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Values and COVID-19 worries: The importance of emotional stability traits

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ABSTRACT

We examined the relationship between emotional stability as a more stable personality trait and COVID-related worries with basic human values in a Brazilian sample (N = 578) that is strongly affected by COVID-19. We tested whether emotional stability would moderate the effect of infection and economic worries on personal values. In line with predictions, we found that infection worries were more strongly related to Security values, especially among individuals with less emotional stability, whereas economic worries were more strongly correlated with Power values, in particular among individuals with less emotional stability. Findings for Achievement values suggested perceived behavioral control effects for individuals high in Emotional Stability. Our findings provide insights into possible longer-term psychological effects of the current pandemic. Emotional dynamics in connection with worries created by the pandemic could influence values of importance for societal functioning in the short to medium term.

The COVID-19 pandemic has created an interruption at unprecedented scale in recent history and has already impacted the health and wellbeing of millions of people world-wide. Levels of stress and worry have increased significantly since the onset of the pandemic, with some surveys reporting up to 50% of the respondents in representative samples experiencing clinical levels of stress, depression and anxiety (Pierce et al., 2020; Taylor et al., 2020a, 2020b; Xiong et al., 2020). We are examining whether such worries associated with the effects of COVID are likely to impact motivational beliefs of individuals, that is their personal values.

Values have been defined as relative stable beliefs about what is important in life (Schwartz et al., 2012) and have been shown to correlate with and explain a range of social and political variables which are relevant for the effective functioning of modern democratic societies (Boer & Fischer, 2013; Maio, 2016; Sortheix et al., 2019). There is already some evidence that values may change in the context of the current pandemic, especially among those individuals worried about COVID (Daniel et al., 2021). Hence, the pandemic may have some significant effects on societies beyond the immediate impact on the physical and mental health of the population. Specifically, we examine whether both the worry of becoming infected and worry about the economic impact of the pandemic correlate with distinct human values.

Furthermore, we test whether these effects of worries are potentially

stronger and have a larger impact among individuals that are less emotionally stable and in general report greater fear and anxiety. Hence, we test whether stable personality differences in Emotional Stability (Soto & John, 2017) and specific situational worries triggered by the pandemic correlate with different values, depending on the nature of the worry and the motivational content of values. By examining the interaction between stable individual differences and worries on values, we provide novel evidence on the interplay between personality and situational dynamics for understanding human values as a core social psychological phenomenon.

We report data from one of the globally worst affected areas - Brazil, which provides a snapshot on the psychological dynamics of the pandemic outside the English-speaking world. Examining these person-level processes, we can also foreshadow some potential longer-term effects of the current social and epidemiological environment. To provide some structure, we briefly describe the motivational value system first and then outline our main predictions.

1. Basic human values

Human values provide a moral compass for individuals as they are navigating their social world. Schwartz (Schwartz et al., 2012) developed a near-universal theory of human values as important life goals

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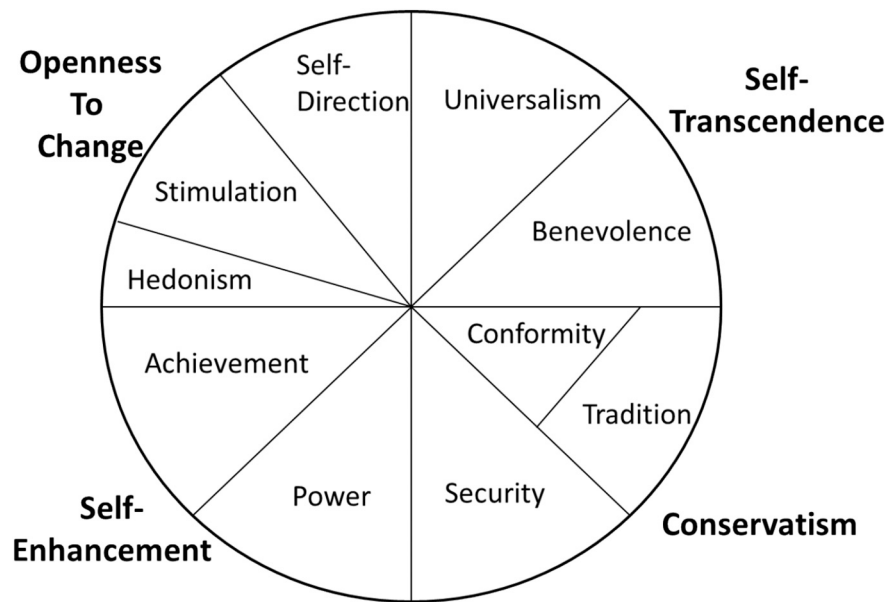


