote work experience may explain the lower stress levels. In line with this, participants in presential work reported more anxiety compared to those in hybrid work, which could also be due to perceived risk of infection due to higher interpersonal contact. It is important to highlight that approximately 70% of our sample did not have children, which could make managing work from home less stressful. This idea is in line with previous studies (Brown et al., 2020). Our results shown that unemployed participants experience more depression and anxiety. This was also reported in prior research (Paulino et al., 2021). During the COVID-19 pandemic business interruptions resulted in increase layoffs, downsizing, and involuntary unemployment (Restubog et al., 2020), threatening financial security of individuals, which is considered a risk factor for mental health.

Pandemic-Related Factors

People that reported being currently positive for COVID-19 had more depression, anxiety, and stress symptoms compared to participants who were never infected. This may be a result of worry about infecting others (Zheng et al., 2021), and extensive mandatory confinement periods (Mazza et al., 2020) which have been linked to psychological distress (Henssler et al., 2020). Our study replicates this result, by showing that socially confined individuals reported higher anxiety symptoms compared to individuals who were not complying with such measures. Social distancing policies may increase psychological impact due to subsequent reduction in social resources (Marroquín et al., 2020; Zhu et al., 2020), and increased negative feelings (Brooks et al., 2020). During the COVID-19 pandemic, housing characteristics, including poor housing quality and inadequate indoor facilities were related to increased mental health problems (Amerio et al., 2020). In line with this, our result further report that people living in a house experience less anxiety symptoms compare to individuals living in appartements or social residencies. The higher density of people in urban areas could lead individuals living in apartments to experience more anxiety about contracting COVID-19 when living the house.

Limitations

There are several limitations in the present study. First, a key limitation of the study was our limited representation of the general population living in Portugal, when taking in consideration sociodemographic characteristics. Our sample was disproportionately

represented by single female college-students living in the north of Portugal. This sample bias likely arose due to the type of recruitment (social media, and credit system from psychology students) as well as the online nature of the study that probably appealed more to people with an internet affinity. Secondly, the assessment of pandemic-related factors included a single item which may lack description of important information regarding those variables. More in-depth analyses may bring important insight into the relationship these factors have with psychological outcomes when taking into consideration personality and emotion regulation. Thirdly, although this study is included in a longitudinal project, we only analyzed data collected during one of the evaluation phases (Phase II), thus the analysis of the evolution of psychological distress experienced by the Portuguese population during the COVID-19 pandemic are based on retrospective interpretations. Future studies using longitudinal data collected in different moments of the pandemic can offer more sensitive assessments and provide causal conclusion.

Conclusion

This cross-sectional study provides evidence on the impact of the COVID-19 pandemic during the second wave in people living in Portugal and the role that personality traits and emotion regulation strategies may have in the prevalence of psychological distress among the general population. The results of this study suggest that individuals with high neuroticism and use of maladaptive emotion regulation strategies are considered at risk for experiencing higher levels of depression, anxiety, and stress, and further reenforced the role of specific health and work-related factors associated to psychological distress. This study helps to identify risk groups and highlights the need for developing psychological interventions that provide personality-appropriate support and enhance emotion regulation skills. Governments, health organization and medical center should offer support to the management of individuals at higher risk during similar pandemics.

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Universidade do Minho

Conselho de Ética

Comissão de Ética para a Investigação em Ciências Sociais e Humanas

Identificação do documento: CEICSH 036/2020

Relatores: Emanuel Pedro Viana Barbas Albuquerque e Marlene Alexandra Veloso Matos

Titulo do projeto: *The impact of the COVID-19 pandemic on physical, mental, social health and the feeling of personal security: a longitudinal study (Acronym: BPSS-COVID-19 Study)*

Equipa de Investigação: Sandra Carvalho (IR), Laboratório de Neurociência Psicológica, Centro de Investigação em Psicologia (CIPsi), Escola de Psicologia, Universidade do Minho; Jorge Leite, Universidade Portucalense (Porto), Instituto de desenvolvimento humano Portucalense (INPP); Henrique Sequeira, Universidade de Lille – França; Ana Daniela Costa, Mestrado integrado em Psicologia da Universidade do Minho, orientadores Sandra Carvalho e Henrique Coelho

PARECER

A Comissão de Ética para a Investigação em Ciências Sociais e Humanas (CEICSH) analisou o processo relativo ao projeto de investigação acima identificado, intitulado *The impact of the COVID-19 pandemic on physical, mental, social health and the feeling of personal security: a longitudinal study*.

Os documentos apresentados revelam que o projeto obedece aos requisitos exigidos para as boas práticas na investigação com humanos, em conformidade com as normas nacionais e internacionais que regulam a investigação em Ciências Sociais e Humanas.

Face ao exposto, a Comissão de Ética para a Investigação em Ciências Sociais e Humanas (CEICSH) nada tem a opor à realização do projeto, emitindo o seu parecer favorável, que foi aprovado por unanimidade pelos seus membros.

Braga, 21 de abril de 2020.

O Presidente da CEICSH

(Acílio Estanqueiro Rocha)