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COVID-19 Fear and Psychological Distress: Mediator and Moderator Effects of Cognitive Emotion Regulation Strategies

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Keywords
COVID-19, emotion regulation, fear of COVID-19, psychological distress

Abstract
The COVID-19 pandemic has been a worldwide threat to individuals' physical and psychological well-being. Empirical studies show that fear and anxiety are among the most common reactions to the pandemic. There is evidence that fear of COVID-19 (FCV) may contribute to elevated levels of psychological distress and if not regulated effectively, it might create a vulnerability for the initiation of psychological problems. The purpose of the current study was to explore the mediator and moderator role of cognitive emotion regulation (CER) strategies in the relationship between FCV and psychological distress. Data was collected from 587 Turkish adults (Mage = 37, SD = 15.25) via online self-report questionnaires on FCV, CER strategies, and measures of psychological distress. We tested a multiple mediation model predicting psychological distress from FCV with CER strategies as mediators. The model was significant and among the CER strategies acceptance, rumination, catastrophizing, and blaming others partially mediated the association between FCV and psychological distress. The moderator role of acceptance was also significant, indicating a stronger relationship between FCV and psychological distress among those with more frequent use of acceptance as a CER strategy. Our findings indicate that the use of CER strategies plays a role in the link between FCV and the level of psychological distress. Targeting the use of less adaptive strategies might be an effective way to improve psychological well-being during the pandemic.

Anahtar kelimeler
COVID-19, duygu düzenleme, COVID-19 korkusu, psikolojik sıkıntı

COVID-19 Korkusu ve Psikolojik Sıkıntı İlişkisinde Bilişsel Duygu Düzenleme Stratejilerinin Aracı ve Düzenleyici Rolü

Öz
COVID-19 salgını, bireylerin fiziksel ve psikolojik iyilik hallerine dünya çapında bir tehdit oluşturmuştur. Yapılan çalışmalar, korku ve kaygının salgına karşı verilen en yaygın tepkiler arasında olduğunu göstermektedir. COVID-19 korkusunun psikolojik sıkıntı düzeylerinin yükselmesine katkıda bulunduğuna dair bilimsel kanıtlar düşünüldüğünde, bu duygunun etkili bir şekilde düzenlenememesi, psikolojik bozuklukların başlaması için bir yatkınlık oluşturabilir. Bu çalışmanın amacı, COVID-19 korkusu ile psikolojik sıkıntı düzeyi arasındaki ilişkide bilişsel duygu düzenleme stratejilerinin aracı ve düzenleyici rolünü incelemektir. Veriler, 587 Türk yetişkinden (Ort.yaş = 37, SS = 15.25) COVID-19 korkusu, bilişsel duygu düzenleme stratejileri ve psikolojik sıkıntı ölçümlerini içeren çevrimiçi öz bildirim anketleri aracılığıyla toplanmıştır. COVID-19 korkusu ve psikolojik sıkıntı düzeyi ilişkisinde bilişsel duygu düzenleme stratejilerinin aracı olduğu çoklu aracılık modeli test edilmiş ve istatistiksel olarak anlamlı bulunmuştur. Buna göre; kabullenme, ruminasyon, felaketleştirme ve başkalarını suçlama stratejilerinin COVID-19 korkusu ile psikolojik sıkıntı arasındaki ilişkide kısmi aracı rolü üstlendiği görülmüştür. Kabullenme stratejisinin bu ilişkideki düzenleyici rolü de istatistiksel olarak anlamlı bulunmuştur. Buna göre, kabullenme stratejisini daha sık kullananlarda COVID-19 korkusu ile psikolojik sıkıntı düzeyi arasında daha güçlü bir ilişki olduğu görülmüştür. Bulgular, bilişsel duygu düzenleme stratejilerinin kullanımının bireylerin COVID-19 korkusu ve psikolojik sıkıntı düzeyi arasındaki ilişkide rol oynadığını göstermiştir. Görece daha az işlevsel olan duygu düzenleme stratejilerinin kullanımını azaltmayı hedeflemek, salgından etkilenen bireylerde psikolojik iyilik halini artırmak için etkili bir yol olabilir.

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After breaking out in Wuhan on 31 December 2019, the Coronavirus Disease 2019 (COVID-19) emerged as a global health crisis. The highly infectious virus has rapidly spread across the world, causing widespread illness, death, social disruption, and economic loss across numerous countries. As of February 2024, the total number of reported cases exceeded 774 million and reported COVID-19 deaths were over 7 million worldwide (WHO, 2024). Confirmed cases in Turkey were over 17 million and confirmed COVID-19-related deaths were over 101 thousand as of December 2023 (WHO, 2023). Other than illness and death, the pandemic also led to a variety of preventive health measures and restrictive policies implemented by governments such as mask requirements, social distancing, quarantine, and lockdowns (Ayouni et al., 2021; Gullo et al., 2023). Despite the efforts to contain the spread of the virus, with its alarming expansion and severe outcomes, it became an uncontrollable stressor adversely affecting not only the physical but also the psychological well-being of individuals and communities (Şimşir et al., 2022). Therefore, in addition to the direct effects of the virus on infected individuals, the stress evoked by the unpredictable nature of the pandemic, social restrictions, economic instability, and societal changes such as alterations in work environments has affected individuals' well-being dramatically through its indirect effects (Penninx et al., 2022).

