



COVID-19 psychological impact: The role of perfectionism

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ABSTRACT

Psychological reactions to pandemics and their constraints depend heavily on personality. Although perfectionism is consistently associated to depression, anxiety and stress, its role in the pandemics' psychological impact has not been yet empirically studied. Our aim was to analyze the role of perfectionism in psychological distress during the pandemic of COVID-19, testing whether it is mediated by fear of COVID-19 and repetitive negative thinking/RNT. Participants (N = 413 adults; 269.2% women) were recruited from September until December 2020, via social networks. They completed self-report validated questionnaires to evaluate perfectionism dimensions (self-critical, rigid and narcissistic perfectionism), fear of COVID-19, RNT and psychological distress (sum of anxiety, depression and stress symptoms). As women had significantly higher levels of self-critical perfectionism, RNT, fear of COVID-19 and psychological distress, gender was controlled in mediation analysis. The three perfectionism dimensions correlated with RNT, fear of COVID-19 and psychological distress. The effect of self-critical perfectionism on psychological distress was partially mediated by fear of COVID-19 and RNT whereas the effect of rigid and narcissistic perfectionism was fully mediated. Perfectionism influences emotional and cognitive responses to the COVID-19 and therefore should be considered both in the prevention and psychological consequences of the pandemic.

1. Introduction

In humankind's history, many catastrophic and devastating pandemics have occurred. Despite the enormous societal impact of these events, their psychological and psychiatric aspects have not been sufficiently explored, being overshadowed by the sanitary and socioeconomic consequences. Only at the beginning of this century, with the SARS pandemic, in 2003, the effects of pandemics on mental health began to be systematically investigated, showing that psychological effects are long-lasting and can be more persistent than physical problems (Huremović, 2019).

Convincing evidence regarding the psychological consequences of COVID-19 began to be published in 2020 (Thombs et al., 2020). Research has shown that psychological reactions - adaptive and non-adaptive - to the pandemic and its many constraints can vary significantly depending on personality (from indifference to intense fear and excessive worry) (Taylor, 2019). One of the traits that can play a harmful role in the COVID-19 psychological impact is perfectionism (Flett &

Hewitt, 2020). Perfectionism is characterized by setting excessively high standards of performance, striving for flawlessness and having a tendency for overly critical evaluations (Stoeber, 2017). It is considered a transdiagnostic process, in the sense that it involves aspects of cognition and behavior that contribute to the development and maintenance of several mental health problems (Egan et al., 2011).

Perfectionism is associated with psychological distress in the form of anxiety and depressive states (Macedo et al., 2015) and symptoms (Smith, Sherry, et al., 2016) even after controlling for perceived stress and support (Macedo et al., 2017) and other problematic personality traits, such as neuroticism (Smith, Sherry, et al., 2016). Being highly prevalent and debilitating, it has become a global problem (Flett & Hewitt, 2020). A recent large meta-analysis led experts to consider that perfectionism is on the rise and is becoming a serious, even deadly, epidemic in modern western societies (Curran & Hill, 2019).

Perfectionism is now perceived as a multidimensional construct, with intra and interpersonal facets and negative and positive dimensions aggregated in broad perfectionist factors, respectively called

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perfectionistic concerns and perfectionistic strivings (Stoeber & Otto, 2006).

It has been proposed that the effects of perfectionism, particularly of the dimensions related to perfectionistic strivings, on psychological distress are a function of specific mediators, namely cognitive processes (Macedo et al., 2015). For example, while repetitive negative thinking (RNT) partially mediates the relationship between perfectionistic concerns and psychological distress, this dysfunctional cognitive process is a full mediator when it comes to perfectionism strivings (Macedo et al., 2015).

RNT is a style of thinking about one's problems or negative experiences that is repetitive, partially intrusive, unproductive, and difficult to disengage from (Ehring et al., 2011). This construct captures the processes of both worry and rumination, being considered as one of the causal psychological factors of anxiety and depression (McEvoy et al., 2013).

