# Research Paper
# Cognitive Failure and Fear of COVID-19

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## ABSTRACT

**Objective:** In this study, the authors seek to investigate the relationship between cognitive impairment and fear of COVID-19. Among the residents of Tehran Province, Iran, 415 people were selected through the available sampling method.

**Methods:** The research data was obtained through online questionnaires that were distributed to participants via platforms, such as Instagram, WhatsApp, and Telegram. Broadbent's cognitive failure questionnaire and the scale of fear of COVID-19 were used in this study. The obtained data were analyzed by the independent t test and stepwise regression.

**Results:** According to the findings, the relationship between following COVID-19 news and the fear of COVID-19 is negative. Also, a positive and significant relationship exists between memory error and fear of COVID-19. Also, the standard coefficients show that despite the direction of the effect, both variables have the same power to change the dependent variable.

**Conclusion:** The findings showed that the subscale of memory (forgetfulness) predicts the fear of COVID-19, and the existence of memory problems, false triggering, and distractibility, which are components of cognitive failure, decrease individuals' mental health.

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## Highlights

• A positive and significant relationship exists between the fear severity of COVID-19 and memory error.

• No correlation was observed between the follow-up level of COVID-19 news and the severity of fear from the disease.

• As the severity of cognitive impairments increases, people's mental health decreases.

## Plain Language Summary

The prevalence of COVID-19 affects people's mental health in various ways. We sought to investigate whether a relationship exists between mental health problems and fear of COVID-19. The results of the study for such traits in 415 subjects showed that people with poor mental functioning (such as forgetfulness, distraction, and practical errors) were more likely to develop severe fears of COVID-19.

## 1. Introduction

Coronavirus disease 2019 (COVID-19) was reported in December 2019 in Wuhan, China (Huang & Zhao, 2020). The World Health Organization (WHO) called the disease a pandemic. The pandemic quickly reached and affected everyone worldwide (Vieira et al., 2020). Fever, dry coughs, and shortness of breath are some of the symptoms of this disease (Moghanibashi-Mansourieh, 2020). According to the statements of WHO, this pandemic has caused fear and panic in many people and has changed many aspects of people's lives (Kim & Su, 2020). The COVID-19 pandemic has become a global concern (Mamun & Griffiths, 2020), and the public's concern about getting infected by suspected COVID-19 individuals led to panic in society. Although this has helped in limiting the growing number of patients, it has created fear and anxiety (Sahoo et al., 2020). Also, issues related to the pandemic, such as social distancing, have caused psychological problems, including anxiety, sorrow, concern, rage, irritation, helplessness, and guilt (Mamun & Griffiths, 2020). Even recovered patients cannot be safe from the psychological effects of the pandemic because of the increase in public fear and the decrease in economic and social activities.

Individuals in quarantine are also suspectable to unpleasant emotional experiences, such as fear, anger, depression, and guilt (Kim & Su, 2020).

According to the literature, psychological symptoms, such as anxiety, panic, trauma, psychosis, and suicidal ideation are common during pandemics (Moghanibashi-Mansourieh, 2020). We must pay attention to physical and biopsychosocial aspects. Meanwhile, COVID-19 af-fects the central nervous system, and these psychiatric complications are the main concern (Kim & Su, 2020). In this regard, the Korean Psychiatric Society proposed telephone counseling sessions be funded by the Korean government. In addition, many mental supportive programs were started by the Taiwanese Society for Nutritional Psychiatry Research (TSNRP: www.tsnpr.org. tw/) (Kim & Su, 2020). These psychological emergency services created because of the COVID-19 crisis indicate the important role of psychological variables in developing the COVID-19 and post-COVID-19 period; accordingly, it is important to address this issue. One major issue with the biological-psychological nature is that paying attention at this stage is the role of cognitive failure in fear and reaction to the COVID-19 virus.

