

Examining the role of Emotional Security, Cognitive fusion and repetitive negative thinking in predicting stress caused by Covid-19

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Abstract

Aim: There is no doubt that the Covid-19 pandemic was one of the most destructive mental health crises of our time. This study investigated the role of emotional security, cognitive fusion, and repetitive negative thinking in predicting stress caused by Covid-19. **Methods:** The descriptive research method used in this study was correlation, and the target population was the first-semester undergraduate students at Payame Noor University in Kermanshah during the academic year 2021-2022. In this regard, 174 students were selected as a statistical sample using the available sampling

Method: by Emotional Safety Questionnaire of Casey Family Service Center (2007) Security, Cognitive Fusion Questionnaire (Gillanders et al, 2014), Repetitive negative thinking questionnaire (Ehring et al, 2010) and Corona Stress Scale Questionnaire (Salimi et al, 2019) were analyzed online. The data were analyzed by SPSS22 software using Pearson's correlation test and multiple regression.

Results: Based on the results, Covid-19 stress has a negative correlation with emotional security and a positive correlation with cognitive fusion and repetitive negative thinking. As a result of multiple regression analysis, cognitive fusion and repetitive negative thinking are significantly related to stress from Covid-19, and cognitive fusion with a Beta of 0.22 is more powerful in predicting stress from Covid-19.

Conclusion: According to the findings of this study, cognitive fusion and repetitive negative thinking play a significant role in causing stress from Covid-19. Psychological interventions can be designed based on these results in order to reduce the stress associated with Covid-19.

Keywords: Stress; Emotional Security; Repetitive negative thinking; Covid-19; Cognitive fusion

Introduction

Covid-19 (coronavirus) was a contagious virus caused by SARS-CoV-2 that has had catastrophic effects on the world's population (Casella, Rajnik, Aleem, Dulebohn & Di Napoli, 2022). On March 11, 2020, the World Health Organization declared Covid-19 a pandemic due to the spread of the epidemic (Huang, Xie, Owusua, Chen& Wang, et al., 2021). Covid-19 is primarily transmitted via respiratory droplets, which is why most countries have implemented measures such as quarantine and restrictions at the community level to prevent the spread of the disease (Ma, Ding, Shen, Kuang& Yang, et al., 2022). As a result of the Covid-19 pandemic, mental health disorders have increased (Mayorga, Manning, Derrick, Viana & Garey, et al., 2022) and societal stress has increased (Chahal, Kirshenbaum, Miller, Ho & Gotlib, 2021). In spite of the fact that many people are resilient to quarantine-related stressors as well as to stress in general, a significant minority of people are affected by them. Covid-19 stress is associated with panic shopping, avoiding public places excessively, and not complying with public health recommendations (Asmundson, Rachor, Drakes, Boehme& Paluszek , et al., 2022). Stress may also lead to mental disorders such as anxiety and depression (Zandifar and Badrafaam, 2020). The spread of Covid-19 has been associated with an increase in mood and anxiety symptoms (Lewis, Roche, Brown & Tillman, 2022). Thus, it is considered critical to identify the psychological factors that play a role in the stress of Covid-19. The occurrence or reduction of stress in Covid-19 may also be influenced by environmental factors. Emotional security is one of these environmental protective factors.

In the context of family relationships, emotional security can be defined as a feeling of safety, stability, and well-being that is a product of stable and positive relationships (Cantón-Cortés, Cortés & Cantón , 2020). According to the theory of emotional security, intra-individual changes in emotional security as a result of parental conflicts and difficulties achieving emotional security, as well as efforts to achieve emotional security, can increase the vulnerability of a person to psychological disorders over the long term (Hardt, Jobe-Shields & Williams, 2019). According to Ellis, Cardeli, Bloom, Brahmbhatt & Weine (2020), emotional insecurity can lead to clinical distress. Studies conducted by Darzi Azad Bani, Fakhri, and Mirzaian (2018) have shown a significant negative correlation between psychological vulnerability and anxiety. In contrast, cognitive fusion may be an important factor contributing to the increased stress of Covid-19.