The new model for evaluating Perfectionism, which distinguishes three broad dimensions - self-critical perfectionism, rigid perfectionism, and narcissistic perfectionism (Smith, Saklofske, et al., 2016), have already been found to be associated with depression, anxiety and stress (Feher et al., 2020; Oliveira et al., 2021), but, to the best of our knowledge, the potential mediating role of dysfunctional cognitive emotional regulation processes in the relationship between these specific dimensions and psychological distress has not yet been explored.

Rigid perfectionism consists in demanding flawless performance from the self (Smith, Saklofske, et al., 2016). Self-critical perfectionism is operationalized through the Dunkley et al. (2003) conceptualization, including concern over mistakes, doubts about actions, self-criticism, and socially prescribed perfectionism. Narcissistic perfectionism is defined as the tendency to demand perfection from others in a grandiose, hypercritical, and entitled way (Smith, Saklofske, et al., 2016).

Additional traits associated with increased vulnerability to stress, such as neuroticism and other related more specific traits that also amplify the perceived degree of threat (e.g. health-anxiety and intolerance to uncertainty) have been suggested to be associated with the COVID-19 psychological sequelae (Paluszek et al., 2020). All these traits and the consequent dysfunctional coping strategies are related to perfectionism (Stoeber & Corr, 2015). However, the role of perfectionism in the psychological impact of this unprecedented health, economic and social crisis - COVID-19 - has not yet been studied empirically. We hypothesized that the multiple elements of unpredictability and the limitations imposed by the global crisis may be intensifying the fear of COVID19, exacerbating RNT and aggravating the high levels of psychological distress that already weigh on negative perfectionists.

Our objective is to analyze the role of perfectionism in psychological distress during the current pandemic of COVID-19, specifically in the levels of depression, anxiety and stress experienced, testing whether fear of COVID-19 and RNT are mediators of the relationship between that trait and these states. Our specific hypotheses are that the three perfectionism traits will be associated with fear of COVID-19, RNT and psychological distress and that the relationship between self-critical perfectionism and psychological distress will be partially mediated while the relationship with rigid perfectionism will be fully mediated. If it is proven that perfectionism contributes to the psychological impact of COVID-19 pandemic, we can implement preventive and psychotherapeutic strategies known to be beneficial in reducing the modifiable psychological processes associated with this trait, such as RNT.

2. Material and methods

This study is part of an ongoing research project approved by the Ethical Committee of the Faculty of Medicine, University of Coimbra (Reference: 082-CE-2020).

2.1. Procedure and participants

Participants were recruited from September 21st to December 12th 2020 from the general population, through social networks, using Google Forms.

The sample was composed of 413 participants, from which 286 (69.2%) were female. Age ranged from 18 to 71, with a mean age of 31.02 (± 14.272) years old. More than half of the participants were up to 24 years old ($n = 220$; 53.3%); the remaining age groups (25–29; 30–39, 40–49, 50–59 years) were composed of approximately 10% each.

Regarding marital status, 69% ($n = 285$) were single, 25.2% ($n = 104$) were married/living with the partner and 5.8% ($n = 24$) were divorced/separated. Regarding education, 62.2% ($n = 257$) had completed secondary school. Half of the sample were composed by students ($n = 214$; 51.9%) and one third ($n = 134$; 32.4%) worked in administrative, intellectual, technological and scientific activities.

In this sample, 21 (5.1%) participants had had COVID-19.

2.2. Measures

All the questionnaires used in the present study revealed good reliability and validity (construct and concurrent) in Portuguese samples. The internal consistency coefficients (Cronbach's alpha) obtained with the sample of this study are presented in Table 1.

2.2.1. Perfectionism

The Portuguese version (Oliveira et al., 2021) of the Big-3 Perfectionism Scale BTPS (BTPS; Smith, Saklofske, et al., 2016), composed of 45 items, was used to assess three higher-order global factors (rigid perfectionism, e.g., "I strive to be as perfect as possible"; self-critical perfectionism, e.g., "When I make a mistake, I feel like a failure"; and narcissistic perfectionism, e.g. "Other people acknowledge my superior ability").