A vital factor of health is cognition (Gonçalves et al., 2011). A defect in this factor can negatively affect emotional processing, social functions, and the quality of life (Etkin et al., 2013). This is because the cognitive regulation of emotion and behavior occurs under the supervision of the prefrontal cortex (Miller & Cohen, 2001). This part is responsible for integrating different functions (Widge et al., 2019) and is known as an important part of the mood and emotion-modulating brain network (Keshvari et al., 2017; Steele & Lawrie, 2004). In addition, various studies have shown a relationship between cognitive failure and vulnerability to stress (Broadbent et al., 1982), neuroticism, the tendency to experience negative emotions (Zufferey et al., 2017), anxiety traits, minor symptoms of psychiatric disorders (Matthews & Wells, 1988; Tirre, 2018), anxiety disorders (Matthews et al., 1990), and phobias (Broadbent et al., 1982). Cognitive failure can lead to the adoption of maladaptive coping strategies in which an individual chooses emotion-oriented solutions as the first strategy (Broadbent

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et al., 1986). This aggravates the negative predictions of events (Zufferey et al., 2017).

Experts define cognitive failure as the inability to successfully perform tasks that a person can usually perform daily, such as forgetting appointments and not responding to emails unintentionally (Payne & Schnapp, 2014), which can lead to major problems because of interfering with daily activities and distracting people's concentration. Moreover, this insufficiency is found in non-clinical examples and can cause emotional arousal in these people in critical situations (Carrigan & Barkus, 2016). Cognitive failure increases the chance of depression and anxiety during contagious disease outbreaks (Mirza et al., 2017). Cognitive failure increases the vulnerability to disorders caused by negative emotions, such as anxiety, and is associated with a wide range of emotions, including fear, anger, anxiety, and other emotions (Payne & Schnapp, 2014).

A review article in Iran found that during the COVID-19 pandemic, a decline in people's mental health can be seen, and the symptoms of worry and fear of infection with this virus have spread to all sections of society (Shahed hagh ghadam et al., 2020), the fear of which is not specific to Iran and has spread in different societies. This frightening issue has led to psychological consequences and many other problems (Nooraei et al., 2020). Another reason for the fear of COVID-19 is patients' fear of social reactions, disease stigma, and being a disease carrier, which has been ignored because of the current crisis (Jahangasht, 2020). Many people worldwide have developed a fear of catching the virus, leading to psychological fear and stress (Zhu et al., 2020), and ambiguity, thus intensifying the level of anxiety. Since mild cognitive failure has been found in non-clinical samples (Carrigan & Barkus, 2016) and the presence of this impairment will cause negative and maladaptive emotions (Mirza et al., 2017), this research aims to investigate the relationship between cognitive failure and the fear of COVID-19.

## 2. Participants and Methods

### Study participants

A total of 415 people were selected by the available sampling method among the statistical population considered for the present study (residents of Tehran Province, Iran). In this research, we focused on Tehran Province, Iran, as it had a severe prevalence rate of COVID-19 during the questionnaire distribution according to the Ministry of Health's formal statistics.

### Inclusion criteria

The inclusion criteria comprised the ability to read and write, living in Tehran Province, Iran, and being in the age range of 18 to 65 (mental development has occurred until the age of 18 and the decline in cognitive ability because of aging has not yet begun, thus by choosing this age range, the mental ability is measured more accurately).

### Exclusion criteria

The exclusion criteria were suffering from dementia, emotional disorders, use of psychiatric medications (along with demographic questions, these criteria were asked in a closed-ended response [yes or no]), and incomplete completion of the questionnaires.

### Data collection

In this study, the data was collected online. The questionnaires were designed online and linked to platforms, such as Telegram, Instagram, and WhatsApp. Accordingly, subjects who wanted to participate in the research could answer the questionnaires and send their answers to the researcher. The confidentiality of the participants' information, the explanation of the research objectives, the explanation of the volunteer participation in the research, and the provision of the results, if desired, were among the ethical principles observed in this research. Data analysis was conducted using the independent t test and stepwise regression.

The questions included demographic information (sex, age, marital status, education level, and living province), history of emotional disorder, dementia, and consumption of psychological drugs. Also, the questionnaires contained questions regarding concerns about COVID-19 news, scoring the participants' knowledge about COVID-19 signs, and whether their relatives were infected by the virus along with their current situation. The questionnaires were the fear of COVID-19 scale and the cognitive failures questionnaire (CFQ).