The term cognitive fusion refers to the over-regulation of behavior under the influence of cognition. Thus, cognitive fusion occurs when behavior is guided more by thoughts and other internal experiences, resulting in a reduced sensitivity to direct consequences in the environment (Donati, Berrocal, Bernini, Gori & Primi,, 2021). Accordingly, Fernández Rodríguez, Coto Lesmes, Martínez Loredo & Cuesta Izquierdo (2022) concluded that cognitive fusion is associated with anxiety. Furthermore, Zhang, Zhang, Lu, Liu& Kong, et al. (2021) reported a significant relationship between cognitive fusion and anxiety and

depression during the Covid-19 epidemic. Repetitive negative thinking has also been identified as a contributing factor to psychopathology.

An individual with repetitive negative thinking has difficulty controlling their negative thinking style, even if they consider it unproductive (Roberts, Mostazir, Moberly, Watkins & Adlam, 2021). Based on the Stress expansion theory, it is possible that repetitive negative thinking activates a set of physiological stress responses in response to adverse mental representations of fight or flight mechanisms (Rocha-Oliveira & Zibetti, 2022). The results of Harrison, Moulds & Jones (2022) studies indicate a significant relationship between repetitive negative thinking and anxiety during the Covid-19 pandemic. According to Torrente, Yoris, Low, Lopez & Bekinschtein, et al. (2021), repetitive negative thinking plays a key role in anxiety related to the Covid-19 pandemic.

Due to the unpredictable nature of the Covid-19 pandemic, psychological factors should be considered as potential predictors of stress caused by this disease. There have been few studies examining this phenomenon, and even fewer have examined stress caused by Covid-19. Therefore, this study is important for determining the role of psychological factors in Covid-19 stress. It has yet to be examined whether emotional security and dysfunctional cognitive processes, such as cognitive fusion and repetitive negative thinking, can be used to predict the stress associated with Covid-19.

This study aims to examine the relationship between emotional security, cognitive fusion, and repetitive negative thinking with stress resulting from Covid-19. This research aims to identify whether emotional security, cognitive fusion, and repetitive negative thinking can reduce stress as a result of predictor Covid-19, and, if so, which predictive variable is most effective.

Methods

This study employs a cross-sectional correlational design as part of its research design. The statistical population of this study was all undergraduate students of the first semester of Payame Noor University in Kermanshah in the first semester of the academic year 2021-2022, from which 174 individuals were selected by convenience sampling and evaluated by survey questionnaire. In light of the Covid-19 pandemic, questionnaires have been implemented and completed online in student groups and channels at the Payame Noor University of Kermanshah. In order to obtain the most accurate sampling of the statistical population, the recorded information was analyzed. A multiple regression analysis was conducted using SPSS-22 software based on descriptive indices and Pearson's correlation coefficient. For inclusion into the research, students must be first-semester undergraduate students at the Payame Noor University of Kermanshah who are willing to cooperate, and for the exclusion, participants must be unwilling to cooperate and unable to complete questionnaires. All subjects were free to participate in this study,

according to ethical standards, and were assured that their personal information would be kept confidential and used only for research purposes.

Belonging and Emotional Security Tool: A 25-item tool was developed by Annie E. Casey Family Services (2007) for the purpose of evaluating emotional security. The scale consists of two factors. There are 13 items in the first factor (emotional security) and 12 items in the second factor (belonging) (Frey, Cushing, Freundlich, & Brenner, 2008). The subject responds to the questions on a five-point Likert scale from 1 (completely disagree) to 5 (completely agree). In this questionnaire, the score range is between 25 and 125, where higher scores indicate greater emotional insecurity.. The Iranian version of this scale has been translated and validated by Shadai, Qoltash, and Refahi (2014). Based on the KMO index, it was determined that the scale was suitable for exploratory factor analysis with a correlation of 0.94. After removing item 9, exploratory factor analysis indicated that the scale was valid and reliable, while confirmatory factor analysis demonstrated that the questions and variables were appropriate for research based on the results of confirmatory factor analysis. Furthermore, Cronbach's alpha was estimated to be 0.87, and the half method estimated that it was 0.89, which indicates that the tool is reliable and internally consistent. Additionally, expert professors have confirmed the validity of the questions (Shadai et al., 2014). The reliability of the scale was determined by Cronbach's alpha, which was 0.88 in this study.