Fig. 1. A graphical representation of the Schwartz Value Theory.

that allows more or less fine-grained differentiations based on their motivational content. The prototypical structure differentiating 10 different value types is based on the mutual compatibilities and conflicts between the motivational content and goals of each value type (see Fig. 1). Given these interdependencies in content, the motivational content represented in values can be organized in a circular structure. Specifically, Universalism (UN) values are driven by motivations to understand, appreciate, tolerate and protect the welfare of all people and nature; which is compatible with Benevolence (BE) values because they share a social focus, but in contrast to Universalism, BE values have a more narrow focus on preserving and enhancing the welfare of people close to oneself (family and close friends). These values contrast and conflict with, for example, Power (PO) values that orient individuals towards goals to attain social status and prestige, and controlling or dominating people and resources as well as Achievement (AC) values, which refer to demonstrating success and competence according to social standards. Therefore, these two sets of values represent one major motivational dimension differentiating the motivation to transcend selfish interests for the sake of the group (close kin or broader social collectives) versus an orientation to enhance personal interests by advancing in the social hierarchy and demonstrating success to socially shared standards. A second set of values varies in the major motivation to prioritize one's own independent thoughts, actions and interests; which conflicts with the orientation towards restricting oneself to and emphasizing the preservation of traditional practices and the *status quo* that are captured by the cluster of Security, Conformity and Tradition (collectively labelled as conservation or conservative values) at the opposing end. Specifically, Stimulation (ST) values refer to seeking excitement novelty and challenges in life; Self-Direction (SD) values are focused on independent thoughts and action, including creativity, curiosity and exploration of new areas and Hedonism (HE) values capture pleasure, enjoying life and a sensuous gratification for oneself. These values are contrasting with Tradition (TR) values capturing the motivation to show respect, commitment and acceptance of the customs and ideas of traditional society and one's religion; Conformity (CO) tapping a motivational restraint of actions or impulses that are likely to upset others or violate social expectations and norms and finally, Security (SE) values, which focus on motivations related to one's personal safety, as well as harmony and stability in society. This descriptive structure has been supported using surveys, reaction time and neuropsychological studies (for reviews see Fischer, 2017; Maio, 2016). Values have been

found to be systematically linked to personality traits, but the Emotional Stability trait appears to be largely independent of values (Fischer & Boer, 2015).

2. COVID-worries and values

Values have been found to be relatively stable after early adulthood, with major changes only happening in the context of major personal or social transitions in social roles and life events (Bardi & Goodwin, 2011), which is in line with the assumption that values capture broad motivational processes that are responsive to major life conditions (Fischer, 2017; Fischer & Boer, 2015). Perception of threat is a mechanism through which values importance change, since values serve as a protection to the threatened self (Sortheix et al., 2019). Worries as a cognitive representation of these threats can be distinguished into micro- (about the self or others with whom one identifies closely) and macro-worries (concerns about issues beyond the self and immediate family, including society, environment, world) (Schwartz et al., 2000). The current COVID-19 pandemic has increased worries along a number of interrelated dimensions, principally in terms of existential worries about infection (micro-worries), but also the economic ramifications of the pandemic (macro-worries) (Mertens et al., 2020; Probst et al., 2020; Sinclair et al., 2021; Taylor et al., 2020a, 2020b).

We ask whether these concerns have diverging impacts on values as motivational goals. Previous work has demonstrated that worries and values are correlated (Schwartz et al., 2000), but these worries were typically rather abstract and distant. The current study examines these links during an acute health crisis that strongly affected all individuals in the study population. Focusing on micro-worries, concerns about infection reflect an existential security risk. In line with previous work, we predict that infection worries are more strongly positively correlated with Security values in particular, given the motivational priority to protect oneself and others and would be negatively correlated with openness to change values that emphasize carefree exploration of stimulating and enjoyable activities (Schwartz et al., 2000, see also Daniel et al., 2021). The activation of security and conservative values and a downregulation of self-oriented hedonistic goals are also in line with extant theory in evolutionary biology, suggesting that disease threat activates behavioral immune responses (Helzer & Pizarro, 2011; Schaller, 2015). The motivationally opposing values of openness to change (SD, ST and HE) are likely to decrease in importance due to

health worries. In line with these theories, there is first evidence that worries about COVID infection particularly strongly correlate with increased conservative and decreased openness values in Australian citizens during lock-down (Daniel et al., 2021).