### Fear of COVID-19 questionnaire

Ahorsu et al. developed the Fear of COVID-19 scale. This scale includes 7 questions with a 5-point Likert scale. The responses are "completely agree", "agree", "neither agree nor disagree", "disagree", and "completely disagree". The maximum score is 5, the minimum is 1, and the range of scores of the questionnaire is 7 to 35. Higher scores indicate more fear of COVID-19. This

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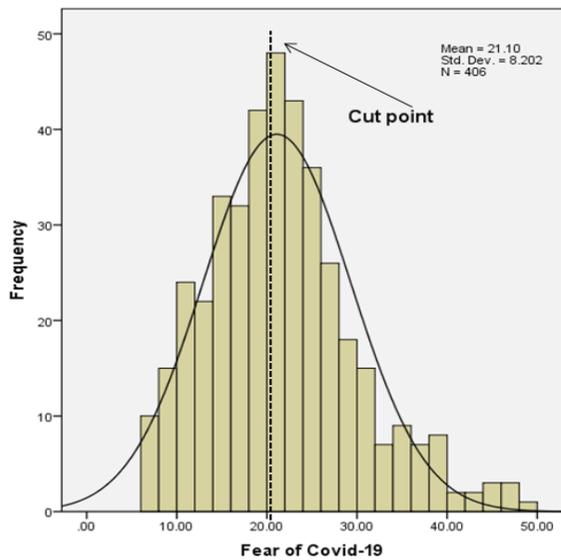
**Figure 1.** Histogram of the distribution of scores fear of COVID-19 index

study obtained a Cronbach α of 0.82 and the test-retest reliability was acceptable (Ahorsu et al., 2020).

### Cognitive failures questionnaire

Broadbent developed CFQ in 1982. This questionnaire is a self-reporting tool that measures the scores that respondents give to a 25-item cognitive failure questionnaire (Boomsma, 1998). The questionnaire's subscales include forgetfulness, distractibility, and false triggering (Rast et al., 2009). The scores obtained from the test remain constant over long periods, indicating that the instrument measures cognitive deficits that represent personality traits (as opposed to state-dependent errors). Consequently, this tool does not reflect the change in the cognition of people who experience life-threatening events. The most likely approach is that cognitive failure is not caused by anxiety, but having these defects exposes the individual to the negative effects of experiencing anxiety (Broadbent et al., 1982). Broadbent's CFQ measures the absence of mindfulness and committing errors in doing simple homework because of inattention. The internal consistency of CFQ was obtained at 0.89 and the test-retest reliability was reported in the range of 0.8 to 0.82 (Baer et al., 2006).

## 3. Result

Among the total of 430 participants from Tehran Province, Iran, 406 subjects responded to the presented tools completely and the incomplete questionnaire was excluded from the analysis. Among the respondents, 112

(27.6%) were male and 293 (72.2%) were female. Meanwhile, 248 (60%) were married and 50% of the respondents had a Bachelor's or a Master's degree. A total of 95% percent of people consistently, often, or sometimes, followed the news related to COVID-19, while only 5% did not follow any news in this regard. The relatives of 77% of the participants had no history of catching the virus, 13.4% had recovered, 5.7% were infected during the study, and 3.9% had died because of COVID-19.

According to Table 1, all variables were in the normal range, and the following histogram diagram confirms the data (Figure 1). Participants were divided into two levels of low and high fear according to the cutoff point mean. Then, the subscales of cognitive failure are compared in these two levels (Table 2). Additionally, to predict the fear of COVID-19 according to research variables, at first, the hypotheses related to stepwise regression analysis were tested. In addition to using the distance scale and normal distribution, the output of the Durbin–Watson test (1.89) indicates the presumption of observing the independence of the residuals.

Considering the index higher than 0.01 and the low level of variance inflation factor (VIF) in Table 3, no problem of multiple lines exists as a restriction for applying the regression method. Thus, to predict the fear of COVID-19, the age variables, following the COVID-19 news, and the 3 subscales of memory, distractibility, and false triggering as the predictor variable entered the regression equation.

According to Table 3, among the predictors that entered the regression equation, only the variables of following the news and memory can predict the fear of COVID-19, and other variables were excluded from the equation. Following the news, and memory could predict 14% of the fear of COVID-19 ($R^2=0.141$, adjusted $R^2=0.137$, $P<0.01$).