Cognitive Fusion Questionnaire (CFQ): In order to measure cognitive fusion, Gillanders, Bolderston, Bond, Dempster & Flaxman (2014) developed this 12-item questionnaire. There are two dimensions to this questionnaire: cognitive dissonance and cognitive fusion. Scoring is based on a seven-point Likert scale ranging from 1 (never) to 7 (always). The possible score range for participants is 7 to 84 On this scale, a high score indicates greater mastery of thought over behavior. Gillanders et al as the developers of this instrument, reported a construct validity of 0.93 for this questionnaire. They also reported reliability coefficients of 0.82 for the cognitive defusion subscale, 0.84 for the cognitive fusion subscale, and 0.88 for the total questionnaire score. According to Akbari et al (2013), Cronbach's alpha coefficient was 0.91 and the retest reliability coefficient was 0.86 after five weeks. Based on Cronbach's alpha, the reliability of the whole scale was estimated to be 0.80 in this study.

Corona Stress Scale: CSS-18 Questionnaire: In order to measure the level of Corona stress, Salimi, Abedini Chamghardani, Ghasemi Nafchi, and Tabashir (2019) developed an 18-item questionnaire. Three dimensions are included in this scale: psychological states of stress, physical states of stress, and behaviors related to Corona stress. On a five-point Likert scale from 0 (never) to 4 (always), participants respond to the questions. Participants' scores on this scale range between 0 (minimum) and 72 (maximum). Higher scores indicate greater stress related to COVID-19. Validity testing shows a positive correlation between this questionnaire and Leviband and Leviband's depression, anxiety,

and stress questionnaire. The Cronbach's alpha coefficients for psychological states of stress, physical states of stress, and behaviors related to Corona stress are 0.92, 0.82, and 0.57, respectively, and 0.91 for the entire scale. A Cronbach's alpha value of 0.93 was obtained for the entire scale in this study.

Repetitive negative thinking questionnaire: A 15-item questionnaire has been compiled by Ehring, Zetsche, Weidacker, Wahl & Ehlers (2010). Three subscales are included in this scale: repetitive negative thinking, perceived ineffectiveness, and mental capacity capture. According to the questionnaire, participants are asked to respond on a 5-point Likert scale from 0 (never) to 4 (always). The total score on this measure can vary from 0 to 60 and high score indicates a tendency to think negatively repeatedly. Ehring et al.'s (2010) research indicate that this questionnaire has a good level of internal consistency. According to Cronbach's alpha method, the reliability coefficient for the whole scale was 0.95, whereas, for the dimensions of repetitive negative thinking, perceived ineffectiveness, and possession of mental capacity, the coefficients were 0.94, 0.83, and 0.86, respectively. Three experts in Iran approved the test for formal validity (Shir Mohammadi, Kakavand, Sadeghi, and Jafari Jozani, 2015). Based on Cronbach's alpha method of 0.94, the reliability of the entire scale was determined in the present study.

Results

Upon analysis of the data, it was found that the majority of participants (66.1 %) were between the ages of 17 and 18 years and that the least number was between the ages of 19 and 20 years (33.9%). According to the data, the mean age of the participants was 18.29 and the standard deviation was 0.64, respectively. In this study, 127 women/girls (73 percent) and 47 men/boys (27 percent) participated. It should be noted that 174 of the respondents were undergraduate students. Moreover, 169 individuals (97.1%) were single and 5 individuals (2.9%) were married.

Table 1 presents descriptive indices and correlations of research variables. Generally, the skewness and skewness values of the variables are less than ± 1 , indicating that the distribution of the variables is normal (George & Mallery, 2003). For the purpose of examining the relationship between variables, Pearson's correlation coefficient was applied. Based on the results of Table 1, Covid-19 stress is inversely related to emotional security and positively related to cognitive fusion and repetitive negative thinking.