The pandemic has negatively affected economies the world over, increasing macro-worries about economic impact on individuals and society. These worries are particularly relevant for Power and Achievement values because these values are focused on one's economic and social standing within the social hierarchy. Focusing on an acute economic crisis, Sortheix et al. (2019) found an effect consistent with this mechanism for PO and AC values following the great financial crisis in Europe in those countries that are less investing in social welfare programs. In contrast, when focusing on macro-worries in the abstract, Schwartz et al. (2000) found weak positive correlations between economic worries and PO and AC values in particular, but also some positive correlations with hedonistic and prosocial values concerned with the welfare of all people in society.

Importantly, we predict that these worries are particularly salient for individuals that are less emotionally stable and typically experience more anxiety and emotional volatility (John & Soto, 2017). Although available data so far indicates that levels of Neuroticism have remained relatively stable during the COVID-19 pandemic (Sutin et al., 2020), levels of anxiety, depression and stress have increased (Pierce et al., 2020; Wang et al., 2020; Xiong et al., 2020). Situation-specific concerns, and worries are elevated, while the overall emotional responsiveness has remained relatively stable. We test whether the specific COVID-related micro and macro-worries (existential vs economic) have a stronger positive correlation with Security and Power values (and corresponding negative correlation with the motivationally opposing values) as central motivational beliefs among those individuals that are typically more emotionally volatile. These predictions are in line with contemporary theories of personality dynamics and emotion processing, which specify that situationally salient stimuli will be processed depending on the emotional processing capacities of the organism, which in turn affects motivation and behavior, including values (e.g., Corr & Krupić, 2017; DeYoung, 2015; Fischer, 2017; Gross, 2002; Lewis, 2015). In summary, we test whether stable emotional dynamics of individuals interact with situationally induced worries during the current pandemic and whether these dynamics show systematic correlations with values as central motivational beliefs. We include a number of additional variables in our modeling to test whether our core variables predict variance over and above these known covariates. Specifically, previous research has reported systematic gender (Schwartz & Rubel, 2005), age (Gouveia et al., 2015), living arrangements (Fischer et al., 2011), income and education differences (Fischer, 2017; Tormos et al., 2017) on values.

3. The research context

The World Health Organization officially declared the COVID-19 virus pandemic in early March 2020 after first cases emerged in China in late 2019. The first Brazilian case was reported on Feb 26, 2020. Lockdown measures were introduced after community transmission in March (Serdan et al., 2020). Political instabilities led to weakening of public health measures and cases rapidly increased. By the beginning of our study (April 27), the country had more than 50,000 cases and as of June 2021, with more than 465,000 deaths, Brazil continues as one of the worst affected countries globally. The pandemic also strongly affected an already fragile economy, leading to an overall contraction of the economy of 4.4% in 2020 (Barua & Samaddar, 2021). Brazil prior to the pandemic had gone through a number of economic crises and has one of the highest economic inequality rates globally (World Bank, 2017).

We use the current context of a global pandemic to examine the interconnection between emotional and motivational dynamics in an acute pandemic environment. Previous work on worries had examined them in relative abstract and decontextualized ways (Schwartz et al.,

2000). Studying patterns in an acute crisis context can provide insights into a) potential longer-term consequences of the current pandemic environment and b) novel insights into the interactive effects between personality dynamics and social contexts.

4. Method

4.1. Participants

Our sample consisted of 578 individuals (mean age = 38.66, *sd* = 14.83, *min* = 19, *max* = 82; 70% females) which agreed to participate in this study, passed two attention checks and completed all relevant variables for this study. All participants were Brazilian natives. More information on sample descriptors are available in the supplement. A power calculation assuming small effect sizes, a *p*-value of .05 and 80% power with G*Power 3.1.9.4 (Faul et al., 2007) indicated that for our main effects we needed 84 participants, and for testing the interaction we needed a sample size of 550. Therefore, we had sufficient power to test our main predictions.

4.2. Measures

4.2.1. Values

We used the European Social Survey version of the Portrait Value Questionnaire (Schwartz, 2003), which was previously translated and adapted for Brazil (Campos & Porto, 2010). This measure is used in the biannual European Social Survey since 2002 and there is strong evidence for its adequacy in measuring the circular structure of human values (Bilsky et al., 2011). Each of the 10 values was measured by 2 items, except Universalism values, which were measured with 3 items. Information on internal consistency and structure are presented in the supplement.