2.2.2. Fear of COVID-19

The Fear of COVID-19 Scale (FCV-19S; Ahorsu et al., 2020) is a self-report measure aimed at assessing fear of COVID-19. The scale consists of seven items pertaining to emotional fear reactions towards the pandemic (e.g., "I am most afraid of Corona"). The Portuguese version presented good construct validity and internal consistency as a unidimensional measure (Cabaços et al., 2021).

2.2.3. Repetitive negative thinking (RNT)

The sum of the 15 items of the Portuguese version (Azevedo et al., 2017) of the Perseverative Thinking Questionnaire (Ehring et al., 2011) was used as a global score of repetitive negative thinking/RNT (e.g., "The same thoughts keep going through my mind again and again").

2.2.4. Psychological distress

The Portuguese version (Xavier et al., 2017) of Depression Anxiety Stress Scale (DASS-21; Brown et al., 1997) was used to measure general psychological distress, by summing the scores of negative emotional states of depression (e.g., "I felt sad and depressed"), anxiety (e.g., "I had a feeling of faintness) and stress (e.g., "I found it difficult to relax").

3. Data analyses

Descriptive, *t*-test and Pearson correlation analyses were conducted using the software SPSS, version 26. The mediation analyses were performed using PROCESS macro (Model 6) for SPSS (Hayes, 2018). The effects were estimated with 5000 bias-corrected bootstrap samples.

The PROCESS macro uses the bootstrapping method, which is a method of assessing direct and indirect effects of variables in a way that maximizes power and is robust against non-normality. The indirect effect represents the impact of the mediator variable(s) on the original relation (i.e., the relation of the independent variable on the outcome

Table 1
Descriptive statistics, internal consistencies and correlations.

	2	3	4	5	6	Mean	SD	α
1. SCritPerf	0.67**	0.44**	0.57**	0.27**	0.42**	49.11	13.49	0.91
2. RigPerf	1	0.68**	0.29**	0.24**	0.24**	24.24	7.53	0.87
3. NarcPerf		1	0.18**	0.23**	0.16**	35.31	10.48	0.85
4. RNT			1	0.19**	0.49**	12.18	6.83	0.93
5. FC19				1	0.31**	16.56	5.89	0.81
6. Psychological distress/DASS					1	4.91	5.05	0.94

** p < .001.

variable) (Hayes, 2018).

The three perfectionism dimensions were the independent variables and psychological distress (DASS total score) was the dependent variable, resulting in three separate mediation models.

4. Results

4.1. Descriptive and correlation analyses

Table 1 presents the descriptive data, internal consistencies obtained for each scale and Pearson's correlation coefficients between all variables.

The mean comparison of all the variables by gender revealed that women had significantly higher levels of self-critical perfectionism (50.00 ± 13.46 vs. 47.00 ± 12.09, t = -2.005, p = .042), repetitive negative thinking (26.70 ± 12.59 vs. 23.19 ± 11.10, t = -2.301, p = .022), fear of COVID-19 (17.18 ± 5.93 vs. 15.27 ± 5.58, t = -3.080, p = .002), psychological distress (14.35 ± 13.07 vs. 10.14 ± 10.05, t = 3.568, p < .001) and significantly lower levels of narcissistic perfectionism (34.10 ± 9.92 vs. 38.19 ± 11.10, t = 3.720, p < .001).

All the three perfectionism variables correlated with RNT, fear of COVID-19, and DASS total score (psychological distress), with coefficients of moderate magnitude for self-critical perfectionism and low to moderate for rigid and narcissistic perfectionism (all p < .01).

Fear of COVID-19 also correlated with both RNT and psychological distress. These also presented high coefficients between each other.