Table 1. Descriptive statistics and Correlation matrix between research variables

Variable	Mean	Standard deviation	Skewness	Kurtosis	1	2	3	4
Covid-19 Stress	2.38	0.81	0.77	0.18	1			
Emotional Security	4.07	0.91	-1	0.54	-0.13*	1		
Cognitive fusion	3.97	0.99	0.18	0.10	0.34**	-	1	
Repetitive negative thinking	2.80	0.90	0.22	-0.50	0.33**	-	0.66**	1

*P <0.05 ** P> 0.01

Based on predictor variables, multiple regression analysis was used to predict the stress of covid-19. Furthermore, the tolerance index and variance inflation factor were used to verify the absence of multiple collinearities. Furthermore, Durbin-Watson's test value was calculated as 2.08, indicating that the predictor variables in this study are independent. Table No. 2 summarizes the results of the model and analysis of variance related to multiple regression.

Table 2. Analysis of variance and model results of the multiple regression of stress from Covid-19 based on emotional security, cognitive fusion, and repetitive negative thinking

Model	Sum of Squares	df	Mean Square	R	R Square	Adjusted R Square	F	Sig	Durbin-Watson
regression	15.83	3	5.27	0.37	0.14	0.12	9.06	0.00	2.08
residual	98.96	170	0.58						

According to Table 2, 0.14% of the variance of stress from Covid-19 can be explained by the combination of predictive variables. Additionally, the F ratio is significant at the p<0.005 level, which indicates that the covid-19 stress multiple regression models based on predictor variables have significant results.

Table 3 presents the coefficients related to stress regression from Covid-19 based on predictor variables. The relationship between cognitive fusion with a beta of 0.22 ($t = 2.33$) and referential thinking with a beta of 0.19 ($t = 2.00$) with a significant and positive relationship plays a major role in predicting stress from Covid-19. In addition, cognitive fusion has the highest beta value at a p<0.05 level. Also, the significance level obtained

from the t-statistic presented in Table 3 for emotional security indicates that it is not capable of predicting stress from Covid-19.

Table 3. Multiple regression coefficients for stress from Covid-19 based on emotional security, cognitive fusion, and repetitive negative thinking

Model	B	SE.B	Beta	t	sig	Tolerance	VIF
Constant	1.07	0.45	-	2.34	0.02		
Emotional Security	0.02	0.07	0.02	0.30	0.76	0.82	1.21
Cognitive fusion	0.18	0.07	0.22	2.33	0.02	0.54	1.84
Repetitive negative thinking	0.17	0.08	0.19	2.00	0.04	0.54	1.82

Discussion

This study investigated the role of emotional security, cognitive fusion, and repetitive negative thinking in predicting stress in the context of Covid-19. The findings of this study indicate that stress resulting from covid-19 is significantly predicted by cognitive fusion. Research conducted by Fernández Rodríguez et al. (2022); Zhang et al. (2021) is consistent with the results of this study. It may be possible to explain this finding by stating that cognitive fusion combined with negative self-referential thoughts can create unpleasant moods such as sadness, which can result in less effective action. Thus, stress and worry are used as unhelpful avoidance strategies to reduce discomfort (Donati et al., 2021). However, it appears that when there is a covid-19 epidemic, people have a higher level of cognitive fusion because their behavior is controlled by cognitive evaluations, and thoughts are treated as real facts. Thus, in the covid-19 pandemic, it is possible for psychological flexibility to be reduced (Xiong, Lai, Wu, Yuan, Tang, et al., 2021), as well as mental health problems to be less flexible. Due to this rigid pattern of cognitive fusion, behavior and emotions are not able to be regulated by present experiences (Pyszkowska, Rożnawski & Farny, 2021). Thus, negative thoughts regarding the covid-19 pandemic, such as some analyses and misinformation, cause the person to experience stress from thinking about covid-19 as if the thoughts were real. The covid-19 pandemic requires effective measures to prevent tension and worry. Thus, cognitive fusion exacerbates the possibility of covid-19-induced stress.