4.2.2. Worries

We measured worries about COVID infection and economic recession with one item each: "How afraid are you that you or your loved ones get sick and suffer severely from the Corona virus?"; "How afraid are you that you or your loved ones will suffer from an economic recession following the Corona crisis?". These items were taken from the International Change in Values project (Aschauer et al., 2021) and closely worded items load highly on multi-item COVID scales (Mertens et al., 2020; Taylor et al., 2020a, 2020b). Participants responded on a 5-points Likert scale (from "not afraid at all" to "very afraid"). We recoded scores so that higher scores indicate greater worry.

4.2.3. Emotional stability

We measured Emotional Stability with the Extra Short form of the Big Five Inventory 2 (BFI-2SX) (Soto & John, 2017). Participants responded three items on a scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater emotional stability. The internal consistency was $\alpha = 0.57$.

We included additional items and questions in this online survey. The full material, data and code are available online (<https://osf.io/ra7sk/>). Since the main questions of this project were focused on the worries items and values, these items, together with demographics were always presented first to the participants, to avoid missing values in these central measures (this survey was part of a larger project involving several other measures). All other measures were randomly presented across participants.

4.3. Data collection process

We collected data online through a questionnaire built with the formR platform (Arslan et al., 2020). The link to access the questionnaire was distributed via social media and through a snowball method. According to Brazilian federal regulations, an information sheet describing

Table 1
Means, standard deviations, and correlations with 95% confidence intervals.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. COVID worries	4.09	0.94												
2. Economic worries	3.83	1.02	0.28** [0.21, 0.36]											
3. ES	2.78	0.81	-0.31** [-0.38, -0.23]	-0.17** [-0.25, -0.09]										
4. UN	5.17	0.63	0.10* [0.02, 0.18]	0.07 [-0.02, 0.15]	0.04 [-0.04, 0.12]									
5. BE	5.26	0.65	0.10* [0.02, 0.18]	0.09* [0.01, 0.17]	-0.11** [-0.19, -0.03]	0.34** [0.27, 0.41]								
6. CO	4.76	0.95	0.09* [0.01, 0.17]	0.06 [-0.02, 0.14]	-0.08 [-0.16, 0.00]	0.15** [0.07, 0.23]	0.21** [0.13, 0.29]							
7. TR	3.69	0.91	0.01 [-0.07, 0.09]	0.07 [-0.01, 0.15]	-0.11** [-0.19, -0.03]	0.06 [-0.02, 0.14]	0.17** [0.09, 0.24]	0.39** [0.31, 0.45]						
8. SE	4.80	0.95	0.23** [0.16, 0.31]	0.10* [0.02, 0.18]	-0.22** [-0.29, -0.14]	0.11** [0.03, 0.19]	0.21** [0.13, 0.28]	0.37** [0.30, 0.44]	0.27** [0.19, 0.34]					
9. PO	2.88	1.07	0.12** [0.04, 0.20]	0.03 [-0.05, 0.11]	-0.31** [-0.38, -0.23]	-0.14** [-0.22, -0.06]	-0.10* [-0.18, -0.02]	0.04 [-0.04, 0.13]	-0.03 [-0.11, 0.05]	0.12** [0.04, 0.20]				
10. AC	4.07	1.24	0.15** [0.07, 0.23]	0.00 [-0.08, 0.08]	-0.30** [-0.38, -0.23]	0.00 [-0.08, 0.08]	0.03 [-0.05, 0.11]	0.08 [-0.00, 0.16]	-0.14** [-0.22, -0.06]	0.13** [0.05, 0.21]	0.55** [0.49, 0.61]			
11. HE	4.69	1.13	0.10* [0.02, 0.18]	0.05 [-0.03, 0.13]	-0.03 [-0.11, 0.06]	0.24** [0.16, 0.31]	0.18** [0.10, 0.26]	-0.05 [-0.13, 0.03]	-0.08* [-0.17, -0.00]	0.06 [-0.03, 0.14]	0.17** [0.09, 0.25]	0.23** [0.15, 0.31]		
12. ST	3.71	1.18	0.06 [-0.02, 0.14]	0.08 [-0.01, 0.16]	0.02 [-0.06, 0.10]	0.28** [0.20, 0.36]	0.16** [0.08, 0.24]	-0.10* [-0.18, -0.02]	-0.16** [-0.24, -0.08]	-0.18** [-0.26, -0.10]	0.13** [0.05, 0.21]	0.23** [0.15, 0.30]	0.44** [0.37, 0.50]	
13. SD	4.87	0.89	0.00 [-0.08, 0.09]	0.02 [-0.06, 0.10]	0.05 [-0.03, 0.13]	0.31** [0.23, 0.38]	0.21** [0.13, 0.29]	0.00 [-0.08, 0.09]	-0.17** [-0.25, -0.09]	0.03 [-0.05, 0.11]	0.12** [0.04, 0.20]	0.22** [0.14, 0.30]	0.25** [0.17, 0.32]	0.49** [0.43, 0.55]