Thus, the proposed mediators, RNT and fear of COVID19, were correlated with the proposed predictors (perfectionism dimensions) and outcome variable (psychological distress).

4.2. Serial multiple mediation analyses

Three serial multiple mediation models were tested to examine the mediation roles of fear of COVID-19 (M1) and repetitive negative thinking/RNT (M2) in the relationship between perfectionism (self-critical/rigid/narcissistic) and psychological distress.

Perfectionism was hypothesized to have an enhancing effect on fear of COVID-19, that in turn was supposed to be reinforced by RNT, so these were entered as the first and the second mediators, respectively.

As there were significant differences between genders in the mean scores of most of the variables, namely of the two proposed mediators, gender was statistically controlled in the tested models (entered as a covariate).

Table 2 present the summary of the results of the serial mediation analysis, with an indication of the total (c), direct (c') and indirect [1 (a1b1), 2 (a1d12b2) and 3 (a2b2)] effects that were estimated for all mediations.

The first model, presented in Fig. 1, tested whether fear of COVID-19 and repetitive negative thinking would mediate the relationship between self-critical perfectionism and psychological distress (Fig. 1).

Results indicated that the total effect of self-critical perfectionism on psychological distress was significant (Effect = 0.463, SE = 0.039, t = 11.888, p < .001), as well as the direct effect (Effect = 0.177, SE = 0.044, t = 1.221, p < .001). Table 2 also shows that the total indirect effect was 0.286 and statistically different from zero (95% CI: 0.227 to

Table 2
Serial mediation analysis.

Effects	Coefficient	SE	p	Bootstrapping BC 95% CI	
				Lower	Upper
<i>PREDICTOR: Self-critical perfectionism</i>					
Total effect c	0.463	0.039	<0.001	0.386	0.540
Direct effect c'	0.177	0.0436	<0.001	0.091	0.262
Indirect effects					
Total indirect effect	0.287	0.033		0.2269	0.3562
a1b1	0.0390	0.012		0.018	0.067
a1d12b2	0.245	0.033		0.189	0.314
a2b2	0.002	0.005		-0.007	0.013
<i>PREDICTOR: Rigid perfectionism</i>					
Total effect c	0.455	0.077	<0.001	0.303	0.608
Direct effect c'	0.083	0.068	0.222	-0.051	0.216
Indirect effects					
Total indirect effect	0.030	0.004		0.022	0.038
a1b1	0.006	0.002		0.003	0.017
a1d12b2	0.022	0.004		0.015	0.030
a2b2	0.002	0.001		0.001	0.004
<i>PREDICTOR: Narcissistic perfectionism</i>					
Total effect c	0.192	0.058	0.001	0.078	0.306
Direct effect c'	-0.003	0.048	0.946	-0.091	0.097
Indirect effects					
Total indirect effect	0.195	0.042		0.113	0.279
a1b1	0.062	0.018		0.032	0.104
a1d12b2	0.111	0.037		0.038	0.183
a2b2	0.023	0.011		0.003	0.045

Note. Total, direct and indirect effects of the serial mediation models with psychological distress as the outcome.

0.356). The specific indirect effects of self-critical perfectionistic on psychological distress through fear of COVID-19 (indirect effect 1) and also through RNT (indirect effect 3) were different from zero, so these specific indirect effects were significantly positive. Only the indirect sequential effect through COVID-19 and RNT (indirect effect 2) was not significant. This model explained 27.68% of psychological distress variance (F = 77.88, p < .001).

The second model tested whether fear of COVID-19 and Repetitive Negative Thinking would mediate the relationship between rigid perfectionism and psychological distress (Fig. 2).

The total effect of rigid perfectionism on psychological distress was significant (Effect = 0.455, SE = 0.0775, t = 11.877, p < .001), but the direct effect was not (p = .223). The total indirect effect was 0.0309 and statistically different from zero (95% CI: 0.022 to 0.038). The three specific indirect effects of rigid perfectionistic on psychological distress, through fear of COVID-19 (indirect effect 1), through RNT (indirect effect 3) and through COVID-19 and RNT were different from zero, and thus were all significantly positive (Table 2). This model explained 10.05% of psychological distress variance (F = 22.89, p = .001).