Previous studies that explored the psychological effects of pandemics such as SARS (2002-2004) and Ebola (2013-2016) have consistently shown that epidemic diseases negatively impact psychological well-being and pose a threat to mental health (Maunder et al., 2003; Mohammed et al., 2015). Similar to previous epidemics, the association between COVID-19 pandemic and psychological distress became increasingly apparent as the pandemic unfolded, and studies have documented a variety of negative psychological outcomes associated with the pandemic in various samples across the world (Le & Nguyen, 2021; Rodríguez-Hidalgo et al., 2020; Shevlin et al., 2020; Talevi et al., 2020; Tee et al., 2020). Findings on the psychological effects of COVID-19 have indicated that the mental health of the public is negatively affected by the pandemic, and depressive symptoms, high levels of anxiety, and post-traumatic stress are reported especially by patients infected with the virus, the elderly, healthcare workers, and individuals with pre-existing mental health problems (Fitzpatrick et al., 2020; Lewis et al., 2022; Penninx et al., 2022; Vindegaard & Benros, 2020). For example, Lewis and colleagues (2022) found that 60% of adults with a history of mental illness reported worsening of their mental health during the pandemic. Of importance, three meta-analyses comparing self-reported mental health before and during the COVID-19 pandemic reported a significant increase in levels of depressive symptoms, anxiety, and loneliness (Penninx et al., 2022). Social isolation and other social restrictions have also been associated with elevated psychological distress and symptoms of psychopathology. A meta-analysis that examined studies published in the first year of the pandemic found that social restrictions due to the pandemic were associated with psychological symptoms including depression, loneliness, and stress (Knox et al., 2022). These studies document the negative psychological effects of the pandemic on individuals and communities worldwide. To prevent and alleviate psychological distress associated with public crises such as the COVID-19 pandemic, we need to understand the factors contributing to this negative outcome. Fear of COVID-19 (FCV) might be one of these factors associated with high levels of psychological distress.

Fear of COVID-19 and Psychological Distress

It is well known that infectious diseases trigger fear and anxiety among individuals, which is highly plausible considering their rapid and invisible spread, and the difficulties associated with controlling them

(Huang & Zhao, 2020; Pappas et al., 2009). Schimmenti and colleagues (2020a) conceptualized FCV in four interrelated categories, which are the bodily domain (e.g., being hypervigilant about bodily changes), interpersonal domain (e.g., fear of spreading the virus to loved ones), cognitive domain (e.g., fear of not knowing and extreme search for information) and behavioral domain (e.g., being paralyzed and not being able to take any action).

Fear emerged as a very common response to the threat that was posed by the COVID-19 pandemic, increasing psychological distress on a global scale (Schimmenti et al., 2020b). Studies conducted during the COVID-19 pandemic have documented substantial increases in individuals' fear and anxiety levels (Cao et al., 2020; Li, 2022; Wang et al., 2020), especially due to a high number of people infected with the virus, relatively high rates of mortality, and uncertainty surrounding COVID-19, including how it is transmitted and its long-term impacts on individuals and societies (Ahorsu et al., 2020). Especially individuals living in regions with the highest densities of COVID-19 cases showed elevated levels of FCV, as well as vulnerable populations such as women, ethnic minorities, healthcare workers, individuals with mental health problems, and those who were laid off (Fitzpatrick et al., 2020; Quadros et al., 2021). Furthermore, factors such as frequent media exposure and interpersonal communications that emphasize the danger posed by COVID-19 predicted an increase in FCV levels (Li, 2022).

Fear and anxiety are emotional responses to actual or perceived threats and play an essential role in ensuring our survival (Öhman & Rück, 2007). Even though their adaptive functions, excessive fear and anxiety are the major components in various psychopathologies such as specific phobia and social anxiety disorder (Krueger et al., 2018). Chronic stimulation of the body's fight-and-flight response with repeated exposure to threat, as in the case of the COVID-19 pandemic, and poor regulation of fear and anxiety may lead to long-term outcomes such as clinical anxiety, functional impairment, and substance abuse (Lee, 2020). If not regulated effectively, extreme fear may also impede rational decision-making in response to pandemics (Ahorsu et al., 2020). To illustrate, fear during the Ebola outbreak resulted in many dysfunctional, fear-driven behaviors, including seeking care at home rather than treatment centers, migrating to new areas, avoiding health-saving treatment, health workers abandoning their duties, and stigmatization of the survivors (Schultz et al., 2016). These fear-driven behaviors contributed to negative outcomes such as increased transmission of the virus and failures in the delivery of effective treatment. Therefore, the regulation of fear appears to be an important target to achieve successful management of pandemics, as well as personal and societal well-being.

To date, empirical studies found a negative relationship between FCV and individuals' psychological well-being. To illustrate, a study conducted by Fitzpatrick and colleagues (2020) on a representative American community sample demonstrated that a higher level of FCV is related to elevated levels of anxiety and depressive symptoms. Similarly, a study conducted in Turkey reported that FCV predicts symptoms of anxiety, depression, and stress among undergraduate and graduate students (Yalçın, 2020). A recent study with Turkish young adults found that FCV and stress levels were associated with COVID-19-related burnout both directly and indirectly through their effects on decreased social connectedness (Yıldırım et al., 2023). Furthermore, in a study with frontline nurses, FCV was associated with increased psychological distress and negative work-related outcomes such as decreased satisfaction with one's job and an intention to leave (Labrague, & de Los Santos, 2021). In a meta-analysis of studies on FCV and mental health problems, FCV was strongly linked to symptoms of anxiety, traumatic stress reactions, and psychological distress (Şimşir et al., 2022). Even though there is a scarcity of studies testing the long-term psychological effects of FCV using a prospective design, initial findings from cross-sectional studies have suggested that high levels of FCV may contribute to increased

levels of psychological distress and dysfunctional responses, and may pose a threat to the psychological well-being of individuals.

Based on previous studies on FCV, it appears that the adaptive regulation of fear might be a crucial factor in achieving psychological well-being during the pandemic. Effective coping with fear is critical not only at the individual level but also for the management of the pandemic at the societal level (Schimmenti et al., 2020a). Despite the increasing amount of evidence on the link between FCV and mental health-related factors, potential mechanisms in this relationship are yet to be understood. We believe that an important factor that plays a role in the effects of FCV on psychological well-being might be the strategies individuals implement to regulate their emotions in difficult situations as in the case of adversities caused by the COVID-19 pandemic.