ES = Emotional Stability, UN = Universalism, BE = Benevolence, CO = Conformity, TR = Tradition, SE = Security, PO = Power, AC = Achievement, HE = Hedonism, ST = Stimulation, SD = Self direction.

* $p < .05$.

** $p < .01$.

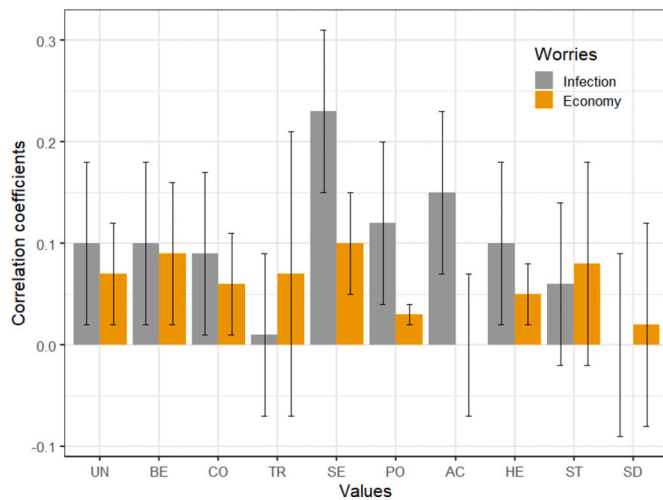


Fig. 2. Correlations coefficients between values and worries. Note: UN = Universalism, BE = Benevolence, CO = Conformity, TR = Tradition, SE = Security, PO = Power, AC = Achievement, HE = Hedonism, ST = Stimulation, SD = Self direction. Error bars represent 95% confidence interval.

the study, the risks involved, and the rights of the participant were presented before the questionnaire and we obtained consent for participation. We obtained ethical approval from the Research Ethics Committee board of the D'Or Institute (CAAE 30823020.6.0000.5249). The data collection took place between April 27 to May 25, with the majority of responses collected between April 27–30, 2020.

5. Results

Table 1 reports the overall descriptive results and Fig. 2 shows zero-order correlations of values with worries. We conducted bootstrapped ordinary least square regressions (with 1000 bootstrap samples) with value scores as criterion variables and demographics, COVID-worries about infection and economic recessions, emotional stability and the interaction between the two worries and emotional stability (see Table 2). The main effects were centered prior to creating interactions. Focusing on the main effects of infection worries first, we found that increased worry about infections was positively associated with Security and Universalism values. Focusing on economic worries, the main effect was not significant for any of the values in the regression.

Examining emotional stability as a personality moderator through a series of OLS regression models, we found significant interaction between COVID-worries and Emotional Stability on Security, Achievement and Hedonism values (see Fig. 3, panel A–C). The simple effect suggested that the effect of worries on Security and Hedonism values was significantly stronger for individuals 1SD below the mean of Emotional stability: $b_{SE} = 0.32$, $se = 0.07$, $p < .001$, $b_{HE} = 0.22$, $se = 0.08$, $p < .01$; compared to individuals 1 SD above the mean: $b_{SE} = 0.10$, $se = 0.05$, $p = .03$; $b_{HE} = 0.10$, $se = 0.06$, $p = .867$. For Achievement values, individuals 1 SD above the mean of Emotional Stability showed increased correlations of infection worries with values: $b_{AC} = 0.11$, $se = 0.06$, $p = .06$, whereas for those individuals 1 SD below the mean, the association was not significant: $b_{AC} = -0.03$, $se = 0.08$, $p = .696$.