According to the β coefficients in Table 4, a negative relationship exists between fear of COVID-19 and following COVID-19 news; however, the relationship between fear of COVID-19 and memory error was positive and significant. Yet, the standard coefficients indicated that even though the effects of both variables were almost identical in changing the dependent variable (β= 0.281; t=5.89; β=-0.286; t=-6.09).

## 4. Discussion

The growing prevalence of COVID-19 has challenged global public health, leading to a morbid fear of

**Table 1.** Descriptive findings

| Variables | Mean±SD | Skewness | Kurtosis |
|---|---|---|---|
| Fear of COVID-19 | 21.10±8.20 | 0.48 | 0.66 |
| Forgetfulness | 20.74±6.49 | -0.67 | - 0.64 |
| Distractibility | 16.22±5.49 | 0.21 | 0.46 |
| False triggering | 6.33±2.39 | 0.31 | 1.11 |
| Total cognitive failures | 43.30±13.02 | 0.24 | 1.34 |

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**Table 2.** The t-test results of comparing the subscales of cognitive failure

| Variables | Levels | Mean±SD | F | t | df | P |
|---|---|---|---|---|---|---|
| Forgetfulness | High | 21.67±7.14 | 7.391 | -2.674 | 403 | |
| | Low | 19.95±5.79 | | | | |
| Distractibility | High | 16.80±5.77 | 2.119 | -1.992 | 403 | 0.04 |
| | Low | 15.71±5.20 | | | | |
| False triggering | High | 6.62±2.56 | 6.356 | -2.232 | 403 | 0.02 |
| | Low | 6.09±2.22 | | | | |

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infection in various populations. This research aimed to investigate the relationship between cognitive failure and the fear of COVID-19. The results showed a negative relationship between fear of COVID-19 and following COVID-19 news. This shows that with increasing follow-ups on COVID-19-related news, the fear of COVID-19 decreases. In explaining this finding, due to the nature of the exposure mechanism in this follow-up, people who follow COVID-19 news face negative fears and emotions, and because of the effectiveness of the fear mechanism (Abramowitz et al., 2019; Schäfer et al., 2018; Wannemueller et al., 2018), the fear is reduced. Also, because of the silence, their anxiety is reduced, which leads to the management of stress (Leong et al., 2015; Merz et al., 2014). In addition, gaining this

information and exposure reduces ambiguity and uncertainty, and according to research, through this mechanism, the anxiety and fear of COVID-19 are reduced (Hebert & Dugas, 2019; Osmanağaoğlu et al., 2018; Shihata et al., 2017). The finding of this research about reducing fear and ambiguity while exposing stressful situations is the same as the finding of Schafer et al. (Schäfer et al., 2018), Merz et al. (Merz et al., 2014), and Hebert et al. (Hebert & Dugas, 2019).

Based on the results of the regression method in this study, the components of forgetfulness (memory) can predict the fear of COVID-19. Cognitive failure affects people's mental health. False triggering, distractibility, and memory problems, which are the subscales of

**Table 3.** Model summary of stepwise regression analysis

| Modes | R | R Square | Adjusted R Square | Standard Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Significance of F Change | |
| 1 | 0.252 | 0.064 | 0.061 | 7.87275 | 0.064 | 26.902 | 1 | 396 | 0.0001 | |
| 2 | 0.376 | 0.141 | 0.137 | 7.54832 | 0.078 | 35.771 | 1 | 395 | 0.0001 | 1.894 |

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**Table 4.** The results of the analysis of fear of COVID-19

| Steps | Predictor Variable | β (SE) | t | Sig. | Tolerance | VIF |
|---|---|---|---|---|---|---|
| 1 | Following of news | 0.416 | -6.09 | 0.0001 | 0.985 | 1.015 |
| 2 | Memory | 0.059 | 5.89 | 0.006 | 0.985 | 1.015 |

Sig.: significance; VIF: variance inflation factor; SE: Unstandardized beta.