Emotion Regulation during COVID-19

How individuals regulate their negative emotions may be a factor that helps us understand the link between FCV and negative mental health outcomes. Emotion regulation involves a wide range of physiological, behavioral, and cognitive strategies used to decrease, maintain, or increase the frequency, intensity, or expression of emotions (Gross, 2001). Emotion regulation helps individuals to manage their emotions following stressful events, such as the major life changes and stress brought on by the COVID-19 pandemic, and it is crucial for individuals' well-being and successful adaption to stress (Garnefski et al., 2005; Garnefski et al., 2001). The selection and implementation of emotion regulation strategies shape how individuals handle emotions related to the COVID-19 pandemic and may predict both psychological and physical well-being outcomes (Low et al.,2021).

One of the ways individuals regulate their emotions is through their use of cognitive emotion regulation (CER) strategies. CER can be defined as the conscious and cognitive way to handle emotionally stimulating information, such as re-interpreting the meaning of emotion-eliciting situations (Garnefski et al., 2001; Ochsner & Gross, 2005; Thompson, 1991). Generally, rumination, catastrophizing, self-blame, and blaming others are considered to be less adaptive CER strategies, given their positive relationship with symptoms of psychopathology (Ehring et al.,2008; Garnefski & Kraaij, 2006; Garnefski et al., 2001). On the other hand, strategies such as positive reappraisal, positive refocusing, refocusing on planning, acceptance and putting into perspective are generally indicated as relatively more adaptive strategies, negatively associated with symptoms of psychopathology (Garnefski, & Kraaij, 2006; Garnefski et al., 2001; Ochsner et al.,2002).

Studies conducted on the link between CER and psychological responses to the COVID-19 pandemic generally confirm previous findings on the effects of specific CER strategies on mental health. To illustrate, a study indicated that positive reappraisal, catastrophizing, and rumination are related to anxiety and depression during the COVID-19 lockdown (Rodas et al., 2021). Similarly, the use of rumination predicted higher levels of depressive symptoms and psychological distress, and lower psychological and physical well-being during the COVID-19 quarantine (Low et al., 2021). More adaptive strategies such as acceptance, focusing on planning, putting into perspective, and reappraisal were associated with higher psychological well-being during the COVID-19 pandemic (Gubler et al., 2020). Sacchi and Dan-Galauser (2021) found that an increase in the frequency of refocus on planning during the Spring 2020 lockdown was associated with a decrease in negative emotions, depressive symptoms, and difficulties in emotion regulation. Similarly, a study found that university students who report using more adaptive CER strategies cope better with the stress related to the forced COVID-19 quarantine process (Fernández Cruz et al., 2020). These findings indicate that the selection

and implementation of CER strategies to regulate negative emotions during the pandemic, such as FCV, may have a crucial influence on psychological well-being.

To our knowledge, only a few previous studies addressed the link between the implementation of emotion regulation strategies and level of COVID-related fear and anxiety during the pandemic. One of these studies tested the mediation and moderation effects of CER strategies in the link between COVID-19 worry and anxiety symptoms in Spanish adults (Muñoz-Navarro et al., 2021). Their findings demonstrated that the implementation of less adaptive CER strategies increases, and the implementation of more adaptive strategies reduces the negative effects of COVID-19 worry on anxiety symptoms. Furthermore, more frequent use of less adaptive CER strategies partially mediated the link between COVID-19 worry on anxiety. However, this study did not investigate the use of specific CER strategies in the sample and relied on total scores on subscales measuring adaptive and less adaptive CER strategies. Additionally, the study focused only on anxiety symptoms as the outcome. Furthermore, a recent study found that intolerance of uncertainty and the use of cognitive reappraisal and expression suppression strategies partially mediate the relationship between FCV and psychological distress (Gullo et al., 2023). Findings indicated that intolerance of uncertainty mediated the connection between FCV and psychological distress. Furthermore, in the same study, FCV was related to less frequent use of reappraisal and more frequent use of suppression, both associated with indicators of elevated psychological distress. Similarly, in a recent study, Berro and colleagues (2023) examined FCV, reappraisal and suppression strategies, and quality of life among Lebanese adults. They found that among those with higher levels of FCV, increased use of reappraisal and decreased use of suppression are associated with better quality of life. Neither of the mentioned studies explored the role of specific CER strategies, except for cognitive reappraisal, in the connection between FCV and psychological distress.

The Present Study

Previous research has proposed that fear and anxiety are among the most common emotional reactions that individuals experience during the COVID-19 pandemic (Wang et al., 2020). Furthermore, FCV has been linked to the symptoms of psychopathology and may pose a serious risk to mental health (e.g., Schimmenti et al., 2020b). It is widely accepted that emotion regulation strategies that are used to regulate difficult emotions shape psychological outcomes in response to major life events, such as the COVID-19 pandemic (Restubog et al., 2020). The use of specific CER strategies could be a mechanism in the association between fear and psychological distress during the COVID-19 outbreak; however, this argument is understudied. The majority of previous studies conducted in Turkey have focused on the link between FCV and symptoms of psychopathology (e.g., Satıcı et al., 2020). However, the use of CER strategies and their association with FCV and psychological symptoms are yet to be studied.

We believe that CER strategies may have both mediation and moderation effects on the connection between FCV and psychological distress. First, intense levels of fear may limit individuals' capacity to select and implement more adaptive strategies for emotion regulation (Schimmenti et al., 2020a) and the use of less adaptive strategies in response to this fear may contribute to increased psychological distress (i.e., mediation model). Second, the chronic use of certain CER strategies may make some individuals more vulnerable to experiencing the negative outcomes of fear on psychological well-being; so, the strength of association between FCV and psychological distress may increase, or decrease based on the way individuals generally regulate their emotions (i.e., moderation model). Therefore, the present study investigated both the mediator and the moderator effect of CER strategies in the association between FCV and general psychological distress among Turkish adults.