For economic worries, the interaction was significant for Power values (a trend of $p = .10$ was observed for Achievement values). For individuals 1 SD below the Emotional stability mean, the relationship between economic worries and Power values was positive: $b = 0.09$, $se = 0.06$, $p = .14$; whereas for individuals 1 SD above the mean the relationship was negative: $b = -0.09$, $se = 0.06$, $p = .123$. The simple effects for Achievement values were similar (1 SD below the mean: $b = -0.09$, $se = 0.06$, $p = .144$; 1 SD above the mean: $b = -0.09$, $se = 0.06$, $p = .126$; see Fig. 3, Panel D). The supplement shows additional results

and stability tests. The Security and Power value results were always significant independent of the specification. The other results reported in the main manuscript on occasion showed marginally significant effects ($p \leq 0.10$).

6. Discussion

We report data on COVID-related worries, human values and emotional stability from a large non-Western sample, testing whether stable personality dynamics buffer or exacerbate situational worries caused by the pandemic and differentially correlate with basic human values. We found significant associations between worries of becoming infected with Security, Achievement and Hedonism values; whereas worries about an economic recession was associated with power values. As predicted, these associations were moderated by emotional stability: for all values but Achievement values, these associations were stronger among those individuals with lower scores on emotional stability.

The COVID-19 pandemic has radically changed the living environment of a large proportion of humanity. To the extent that values capture important life goals, the changed environmental conditions should lead to at least a temporary adjustment of basic human values. Such changes might be more pronounced among individuals that are more sensitive to situational dynamics and tend to experience greater emotional volatility (low emotional stability). Our results therefore provide a temporary snapshot of emotionally driven dynamics of motivational adaptation. Longitudinal studies need to examine the longer-term dynamics of these effects. Previous studies focusing on values change following terrorist attacks (Verkasalo et al., 2006) showed an immediate increase in security values, which returned to baseline within a few months in a sample that was not directly affected by those terrorist events, whereas effects might be more enduring in chronically affected groups (Daniel et al., 2013). Sortheix et al. (2019) indicated less long-lasting changes for Achievement and Power values and a more enduring effect for Security values after the global financial crisis. Further research in samples with differential risk trajectories (both infectious risk as well as economic risks) is needed.

In our data, emotional stability was as an important moderator variable. Preliminary evidence suggests that personality traits remained relatively stable during the initial stages of the pandemic (Sutin et al., 2020). Hence, differences in emotional predisposition may set up individuals to experience situational challenges such as the pandemic and the associated lockdowns in divergent ways. Individuals who are emotionally more stable and balanced may not reconsider their life goals to the extent that they experience threatening environments. In contrast, individuals who are more emotional volatile and prone to experience emotional disturbances may be more affected by the situational context, triggering them to readjust and re-evaluate their motivational goals as captured in basic human values.

Our findings are overall in line with the motivational theory proposed by Schwartz et al. (2012, see also Schwartz et al., 2000). Existential worries about health and physical wellbeing are related to security values, in contrast, economic (macro-) worries are related to power values. The interaction with Hedonism values followed the general pattern for the other values, in which worries were associated with changes in values for those who are less emotionally stable. Although the Hedonism effect was not predicted, it follows marginal preference explanations of human values (Maseland & van Hoorn, 2010): To the extent that individuals were forced to restrict their normal activities, it may have increased motivational goals to enjoy life. The effect for Achievement values was reversed, the correlation between infection worries with Achievement values was positive and significant for individuals with higher Emotional stability. This pattern implies behavioral efficacy dynamics: emotionally stable individuals concerned about the pandemic may have followed the guidelines and recommendations by health professionals more, which increased the feeling of competency associated with following social norms (one of the core aspects of

Table 2
Results of the Ordinary Least Square Regressions.