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cognitive failure, can decrease a person's mental health (Broadbent et al., 1982). In the current situation, the intervening issue can be considered the prevalence of COVID-19 and the fear of infection with it. In the present study, the forgetfulness subscale was significantly related to fear of COVID-19.

Based on the research literature, high cognitive failures can indicate a general ruminant approach, which may be the rate of vulnerability to negative emotions (Broadbent et al., 1982) and may also be associated with neuroticism (Zufferey et al., 2017) of anxiety traits (Merckelbach et al., 1996) and subsequent intolerance of uncertainty. Therefore, in explaining this finding, people who have shown memory failure do not record information about COVID-19 or suppress the information. This failure in memory causes obsessive-compulsive mental rumination, uncertainty, worry, fear, and anxiety that are associated with the virus; consequently, this uncertainty intolerance and rumination can cause stress or fear of COVID-19 or exacerbate the pre-existing condition. It has been found that cognitive failure is associated with negative emotions, especially stress and anxiety, fear, and neuroticism. That is in line with the finding of Broadbent et al. (Broadbent et al., 1982), Zufferey et al. (Zufferey et al., 2017), Matthews et al. (Matthews et al., 1990), and Mirza et al. (Mirza et al., 2017). Therefore, a relationship exists between cognitive processes that are associated with failure and a wide range of emotions, as well as fear, stress, and anxiety.

The hypothesis of the association of certain moods with errors in cognitive processing has already been proven (Payne & Schnapp, 2014), and mood is related to daily cognitive function (Schnapp, 2007). Negative emotional factors (such as fear, sadness, the feeling of guilt, and hostility) are significantly associated with the scores of distractibility, memory, and false triggering of the CFQ questionnaire as well as the total score of the questionnaire. Meanwhile, fear is one of the negative emotions that is correlated with high scores on the CFQ questionnaire. Thus, regarding the correlation between CFQ scores and negative emotions, one explanation is that the questionnaire measures a feature associated with complaining (or an aspect of neuroticism) that may overlap with experiencing

negative emotion. Another explanation is that changes in cognition occur when cognitive resources are challenged by disturbing thoughts caused by stress and trauma (Payne & Schnapp, 2014). Also, experiencing negative emotions can cause susceptible individuals to recall and report more cognitive failures (Fisher et al., 2020).

CFQ is a tool for identifying vulnerable individuals (Payne & Schnapp, 2014). People with high scores in this questionnaire are vulnerable to stress (Matthews & Wells, 1988), and evidence suggests that cognitive failure affects the interpretation of stressful situations. The limitation of the present study was related to convenience sampling which reduces the generalizability of the results. Considering the COVID-19 pandemic conditions, the questionnaires were completed online, and we suggest using objective tools to assess cognitive failure.

## 5. Conclusion

The results indicate that the component of forgetfulness (memory) can predict the fear of COVID-19, and it is deduced in case of false triggering, distractibility, and memory problems, which are the subscales of cognitive failure and will decrease individuals' mental health.

### Ethical Considerations

### Compliance with ethical guidelines

This study was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences with the Code of Ethics: IR.SBMU.MSP.REC.1400.303.

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### Authors' contributions

All authors equally contributed to preparing this article.

### Conflict of interest

The authors report no competing interests to declare.

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## References

Abramowitz, J. S., Deacon, B. J., & Whiteside, S. P. H. (2019). *Exposure therapy for anxiety: Principles and practice.* New York: Guilford Publications [Link]

Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: Development and initial validation. *International Journal of Mental Health and Addiction,* 1-9. [DOI:10.1037/t78404-000]

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27-45. [DOI:10.1177/1073191105283504] [PMID]

Boomsma, D. I. (1998). Genetic analysis of cognitive failures (CFQ): A study of Dutch adolescent twins and their parents. *European Journal of Personality, 12*(5), 321-330. [DOI:10.1002/(SICI)1099-0984(1998090)12:5<321::AID-PER334>3.0.CO;2-5]

Broadbent, D. E., Broadbent, M. H., & Jones, J. L. (1986). Performance correlates of self-reported cognitive failure and of obsessionality. *British Journal of Clinical Psychology, 25*(4), 285-299. [DOI:10.1111/j.2044-8260.1986.tb00708.x] [PMID]