In addition, the research found that emotional security and stress are significantly inversely correlated. Despite the lack of research in this area, this finding is generally consistent with Darzi Azad Bani et al.'s research (2018), which indicates a significant negative correlation between emotional security and psychological vulnerability and anxiety. The studies of Ellis et al. (2020), however, indicate that psychological

vulnerability, anxiety, and clinical distress can be associated with emotional insecurity; however, the results of this study indicate that emotional safety does not play a significant role in predicting COVID-19 stress. Perhaps this inconsistency can be attributed to the heterogeneity of the study sample, the research evaluation tool, and the simultaneous evaluation of the variables. According to Covid-19, there is a negative relationship between emotional security and stress, and according to the theory of emotional security, when the family context is filled with emotions such as hostility and conflict between parents, it is likely that a toxic environment will be created, which threatens people's safety in the context of the family and makes them more likely to show high reactivity. Emotional insecurity is manifested in irregular feelings such as anxiety and fear (Ellis et al., 2020). When the sense of security is lost as a result of problems with parents and family, trying to return emotional security in the long-term cause's inconsistency and creates behavioral and emotional problems such as depression and anxiety. Psychological disruption can result from people's efforts to gain a sense of security, which can be adaptive (Cantón-Cortés et al., 2020). A sense of emotional security allows people to trust their family as a reliable source of security and to show more flexibility in the form of optimism. As a result, psychological adjustment problems can be reduced through emotional security even when faced with stressful factors such as stress from Covid-19. As a final point, achieving emotional security is believed to reduce people's vulnerability to stress from Covid-19. However, further research is needed to confirm these explanations.

Additionally, the research found that repetitive negative thinking was a significant predictor of stress from Covid-19. The findings of this study are similar to those of previous studies by Harrison et al. (2022); Torrente et al. (2021). This finding can be explained by the theory of stress expansion, which states that acute stress factors such as Covid-19 activate long-term physiological responses when people have cognitive endurance. Consequently, stable cognitions serve as mediators between stress from covid-19 and psychopathology, prolonging its physiological activity. Due to their cognitive endurance during stressful events, people with repetitive negative thinking appear to also be vulnerable to the stress of Covid-19, and this prolongs the physiological response to the stress of Covid-19 in sufferers (Rocha-Oliveira & Zibetti, 2022). Furthermore, suppression and ruminating are commonly associated with uncertainty and control over one's situation. This is expected in the context of the Covid-19 epidemic, which has led to uncertainty about treatment options, uncertainty about Covid-19's control timeframe, and uncertainty about the severity of its risk. People with such constant negative and relatively uncontrollable thinking are more likely to experience stress from Covid-19. Consequently, repetitive negative thinking may, in turn, be seen as a source of stress from Covid-19. The study has been associated with limitations such as collecting information online and a lack of research experience in the field of the research topic. To clarify other aspects of the issue, future studies should consider this factor. In addition, due to the small

statistical sample, the results cannot be generalized, so further research will have to be conducted on a larger scale. In light of the importance of cognitive fusion and repetitive negative thinking in the stress manifestations of covid-19, therapeutic interventions that reduce cognitive fusion and repetitive negative thinking may be helpful in reducing the stress effects of covid-19. This study can be used to design psychological interventions to reduce stress caused by covid-19 and to improve the mental health of the community during the pandemic. This study has certain limitations. For example, as collecting information online and a lack of research experience in the field of the research topic. To clarify other aspects of the issue, future studies should consider this factor. In addition, due to the small statistical sample, the results cannot be generalized, so further research will have to be conducted on a larger scale. In light of the importance of cognitive fusion and repetitive negative thinking in the stress manifestations of covid-19, therapeutic interventions that reduce cognitive fusion and repetitive negative thinking may be helpful in reducing the stress effects of covid-19. This study can be used to design psychological interventions to reduce stress caused by covid-19 and to improve the mental health of the community during the pandemic.