The third model, shown in Fig. 3, tested whether fear of COVID-19 and Repetitive Negative Thinking would mediate the relationship between narcissistic perfectionism and psychological distress (Fig. 3).

As displayed in Table 2, the total effect of narcissistic perfectionism on psychological distress was significant (Effect = 0.192, SE = 0.058, t

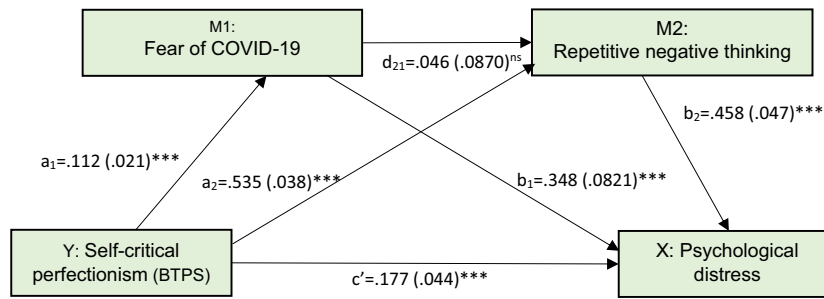


Fig. 1. Serial multiple mediation model with self-critical perfectionism as the predictor. Note. Gender ($b = 2.961$, $SE = 1.131$, $t = 2.61$, $p = .009$) was controlled. Numbers represent unstandardized coefficients. Numbers in parentheses represent standard errors. *** $p < .001$.

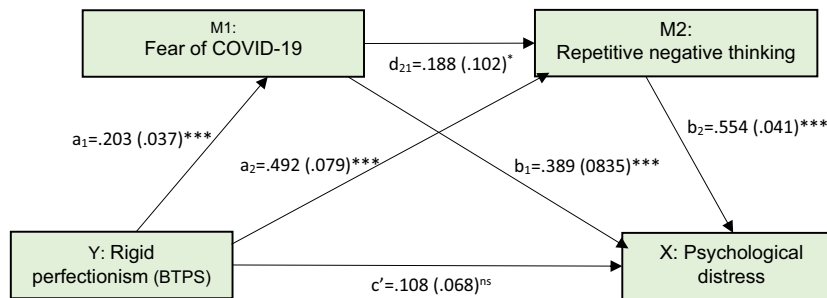


Fig. 2. Serial multiple mediation model with rigid perfectionism as the predictor. Note. Gender ($b = 4.908$, $SE = 1.259$, $t = 3.891$, $p = .001$) was controlled. Numbers represent unstandardized coefficients. Numbers in parentheses represent standard errors. * $p < .05$; ** $p < .01$; *** $p < .001$.

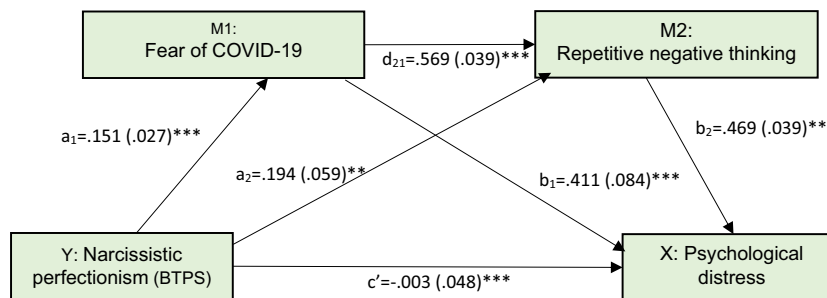


Fig. 3. Serial multiple mediation model with narcissistic perfectionism as the predictor. Note. Gender ($b = 4.995$, $SE = 1.309$, $t = 3.813$, $p = .002$) was controlled. Numbers represent unstandardized coefficients. Numbers in parentheses represent standard errors.