We expected that FCV might be associated with psychological distress indirectly through its effects on CER strategies. More specifically, we hypothesized that FCV would be directly and positively related to levels of psychological distress (as indicated by depression, anxiety, and stress scores). Furthermore, we hypothesized that relatively more adaptive strategies of CER (i.e., acceptance, positive reappraisal, positive refocus, putting into perspective, and refocus on planning) would be negatively associated, and relatively less adaptive strategies of CER (i.e., self-blame, rumination, catastrophizing and blaming others) would be positively associated with both FCV and psychological distress. Next, we hypothesized that CER strategies would mediate this relationship. To clarify, we expected that FCV would activate CER strategies, which in turn would predict the level of psychological distress. Lastly, we expected that individuals' habitual use of CER strategies might affect the strength of the association between fear and psychological distress. More specifically, we hypothesized that more adaptive strategies would decrease, and less adaptive strategies would increase the strength of the link between FCV and psychological distress.

Method

Participants

The participants of this study consisted of 587 Turkish adults between 18 to 78 years of age (M = 37, SD = 15.25). Among participants, 68.1% were females (n = 400) and 31.9% were males (n = 187). As for marital status, 51.3% (n = 301) were single and 48.7% (n = 286) were married. The majority of participants had a bachelor's degree or above (82.8%; n = 486), whereas 14.1% had a high school degree (n =83), and 3.1% reported an education level of less than high school (n =18). Regarding employment status, 307 participants reported being unemployed (52.3%) and 280 participants (47.7%) reported being employed. As for perceived socio-economic status (SES), 56.2% of the sample reported belonging to the middle SES (n = 330), 21.3% to the middle-high SES (n = 125), 12.6% to the middle-low SES (n = 74), 7.8% to the low (n = 46) and 2% to the high SES (n = 12). Among participants, 19.8% reported having a diagnosis of a chronic disease (n = 116). Furthermore, 6.3% of the sample reported having a history of psychiatric problems (n = 37). As for COVID-19 history, 10.4% of the sample (n = 61) reported testing positive for COVID-19 in the past. The exclusion criteria were being younger than 18 years of age and not being a Native speaker of Turkish.

Measurements

The Fear of COVID-19 Scale (FCV-19S): Developed by Ahorsu and colleagues (2020), the FCV-19S is a 7-item self-report scale that evaluates FCV. The scale is unidimensional, and items are rated on a five-point Likert-type scale, from 1 (strongly disagree) to 5 (strongly agree). Cronbach's alpha coefficient was reported as .82, indicating good internal consistency (Ahorsu et al., 2020). The FCV-19S was adapted into Turkish by Bakioğlu et al. (2020). Cronbach's alpha coefficient was reported as .88 (Bakioğlu et al., 2020). In the present study, Cronbach's alpha coefficient was .85.

The Depression Anxiety Stress Scale-21 (DASS-21): The DASS-21 (Lovibond & Lovibond, 1995) is the short form of the DASS-42 (Lovibond & Lovibond, 1993) which was developed to measure general levels of psychological distress. DASS-21 has 21 self-report items that are grouped into three dimensions: depression, anxiety, and stress. Each dimension has 7 items rated on a four-point Likert-type scale, ranging from 0 (Never) to 3 (Always). Cronbach's alpha coefficients were calculated as .94 for depression, .87 for anxiety, and .91 for stress dimensions (Antony et al.,1998). The Turkish form of the DASS-21 was developed by Sarıçam (2018). Cronbach's alpha coefficients were reported as .85, .80 and .77 for depression, anxiety, and stress, respectively

(Sarıçam, 2018). Cronbach's alpha coefficients in our sample were .93 for the entire scale, and were .88, .81 and .83 for depression, anxiety and stress dimensions, respectively.

Cognitive Emotion Regulation Questionnaire (CERQ): Developed by Garnefski and colleagues (2001), the CERQ is a 36-item self-report scale that measures CER strategies individuals use to modify their emotions after unpleasant events or situations. The scale consists of 9 subscales: self-blame, acceptance, rumination, putting into perspective, positive refocus, refocus on planning, positive reappraisal, catastrophizing, and blaming others. Each subscale consists of 4 items rated on a five-point Likert-type scale, ranging from 1 (almost never) to 5 (almost always). All subscales demonstrated good internal consistency ranging from .68 (blaming others) to .87 (positive refocusing) on studies conducted with adolescents and adults (Garnefski & Kraaij, 2007; Garnefski et al., 2001). The Turkish form of the scale was developed by Tuna and Bozo (2012). Cronbach's alpha coefficients ranged from .72 (self-blame) to .83 (catastrophizing), indicating good internal consistency (Tuna & Bozo, 2012). We calculated Cronbach's alpha coefficients as .66 for self-blame, .61 for acceptance, .73 for rumination, .77 for putting into perspective, .73 for positive refocus, .72 for refocus on planning, .77 for positive reappraisal, .70 for catastrophizing and .68 for blaming others.

Procedure

Before data collection, the study was reviewed and approved by the Human Subjects Ethics Committee of the Middle East Technical University (Protocol number 399-ODTU-2021). The study was carried out on an online survey platform. Students taking courses in the psychology department of a semi-private university in Ankara, Turkey were informed about the study via e-mail, and they were asked to recruit potential participants for the study in return for bonus points. An informed consent form was given to all participants who volunteered to take part in the research study. The data collection process took place between November 2020 and January 2020.

Data Analyses

We used SPSS for data analysis. First, Cronbach's alpha coefficients for internal consistencies of the scales were calculated. Next, Pearson correlation coefficients were computed for all variables. In order to test the mediator role of CER strategies in the link between FCV and psychological distress, a multiple mediation analysis was utilized on the data by using PROCESS Version 3, Model 4 (Hayes, 2018). Then, to explore the moderator role of CER strategies in this link, a moderation analysis was run by including interaction terms between FCV and the 9 CER strategies in a hierarchical multiple regression analysis. All predictor variables were centered before we calculated the interaction terms. Finally, to explore significant moderation effects, a simple slopes analysis was conducted.