Conclusion

This study shows that emotional security safety, cognitive fusion, and repetitive negative thinking are closely related to stress associated with Covid-19. Cognitive fusion and repetitive negative thinking are more obvious changes among the research variables than the stress caused by Covid-19. Cognitive fusion also has higher explanatory power.

Disclosure Statements

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References

Akbari, M., Roshan, r., Fathi, L & Shabani, A (2013). Designing a metadiagnostic protocol based on negative repetitive thoughts for the treatment of people suffering from anxiety disorders and depression. Doctoral dissertation, Shahed University.

Asmundson, G. J., Rachor, G., Drakes, D. H., Boehme, B. A., Paluszek, M. M., & Taylor, S. (2022). How does COVID stress vary across the anxiety-related disorders? Assessing factorial invariance and changes in COVID Stress Scale scores during the pandemic. *Journal of Anxiety Disorders*, 87, 102554.

Cantón-Cortés, D., Cortés, M. R., & Cantón, J. (2020). Child sexual abuse and suicidal ideation: The differential role of attachment and emotional security in the family system. *International journal of environmental research and public health*, 17(9), 3163.

Cascella, M., Rajnik, M., Aleem, A., Dulebohn, S. C., & Di Napoli, R. (2022). Features, evaluation, and treatment of coronavirus (COVID-19). In StatPearls. StatPearls Publishing. Statpearls [internet].

Chahal, R., Kirshenbaum, J. S., Miller, J. G., Ho, T. C., & Gotlib, I. H. (2021). Higher executive control network coherence buffers against puberty-related increases in internalizing symptoms during the COVID-19 pandemic. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 6(1), 79-88.

Darzi Azad Bani, M., Fakhri, M. K., Mirzaian, B (2018). The mediating role of emotional safety in the relationship between risk perception and psychological vulnerability in adolescents with social anxiety disorder. *Quarterly Journal of Excellence in Counseling and Psychotherapy*. (31) 8. 53-68.

Donati, M. A., Berrocal, C., Bernini, O., Gori, C., & Primi, C. (2021). Measuring cognitive fusion through the Cognitive Fusion Questionnaire-7: Measurement invariance across non-clinical and clinical psychological samples. *PLoS one*, 16(2), e0246434.

Ehring, T., Zetsche, U., Weidacker, K., Wahl, K., & Ehlers, A. (2010). The Perseverative Thinking Questionnaire (PTQ): Validation of a content independent measure of repetitive negative thinking. *Behavior Therapy & Experimental Psychiatry*, 42(2): 225–232.

Ellis, B. H., Cardeli, E., Bloom, M., Brahmbhatt, Z., & Weine, S. (2020). Understanding the needs of children returning from formerly ISIS-controlled territories through an emotional security theory lens: Implications for practice. *Child abuse & neglect*, 109, 104754.

Fernández Rodríguez, C., Coto Lesmes, R., Martínez Loredo, V., & Cuesta Izquierdo, M. (2022). Psychological inflexibility, anxiety and depression: The moderating role of cognitive fusion, experiential avoidance and activation. *Psicothema*.

Frey, L., Cushing, G., Freundlich, M., & Brenner, E. (2008). Achieving permanency for youth in foster care: Assessing and strengthening emotional security. *Child & Family Social Work*, 13(2), 218-226.

George, D., & Mallory, P. (2003). *Using SPSS for Windows Step by Step: A Simple Guide and Reference* (4th ed.). London: Pearson Education.

Gillanders, D. T., Bolderston, H., Bond, F. W., Dempster, M., Flaxman, P. E., Campbell, L., ... & Remington, B. (2014). The development and initial validation of the cognitive fusion questionnaire. *Behavior therapy*, 45(1), 83-101.

Hardt, M., Jobe-Shields, L., & Williams, J. L. (2019). Emotional security theory: An application to sibling bereavement. *Death studies*, 43(10), 656-664.