= 3.313, $p < .001$). The direct effect was not significant ($p = .943$). The total indirect effect was 0.0309 and statistically different from zero (95% CI: 0.022 to 0.038) (Table 2). Again, the three specific indirect effects of narcissistic perfectionism on psychological distress, through fear of COVID-19 (indirect effect 1), through RNT (indirect effect 3) and through COVID-19 and RNT (indirect effect 2) were different from zero, and thus were all significantly positive. This model explained 5.02% of psychological distress variance ($F = 10.83$, $p < .001$).

5. Discussion

This is the first study designed to investigate the role of perfectionism on the fear of COVID-19, associated dysfunctional cognitive processes (RNT) and its psychological consequences (depression, anxiety and stress). The main and innovative result of this study is that it confirms our hypothesis that perfectionism increases vulnerability to experience COVID-19-related stress. Both intra and inter-personal facets of perfectionism include health-related dimensions, namely fear of illness and

illness related self-concealment, the tendency to hide health problems in order to be seen by others as perfect (Molnar et al., 2016).

For people with high perfectionism, the possibility of getting sick can be interpreted as a threat to maintain control over their energy levels and abilities to achieve high standards and pursue flawless performance in various domains, such as physical appearance, work, studies, relationships, time management, domestic chores, parenting, etc. When the disease, its severity, impact, treatment, and prognosis are not yet fully understood, as is the case with COVID-19, the unpredictability, uncertainty and uncontrollability may be particularly stressful to perfectionists (Molnar et al., 2016). When faced with external situations that can derail their plans and affect their performances, they experience high levels of anxiety and frustration. Then, they tend to further intensify their exceptionally high demands, standards and criticism, which creates a stress-induced harm to physical and psychological well-being (Sirois et al., 2015).

Gender differences in relation to perfectionism, RNT, fear of COVID, and psychological distress, revealed with no surprise that women are

more negatively affected by these outcomes. These results corroborate other studies about gender differences in perfectionism (Curran & Hill, 2019) and in COVID-19's mental-health consequences, whose findings indicate that women present greater severity of anxiety, depression, and stress symptoms (Almeida et al., 2020). What is innovative in this study is the evidence that because of their perfectionism women suffer more from the fear of COVID-19 and related psychological distress.

It has been already suggested that the consequences of gender disparities may be amplified during the pandemic, particularly for employed women, as they are disproportionately responsible for the bulk of domestic tasks, including childcare and eldercare (Almeida et al., 2020). For the most perfectionist women this added burden of tasks and responsibilities can impact more negatively on their mental wellbeing.

Regarding the three perfectionism traits, although self-critical perfectionism presented correlations of higher magnitude with RNT, fear of COVID-19 and psychological distress than the other two perfectionism traits, which is in line with other studies (Feher et al., 2020), the effect of both fear of COVID-19 and of RNT was decisive in the levels of psychological distress when the rigid perfectionism and the narcissistic perfectionism were the predictors.

Our results show that self-critical perfectionism directly leads to psychological distress. The indirect effects that this trait has in increasing fear of COVID-19 and RNT, also links it to psychological distress, but are not necessary to substantiate its negative influence. In other words, both fear of COVID-19 and RNT are partial mediators of the relationship between self-critic perfectionism and psychological distress. It was also found that in the presence of self-critical perfectionism, these mediators operate separately, that is, fear of COVID-19 and also RNT link the trait to psychological distress, but they are not linked to each other. It seems that the self-critical perfectionism worries and ruminations are not COVID-19-related, although fear of COVID-19 also leads to psychological distress of perfectionists during the pandemic.

On the contrary, rigid perfectionism and narcissistic perfectionism, although being traits related to psychological distress during the pandemic, do not lead alone to this outcome. As in other potentially distressing situations, the pernicious effect of these traits is operated indirectly by the increase they cause in the levels of the specific stressors (Macedo et al., 2015). We have shown that, in this pandemic context, one of these stressors is the fear of COVID-19. The rigid perfectionism and the narcissistic perfectionism indirect effects in psychological distress also operate via the worries and ruminations, which may be related to COVID-19 and to other issues.