Predictor	SE	PO	AC	HE	ST	SD	UN	BE	CO	TR
(Intercept)	4.25** [3.76, 4.73]	4.14** [3.56, 4.65]	5.37** [4.70, 6.05]	5.53** [4.84, 6.16]	4.72** [4.00, 5.41]	4.93** [4.40, 5.43]	5.31** [4.95, 5.67]	5.23** [4.88, 5.59]	3.83** [3.34, 4.35]	3.49** [2.94, 4.01]
Age	0.01* [0.00, 0.01]	-0.02** [-0.02, -0.01]	-0.03** [-0.03, -0.02]	-0.02** [-0.03, -0.02]	-0.02** [-0.02, -0.01]	0.00 [0.00]	0.00 [0.00]	0.00 [0.01]	0.01** [0.00, 0.01]	0.01** [0.00, 0.01]
Female	0.32** [0.16, 0.50]	0.00 [-0.18, 0.18]	0.23* [0.03, 0.45]	0.25* [0.06, 0.47]	-0.09 [-0.32, 0.14]	-0.09 [-0.26, 0.08]	0.04 [-0.07, 0.15]	0.20** [0.07, 0.32]	0.20* [0.02, 0.37]	0.01 [-0.16, 0.18]
Education	0.00 [-0.06, 0.05]	-0.03 [-0.09, 0.04]	0.02 [-0.05, 0.09]	0.02 [-0.06, 0.09]	-0.02 [-0.09, 0.07]	0.02 [-0.04, 0.08]	0.00 [-0.04, 0.04]	0.00 [-0.05, 0.04]	0.07* [0.01, 0.12]	-0.04 [-0.10, 0.02]
Living status	-0.03 [-0.14, 0.08]	-0.14* [-0.25, -0.01]	-0.16* [-0.31, -0.01]	-0.16* [-0.31, -0.01]	-0.17* [-0.32, -0.00]	-0.12* [-0.24, -0.00]	-0.04 [-0.12, 0.03]	-0.03 [-0.12, 0.06]	0.04 [-0.08, 0.16]	0.06 [-0.05, 0.17]
Income	0.03 [-0.02, 0.10]	-0.03 [-0.09, 0.04]	-0.06 [-0.13, 0.02]	0.03 [-0.04, 0.10]	0.03 [-0.05, 0.11]	0.04 [-0.02, 0.09]	0.02 [-0.02, 0.06]	-0.02 [-0.07, 0.02]	0.00 [-0.06, 0.06]	0.00 [-0.06, 0.06]
COVID worries	0.22** [0.12, 0.31]	0.03 [-0.06, 0.12]	0.05 [-0.06, 0.15]	0.12** [0.00, 0.23]	0.06 [-0.06, 0.18]	0.04 [-0.05, 0.13]	0.07* [-0.00, 0.15]	0.05 [-0.01, 0.11]	0.04 [-0.04, 0.14]	-0.06 [-0.16, 0.02]
Economic worries	0.00 [-0.08, 0.08]	0.00 [-0.10, 0.09]	-0.05 [-0.15, 0.06]	0.06 [-0.05, 0.17]	-0.00 [-0.00, 0.19]	-0.05 [-0.10, 0.08]	0.03 [-0.02, 0.08]	0.04 [-0.01, 0.09]	0.01 [-0.07, 0.09]	0.04 [-0.03, 0.12]
Emotional Stability (ES)	-0.16** [-0.25, -0.06]	-0.24** [-0.34, -0.15]	-0.23** [-0.35, -0.12]	0.13* [0.02, 0.24]	0.12* [0.00, 0.24]	0.06 [-0.03, 0.15]	0.07* [0.02, 0.13]	-0.05 [-0.11, 0.01]	-0.09* [-0.19, 0.01]	-0.12** [-0.22, -0.04]
COVID worries × ES	-0.11** [-0.19, -0.03]	0.03 [-0.06, 0.11]	0.10* [0.01, 0.19]	-0.11* [-0.21, 0.01]	0.02 [-0.09, 0.13]	-0.07 [-0.16, 0.02]	-0.01 [-0.08, 0.05]	-0.03 [-0.08, 0.02]	0.04 [-0.06, 0.12]	0.06 [-0.03, 0.16]
Economic worries × ES	-0.02 [-0.09, 0.05]	-0.09* [-0.17, -0.00]	-0.08 [-0.17, 0.02]	0.04 [-0.07, 0.14]	-0.04 [-0.14, 0.06]	-0.04 [-0.13, 0.05]	0.02 [-0.04, 0.08]	-0.01 [-0.06, 0.04]	0.01 [-0.08, 0.09]	0.03 [-0.04, 0.11]
R ²	0.132**	0.171**	0.202**	0.107**	0.053**	0.03	0.03	0.048**	0.052**	0.042**
95% CI	[0.10, 0.20]	[0.13, 0.24]	[0.16, 0.28]	[0.08, 0.18]	[0.03, 0.11]	[0.00, 0.08]	[0.00, 0.08]	[0.03, 0.10]	[0.03, 0.11]	[0.03, 0.10]
Linearity	27.26***	4.89	13.44**	73.96***	6.01	59.59***	161.35***	61.83***	98.42***	0.90
Skewness	24.40***	1.01	9.74**	56.05***	0.43	52.79**	95.68**	48.92***	74.15***	0.17
Kurtosis	0.19	1.82	1.52	3.97*	4.86*	4.73*	62.13**	5.67*	21.89**	0.52
Link function	2.10	2.04	2.16	0.08	0.71	1.18	1.53	4.10*	0.34	0.11
Heteroscedasticity	0.57	0.02	0.02	13.89**	0.00	0.90	2.03	3.15	2.03	0.11

95% confidence intervals based on 1000 bootstrap samples are shown in square brackets below each entry.