Results

Bivariate correlations between the study variables are provided in Table 1. As we hypothesized, FCV was positively correlated with psychological distress ($p < .01$), as well as the less adaptive CER strategies; namely, catastrophizing, self-blame ($p < .01$), rumination, and blaming others, ($p < .05$). FCV was also positively correlated with acceptance ($p < .01$) and negatively correlated with positive reappraisal ($p < .01$). Moreover, self-blame, catastrophizing, blaming others, acceptance, and rumination were positively correlated with psychological distress ($p < .01$). Finally, positive reappraisal, positive refocus, putting into perspective and refocus on planning were negatively associated with psychological distress ($p < .01$).

Next, we tested a parallel mediation model to explore the association between FCV, CER strategies, and psychological distress (N = 587) by using multiple mediation analyses (PROCESS, Version 3). Figure 1 shows the tested model. The model predicting general psychological distress based on FCV and CER strategies was significant (F (10, 576) = 50.09, p < .001) and predicted 47% of the variance in psychological distress from FCV and CER strategies. FCV was significantly related to self-blame (B = .07, SE = .02, p < .01, CI[.03, .11]), acceptance (B = .09, SE = .02, p < .001, CI[.05, .13]), rumination (B = .05, SE = .02, p < .05, CI[.01, .10]), positive reappraisal (B = -.07, SE = .02, p < .01, CI[-.12, -.02]), catastrophizing (B = .18, SE = .02, p < .001, CI[.14, .23]), blaming others (B = .05, SE = .02, p < .05, CI[.01, .09]). On the other hand, putting into perspective, positive refocus, and refocus on planning were not significantly associated with FCV. Among different strategies of CER; self-blame (B = .67, SE = .31, p < .05, CI[.07, 1.28]), acceptance (B = 1.35, SE = .33, p < .001, CI[.70, 1.99]), rumination (B = 1.49, SE = .26, p < .001, CI[.97, 2.01]), positive refocus (B = -.91, SE = .25, p < .001, CI[-1.39, -.42]), refocus on planning (B = -1.16, SE = .32, p < .001, CI[-1.79, -.53]), positive reappraisal (B = -.70, SE = .34, p < .05, CI[-1.37, -.03]), catastrophizing (B = .74, SE = .26, p < .01, CI[.23, 1.26]), blaming others (B = .82, SE = .26, p < .01, CI[.31, 1.34]) were significant predictors of psychological distress, whereas putting into perspective was not. Both the direct effect between FCV and psychological distress (c` path; B = .84, SE = .12, p < .001, CI[.60, 1.09]) and the total effect (c path; B = 1.35, SE = .15, p < .001, CI[1.07, 1.64]) were significant.

Table 1

Means, Standard Deviations, and Correlations among Study Variables (N = 587)

Variables	M	SD	1	2	3	4	5	6	7	8	9	10
1. Fear of COVID	18.20	5.38	**1**									
2. PD	28.63	20.37	**.36****	**1**								
3. Self-blame	11.16	2.90	**.13****	**.43****	**1**							
4. Acceptance	11.52	2.65	**.19****	**.44****	**.65****	**1**						
5. Rumination	13.63	3.08	**.09***	**.35****	**.51****	**.45****	**1**					
6. Positive refocus	11.86	3.08	.01	**-.27****	**-.13****	-.05	.00	**1**				
7. RP	14.49	2.89	-.06	**-.23****	.03	.04	**.34****	**.40****	**1**			
8. PR	13.82	3.18	**-.12****	**-.33****	-.08	-.01	**.16****	**.53****	**.70****	**1**		
9. PIP	13.12	3.34	-.04	**-.15****	.04	**.16****	**.15****	**.43****	**.44****	**.63****	**1**	
10. Catastrophizing	9.15	3.15	**.31****	**.46****	**.35****	**.33****	**.26****	**-.11****	**-.19****	**-.33****	**-.21****	**1**
11. Blaming others	9.91	2.73	**.11***	**.24****	**.09***	**.18****	**.13****	**.10***	.06	-.06	.07	**.44****

$^{*}p$ < .05. $^{**}p$ < .01.

Note. PD: Psychological distress; PR: Positive reappraisal; RP: Refocus on planning; PIP: Putting into perspective

As for the mediator role of CER strategies, the indirect effect of acceptance (a_2b_2 = .13) was significant (CI = .0518 - .2226). Furthermore, the indirect effect of rumination (a_3b_3 = .08) was also significant (CI= .0047 - .1694), and so was the indirect effect of catastrophizing (a_8b_8 = .14; CI = (.0348 - .2541). Lastly, pathway of FCV -> blaming others -> psychological distress was also significant (a_9b_9 = .04; CI = .0024 - .0999). Based on these findings, FCV was indirectly linked to psychological distress through its relationship with rumination, catastrophizing, blaming others, and acceptance. In other words, these CER strategies partially mediated the association between FCV and general psychological distress.

Next, a hierarchical multiple regression analysis was run to test the moderator effects of CER strategies. In Step 1, FCV was entered. In Step 2, interaction terms between FCV and each of the 9 CER

strategies were entered. The models were significant and explained 13% and 15% of the variance in psychological distress. In Step 1, FCV was significantly associated with psychological distress ($b = 1.35$, $t = 9.25$, $p < .001$). In Step 2, the interaction term between FCV and acceptance was significant ($b = 0.17$, $t = 2.33$, $p < .05$), indicating that the link between FCV and general psychological distress was significantly moderated by acceptance.