Harrison, V., Moulds, M. L., & Jones, K. (2022). Perceived social support and prenatal wellbeing: The mediating effects of loneliness and repetitive negative thinking on anxiety and depression during the COVID-19 pandemic. *Women and Birth*, 35(3), 232-241.

Huang, C., Xie, J., Owusua, T., Chen, Z., Wang, J., Qin, C., & He, Q. (2021). Is psychological flexibility a mediator between perceived stress and general anxiety or depression among suspected patients of the 2019 coronavirus disease (COVID-19)? *Personality and Individual Differences*, 183, 111132.

Lewis, K. C., Roche, M. J., Brown, F., & Tillman, J. G. (2022). Reduced social contact and attachment insecurity as predictors of loneliness during COVID-19: a two-month experience sampling study. *Personality and Individual Differences*, 195, 111672.

Ma, J. T., Ding, Y., Shen, S. C., Kuang, Y., Yang, S. W., Xu, M. X., & Li, S. (2022). Long-term orientation and demographics predict the willingness to quarantine: A cross-national survey in the first round of COVID-19 lockdown. *Personality and individual differences*, 192, 111589.

Mayorga, N. A., Manning, K. F., Derrick, J. L., Viana, A. G., Garey, L., Nizio, P., ... & Zvolensky, M. J. (2022). Evaluating Experiential Avoidance in terms of COVID-19 Fear and Pandemic Emotional Distress Symptoms Among Latinx Adults. *Cognitive Therapy and Research*, 46(2), 358-366.

Pyszkowska, A., Rożnawski, K., & Farny, Z. (2021). Self-stigma and cognitive fusion in parents of children with autism spectrum disorder. The moderating role of self-compassion. *PeerJ*, 9, e12591.

Roberts, H., Mostazir, M., Moberly, N. J., Watkins, E. R., & Adlam, A. L. (2021). Working memory updating training reduces state repetitive negative thinking: Proof-of-concept for a novel cognitive control training. *Behaviour Research and Therapy*, 142, 103871.

Rocha-Oliveira, D., & Zibetti, M. R. (2022). Impact of repetitive negative thinking on reactivity and recovery from physiological stress in clinical and non-clinical individuals. *Journal of Affective Disorders Reports*, 8, 100338.

Salimi, H., Abedini Chamgardani, S., Ghasemi Nafchi, N., Tabashir, C (2019). Construction and validation of Corona stress scale (CSS-18) according to Iranian lifestyle. *Quran and medicine magazine*. 5(4)-23-31.

Shadai, A., Qaltash, A., Refahi, z (2014). Adequacy of psychometric indicators of emotional safety questionnaire for adolescents. *Psychological methods and models*, 6(22)-53-78.

Shir Mohammadi, F., Kakavand, A., Sadeghi, M., Jafari Jozani, R (2015). The mediating role of referential thinking in the relationship between perfectionism and social anxiety. *Psychological studies*. 12(2). 107-128.

Torrente, F., Yoris, A., Low, D. M., Lopez, P., Bekinschtein, P., Manes, F., & Cetkovich, M. (2021). Sooner than you think: A very early affective reaction to the COVID-19 pandemic and quarantine in Argentina. *Journal of affective disorders*, 282, 495-503.

Xiong, A., Lai, X., Wu, S., Yuan, X., Tang, J., Chen, J., ... & Hu, M. (2021). Relationship Between Cognitive Fusion, Experiential Avoidance, and Obsessive–Compulsive Symptoms in Patients With Obsessive–Compulsive Disorder. *Frontiers in Psychology*, 12, 655154.

Zandifar, A., & Badrfam, R. (2020). Iranian mental health during the COVID-19 epidemic. *Asian journal of psychiatry*, 51.

Zhang, C. Q., Zhang, R., Lu, Y., Liu, H., Kong, S., Baker, J. S., & Zhang, H. (2021). Occupational stressors, mental health, and sleep difficulty among nurses during the COVID-19 pandemic: The mediating roles of cognitive fusion and cognitive reappraisal. *Journal of contextual behavioral science*, 19, 64-71.