UN = Universalism, BE = Benevolence, CO = Conformity, TR = Tradition, SE = Security, PO = Power, AC = Achievement, HE = Hedonism, ST = Stimulation, SD = Self direction, ES = Emotional Stability.

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

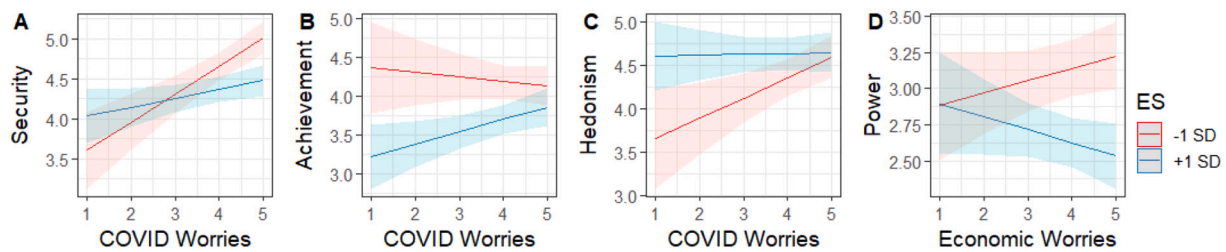


Fig. 3. The effect of Emotional Stability (ES) and worries on values Note: Panel (A) shows the interaction between COVID worries by Emotional stability on Security values; panel (B) shows the interaction COVID worries by Emotional stability on Achievement values; panel (C) shows the interaction between COVID worries by Emotional stability on Hedonism values and panel (D) shows the interaction between Economic worries by Emotional Stability on Power values. Regression slopes are shown at 1SD above and below the mean for Emotional Stability. All effects are shown after adjusting for all other variables in the model.

Schwartz' Achievement value construct).

One important observation in the context of an acute pandemic is that micro worries related to infection were more strongly related to values than macro-worries. Previous research indicated that macro-worries show stronger associations with values, but these worries were often abstract and more remote from the day-to-day activities of individuals (Schwartz et al., 2000). Our patterns highlight that future

research needs to examine the salience of worries in relation to worries more closely. Values may be particularly strongly related to situationally salient concerns (see Chrystal et al., 2019; Maio, 2016).

7. Limitations and future directions

Our sample may not be representative of the larger population and

effects are potentially more severe in more diverse and disadvantaged samples. Having one data point during an ongoing epidemic provides a snapshot of psychological processes without implying causality. Future studies need to follow up with participants to see whether these effects remain stable and investigate possible causal directions. Systematic counterbalancing of instruments and a more representative sample would also be highly desirable, especially given the potentially important implications of our observed findings.

We interpret our findings from an emotional processing perspective, which activates differential motivations based on the state of the biological system of the person (Lewis, 2015). In doing so, we take a biologically oriented homeostatic perspective on values, interpreting values as motivational states that are being adjusted in line with environmental demands and challenges. Values are relatively stable, whereas emotional processes are faster to react to situational demands, which over time may result in value adjustments depending on the ability of the person system to cope with the incoming situational demands. Hence, our reasoning is aligned with current understandings of personality dynamics (e.g., Corr & Krupić, 2017; DeYoung, 2015; Fischer, 2017; Lewis, 2015). However, it may also be plausible that there are more complex reciprocal feedback mechanisms (see Schwartz et al., 2000). Our cross-sectional data does not allow a finer distinction of the directional changes. In line with the emerging evidence that suggests that values are dynamically changing in the current pandemic environment (Daniel et al., 2021), our line of arguments provides one plausible emotion-driven process that can help with understanding psychological adjustments in an extreme event.

In summary, we report that personality dynamics, in particular individual differences in emotional stability may increase the impact of situational perceptions and worries on values as important life goals. Our data from a non-Western sample that is significantly affected by the pandemic highlights the social consequences of the current pandemic beyond physical health.

CRedit authorship contribution statement

R Fischer, T Bortolini, R Pilati, J Porto & J Moll designed the study & collected the data; R Fischer & T Bortolini performed data analyses; R Fischer wrote the first draft; all authors revised the manuscript.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2021.111079>.

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