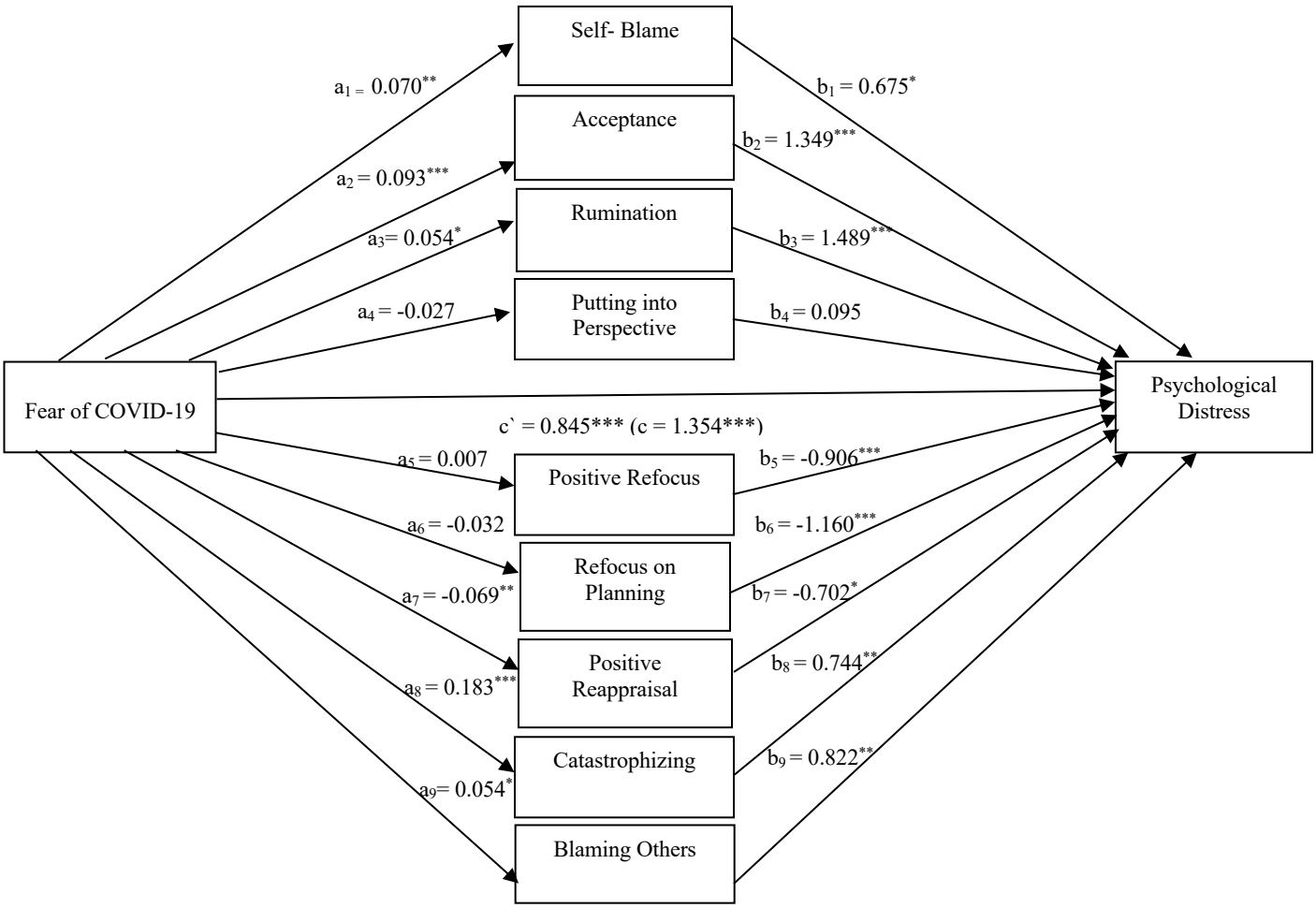

Figure 1. A mediational model of associations between fear of COVID-19, cognitive emotion regulation strategies, and psychological distress. **p < .05. **p < .01. p < .001****

To explore the significant moderation effect of acceptance, a simple slopes analysis was conducted. The link between FCV and psychological distress strengthened as individuals' levels of acceptance increased (Figure 2). We found a significant positive association between FCV and psychological distress at high levels of acceptance (1 *SD* above the mean; $b = 1.52$, $t = 8.06$, $p < .001$). Similarly, at moderate ($b = 1.09$, $t = 8.09$, $p < .001$) and low (1 *SD* below the mean; $b = 0.66$, $t = 3.65$, $p < .001$) levels of acceptance, the link between FCV and psychological distress was also significant. Therefore, FCV and psychological distress were significantly related, and as acceptance increased, this relationship became more positive.