As for the self-critical perfectionist and also for the narcissistic, personal value is equated in terms of acceptance and external validation by others. For a narcissistic perfectionist it is vital to maintain a sense of superiority over others in order to maintain minimal discrepancy between their actual and ideal selves (Flett, Nepon, & Hewitt, 2016). During the pandemic, the mandatory confinement forced social distance and work at distance, which may have deprived people with this trait of the occasions for social comparison, for being praised and for demanding special prerogatives. This may be why this type of perfectionism leads to COVID-19-related stress, which in turn leads to anxiety and depression, links reinforced by RNT.

In which respects rigid perfectionism, we admit that, during the pandemic, people high in this trait may have greater difficulty in achieving their personal standards and striving for excellence, for example due to time constraints and overload of different tasks. This may have increased the fear of COVID-19, which, in turn, may have been reinforced by the RNT, in the form of worries and ruminations related to the uncertainty about its ability to achieve important personal goals and its perceived consequences, predisposing to psychological distress.

This study reminds us that personality traits and the emotional responses and cognitive-behavioral processes they influence do not occur in a vacuum. The findings may be interpreted on the basis of the diathesis-stress model, which posits that perfectionism is a factor that

predisposes individuals to experience increased psychopathologic symptoms during very stressful times (Dunkley et al., 2003). Due to pandemic, perfectionists may engage in even more stress exposure by continuously pursuing impossible standards and generating interpersonal conflict by pressure and/or feeling pressured by others (Flett & Hewitt, 2020). Thus, the COVID-19 pandemic presents an opportunity to deepen the understanding of the role of perfectionism in psychological reactions to stressful situations.

The "perfectionistic reactivity" that was described by Flett, Nepon, Hewitt, and Fitzgerald (2016) also aids our interpretations. According to them, much of the vulnerability and risk inherent in feeling a pressure to be perfect is based on how people react when their lives and routines are not perfect and are not fitting with their idealized visions. It should be viewed from a cognitive perspective, as perfectionists who are most likely to be susceptible to health problems are those reactive perfectionists who are also particularly prone to perseverative negative thinking.

The present study has some limitations. Due to its cross-sectional design no definite conclusions can be drawn concerning the direction of causality. Unfortunately, since the current pandemic is not over yet and others may emerge, it will not only be possible, but also important to continue this line, namely by prospectively test the proposed model. In future studies it will also be relevant to analyze the role of perfectionism in the most vulnerable groups to the development of psychological distress, as people who have been infected and their close relatives; students and parents affected by school closings, health professionals and individuals with previous mental health problems.

6. Conclusion

After the seminal Flett and Hewitt (2020) analysis, this is the first empirical study to present scientific evidence about the role of perfectionism on the psychological impact of the current pandemic. Perfectionism negatively influences psychological distress during pandemic of COVID-19 and its effect is mediated by fear of COVID-19 and RNT. Personality traits and the emotional, cognitive and behavioral reactions they trigger must be considered when evaluating and treating anxiety, depression and stress related to the COVID-19. Individuals with high levels of perfectionism should be helped in dealing with their fear of COVID-19, namely through interventions focused on reducing its high RNT, which is a modifiable factor (Monteregge et al., 2020).

CRedit authorship contribution statement

Ana Telma Pereira: Conceptualization, Methodology, Formal analysis, Writing – original draft, Project administration. **Carolina Cabaços:** Conceptualization, Investigation, Writing – review & editing. **Ana Araújo:** Investigation, Writing – review & editing. **Ana Paula Amaral:** Investigation, Writing – review & editing. **Frederica Carvalho:** Investigation, Writing – review & editing. **António Macedo:** Writing – review & editing, Supervision.

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