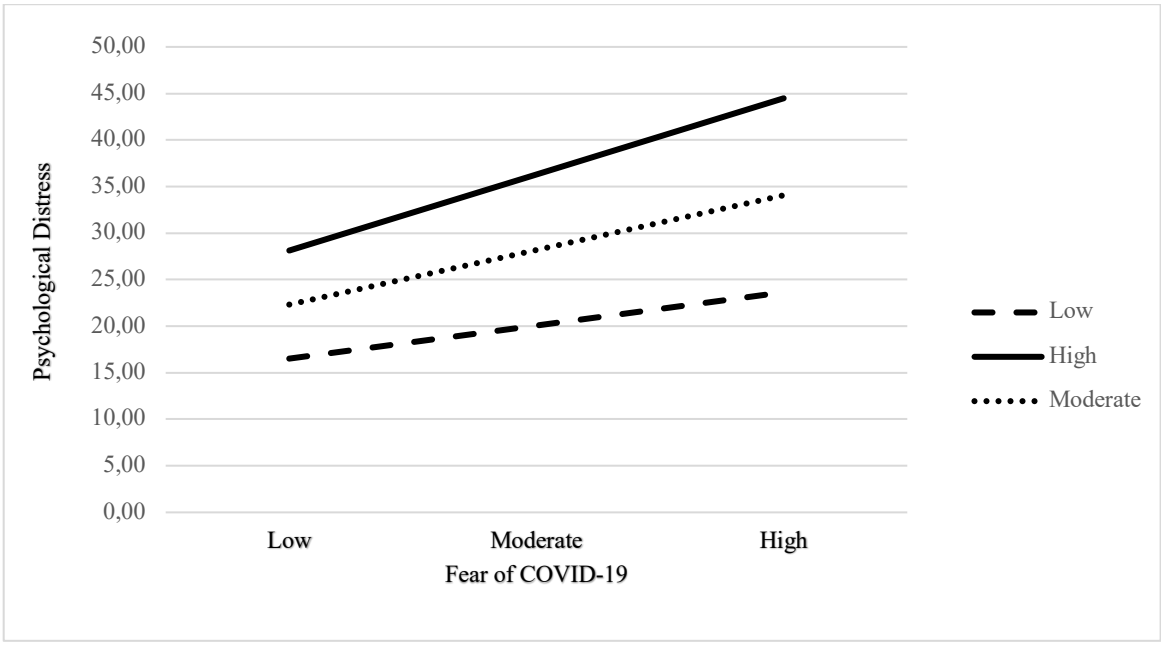

Figure 2. Relationship between fear of COVID-19 and acceptance for predicting psychological distress scores.

Discussion

Past research on the COVID-19 pandemic have demonstrated that the elevated experience of fear and anxiety is a very common reaction in society and is associated with a variety of negative mental health consequences. Even though many studies have investigated the relationship between FCV and psychological well-being, very few have focused on potential mechanisms in this relationship. Cognitive strategies individuals use to regulate their negative emotions might be one of these mechanisms linking FCV and psychological distress. To the best of our knowledge, the role of specific CER strategies in this link is yet to be studied. Based on this gap, the purpose of this study was to explore the mediator and moderator role of CER strategies in the association between FCV and general psychological distress among Turkish adults.

Confirming our predictions, the study findings indicated that FCV is positively associated with psychological distress, as indicated by depressive symptoms, anxiety and stress. This finding is consistent with previous studies suggesting FCV as a factor in increased vulnerability to psychological problems (e.g., Ahorsu et al., 2020; Satici et al., 2020). Fear is an extremely crucial emotion for our survival which acts as a trigger for the fight-or-flight response and is a functional emotion in response to temporal threats. However, in case of long-reaching threats such as the COVID-19 outbreak, individuals' fight-or-flight reactions can become chronic and may lead to psychological distress and functional impairment (Dubey et al., 2020; Lee, 2020). Interestingly, there is also evidence that FCV may be associated with more positive attitudes toward COVID-19 restrictions (Koniak & Cwalina, 2020) and may motivate individuals to perform preventive behaviors such as improved hand hygiene (Harper et al., 2021). We believe that the intensity of FCV and strategies used to regulate it play an essential role in fear-related outcomes during the COVID-19 pandemic, with greater intensity and the use of less adaptive strategies bringing about negative psychological outcomes. If not

regulated effectively, fear may increase psychological distress and may result in impaired decision-making and poor management of the pandemic both at the individual and societal levels (Schimmenti et al., 2020a).

The current study also highlighted the role of emotion regulation as a factor that influences psychological well-being during the COVID-19 pandemic. We anticipated that CER strategies would mediate the relationship between FCV and psychological distress. In our mediation analysis, rumination, catastrophizing, blaming others, and acceptance were found to partially mediate the association between FCV and psychological distress. Specifically, FCV was positively associated with repetitively dwelling on negative feelings and thoughts, exaggerating the possibility of negative outcomes, attributing negative experiences to others, and accepting what has happened and resigning oneself, all of which were then associated with greater psychological distress. It has been documented that stressful conditions may influence individuals' use of emotion regulation strategies. For example, a study found that stress was associated with increased use of rumination, catastrophizing, and self-blame, along with decreased use of positive reappraisal and perspective-taking strategies, resulting in greater anxiety symptoms (Miklósi et al., 2014). Our findings imply that FCV may trigger the use of less adaptive CER strategies, increasing vulnerability to depressive symptoms, anxiety, and stress. Previous research has shown that elevated levels of perceived threat and fear may impair individuals' executive functions, which encompass cognitive processes such as planning, problem-solving, and impulse control, leading to difficulties in effectively managing emotions (Shields et al., 2016). Interestingly, relatively less adaptive CER strategies, but not more adaptive strategies, mediated the association between fear and psychological distress. This finding is in line with previous research demonstrating that relatively less adaptive emotion regulation strategies are more strongly related to symptoms of psychopathology as compared to more adaptive strategies (Aldao et al., 2010).

Regarding the results of moderation analysis, among various CER strategies, acceptance was the only CER strategy that moderated the link between FCV and psychological distress, suggesting that as individuals' level of acceptance increased, the link between FCV and psychological distress was enhanced. This finding was unexpected given the vast evidence on the association between acceptance and psychological well-being (Ford et al., 2017; Schäfer et al., 2017). Implementing acceptance as a way to regulate emotions appears to be an adaptive approach to managing stress, especially in circumstances beyond one's control, such as during the COVID-19 pandemic (Guszkowska & Dąbrowska-Zimakowska, 2022). Accepting emotions can also reduce the likelihood of dysfunctional responses to emotional experiences, such as self-criticism or repression (Werner & Gross, 2010). On the contrary, regulating emotions by using acceptance appeared to be a less adaptive strategy in the present sample. Interestingly, our study is not the first to demonstrate that acceptance might be associated with negative psychological outcomes. In line with our findings, several studies indicated acceptance is associated with depressive symptoms or stress (e.g., Dubey et al., 2020; Kraaij et al., 2008; Kraaij et al., 2002; Martin & Dahlen, 2005). Nakamura and Orth (2005) defined different forms of acceptance and argued that acceptance in the form of resigning and losing hope is a maladaptive coping strategy. Indeed, some of the items of the acceptance subscale of the CERQ (e.g., ''*I think that I cannot change anything about it*") could have been interpreted as giving up and feeling hopeless by participants. Of importance, acceptance as measured by the CERQ focuses on acceptance of the situation; therefore, it does not assess to what extent participants accept their emotional reactions. Possibly, accepting the COVID-19 outbreak, resigning to what happened, and having a decreased hope for the future resulted in a stronger association between FCV and psychological distress in the present sample. Therefore, our results suggest that FCV may especially result in distress among those who accept the reality of the COVID-19 pandemic, probably passively and hopelessly.

Overall, our findings on the adaptiveness of the CER strategies were generally consistent with previous research. Similar to the earlier studies (e.g., Garnefski et al., 2001), the present study indicated that positive reappraisal, positive refocus, putting into perspective and refocus on planning are relatively more adaptive and functional strategies, based on their negative correlations with psychological distress; whereas rumination, catastrophizing, self-blame, and blaming others are less adaptive strategies and correlated positively with psychological distress. Although acceptance is theoretically considered as one of the more adaptive CER strategies, in the present study, it was positively correlated with FCV and psychological distress, and partially mediated and moderated the relationship between these variables. These results are in agreement with Dubey and colleagues' (2020) research, which demonstrated that rumination, catastrophizing, and blaming others are associated with depressive symptoms, anxiety, and stress during the COVID-19 pandemic, and acceptance is associated with depressive symptoms and stress.

We believe that the present study has extended previous research in several important ways. The majority of the previous studies have almost exclusively focused on the effects of the pandemic on psychological well-being. However, we know less about the mechanisms through which the COVID-19 pandemic contributes to negative mental health outcomes and factors that make some individuals more vulnerable to experiencing psychological problems in response to negative emotional experiences related to the pandemic. The present study has extended the literature on the role of specific CER strategies during the pandemic by offering insight into their link with FCV and psychological distress. More specifically, the findings showed that less adaptive strategies such as rumination and blaming others might be activated by fear and predict elevated psychological distress. Moreover, the results highlighted that emotion regulation might be a factor that can decrease or increase the effects of fear on psychological well-being. We believe that understanding the effects of using specific strategies during the pandemic, including strategies that might increase the negative effects of fear on mental health, may guide us in developing targeted prevention and intervention programs to help individuals better cope with their pandemic-related emotions and experience less psychological distress.

Our findings may pose several clinical implications. Our results have indicated a positive association between FCV and psychological distress. Based on this finding, in the prevention efforts of psychological problems during pandemics, impeding excessive elevation of fear in individuals and communities appears to be necessary. This might include the dissemination of clear messages about the nature of the pandemic and its treatment from trustable sources, prevention of excessive media exposure, and supporting vulnerable populations such as ethnic minorities and individuals with an existing mental health diagnosis. Furthermore, we believe that the adaptive regulation of fear and anxiety is an important step in helping individuals stay psychologically healthy during pandemics such as the COVID-19 pandemic. The present study demonstrated that the frequent use of rumination, catastrophizing, and blaming others strategies during the pandemic might be associated with a greater level of psychological distress. Therefore, intervention and prevention programs can be implemented to help individuals become aware of their emotion regulation attempts and reduce the chronic use of these strategies in coping with difficult emotions during the pandemic. Based on our findings on the relatively stronger link between less adaptive strategies and psychological distress, focusing on reducing the use of less adaptive CER strategies rather than increasing the use of more adaptive ones could be an initial target in decreasing psychological distress during the pandemic. Our results showed that the link between fear and psychological distress is especially emphasized for those who frequently use acceptance as a strategy to influence their emotions. Even though research indicates that the acceptance of one’s emotional experiences is a healthy response in difficult situations (Ford et al., 2017; Schäfer et al., 2017), we suggest clinicians

differentiate accepting one's emotional experience and reactions from accepting the situation in a passive and hopeless way, and intervene if acceptance is resulting in paralysis and avoidance.

The present findings should be interpreted in light of the following limitations. First, we used a cross-sectional examination of the study variables, indicating no causality in the links between FCV, CER strategies, and psychological distress. Furthermore, our results might have been different if collected at another time point during the COVID-19 pandemic. Therefore, future studies are suggested to employ longitudinal designs. Moreover, the present data was collected by using self-report questionnaires which may suffer from reporting and memory bias. Another limitation is that there were a large number of female participants in the present study, which might have affected our findings. There is evidence that women report experiencing higher levels of psychological distress as compared to men (Cleary & Mechanic, 1983; Drapeau et al., 2010; Matud et al.,2015; Nurullah, 2010). Furthermore, Garnefski and colleagues (2004) found that men and women differ in the degree to which they use CER strategies. Therefore, we recommend future studies to select more representative samples based on equally distributed gender. Lastly, in the present study, we solely focused on intrapersonal factors and left out many important environmental and interpersonal variables that might affect psychological well-being during the COVID-19 pandemic. For example, experiencing a forced quarantine process, changes in employment conditions and the death of significant others during the pandemic are among many factors that could pose a significant risk to individuals' psychological well-being (Rossi et al., 2020). More comprehensive studies are needed to gain a better insight into the complex interaction between multiple factors and their effects on mental health during the pandemic.

In conclusion, the present study indicated that FCV is associated with psychological distress and CER strategies partially mediated their relationship. Overall, the more frequently one uses acceptance, rumination, catastrophizing, and blaming others strategies as a response to the experience of FCV, the greater the levels of general psychological distress become. Our findings also indicate that the link between individuals' FCV and experience of distress gets stronger as they use a passive form of acceptance. Therefore, targeting how individuals influence their negative emotions during the pandemic might be important to improve psychological well-being.

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