Broadbent, D. E., Cooper, P. F., FitzGerald, P., & Parkes, K. R. (1982). The Cognitive Failures Questionnaire (CFQ) and its correlates. *British Journal of Clinical Psychology, 21*(1), 1-16. [DOI:10.1111/j.2044-8260.1982.tb01421.x] [PMID]

Carrigan, N., & Barkus, E. (2016). A systematic review of cognitive failures in daily life: Healthy populations. *Neuroscience & Biobehavioral Reviews, 63,* 29-42. [DOI:10.1016/j.neubiorev.2016.01.010] [PMID]

Etkin, A., Gyurak, A., & O'Hara, R. (2013). A neurobiological approach to the cognitive deficits of psychiatric disorders. *Dialogues in Clinical Neuroscience, 15*(4), 419-429. [PMID] [PMCID]

Fisher, J. E., Zhou, J., Liu, A. G., Fullerton, C. S., Ursano, R. J., & Cozza, S. J. (2020). Effect of comorbid anxiety and depression in complicated grief on perceived cognitive failures. *Depression and Anxiety, 37*(1), 54-62. [DOI:10.1002/da.22943] [PMID]

Gonçalves, L. C., Vale, R. G., Barata, N. J., Varejão, R. V., & Dantas, E. H. (2011). Flexibility, functional autonomy and quality of life (QoL) in elderly yoga practitioners. *Archives of Gerontology and Geriatrics, 53*(2), 158-162. [DOI:10.1016/j.archger.2010.10.028] [PMID]

Hebert, E. A., & Dugas, M. J. (2019). Behavioral experiments for intolerance of uncertainty: Challenging the unknown in the treatment of generalized anxiety disorder. *Cognitive and Behavioral Practice, 26*(2), 421-436. [DOI:10.1016/j.cbpra.2018.07.007]

Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. *Psychiatry Research, 288,* 112954. [DOI:10.1016/j.psychres.2020.112954] [PMID] [PMCID]

Jahangasht, K. (2020). [Social stigma: The social consequences of covid-19 (Persian)]. *Journal of Marine Medicine, 2*(1), 59-60. [Link]

Keshvari, F., Heshmati, P., & Ghasemian-Shirvan, E. (2017). [The role of prefrotal cortex in subjective mood: A transcranial direct current stimulation study (Persian)]. *Journal of Research in Psychological Health, 11*(1), 25-38. [DOI:10.29252/rph.11.1.25]

Kim, S. W., & Su, K. P. (2020). Using psychoneuroimmunity against COVID-19. *Brain, Behavior, and Immunity, 87,* 4-5. [DOI:10.1016/j.bbi.2020.03.025] [PMID] [PMCID]

Leong, K. C., Goodman, J., & Packard, M. G. (2015). Post-training re-exposure to fear conditioned stimuli enhances memory consolidation and biases rats toward the use of dorsolateral striatum-dependent response learning. *Behavioural Brain Research, 291,* 195-200. [DOI:10.1016/j.bbr.2015.05.022] [PMID]

Mamun, M. A., & Griffiths, M. D. (2020). First COVID-19 suicide case in Bangladesh due to fear of COVID-19 and xenophobia: Possible suicide prevention strategies. *Asian Journal of Psychiatry, 51,* 102073. [DOI:10.1016/j.ajp.2020.102073] [PMID] [PMCID]

Matthews, G., Coyle, K., & Craig, A. (1990). Multiple factors of cognitive failure and their relationships with stress vulnerability. *Journal of Psychopathology and Behavioral Assessment, 12*(1), 49-65. [DOI:10.1007/BF00960453]

Matthews, G., & Wells, A. (1988). Relationships between anxiety, self-consciousness, and cognitive failure. *Cognition and Emotion, 2*(2), 123-132. [DOI:10.1080/02699938808408069]

Merckelbach, H., Muris, P., Nijman, H., & de Jong, P. J. (1996). Self-reported cognitive failures and neurotic symptomatology. *Personality and Individual Differences, 20*(6), 715-724. [DOI:10.1016/0191-8869(96)00024-4]

Merz, C. J., Hamacher-Dang, T. C., & Wolf, O. T. (2014). Exposure to stress attenuates fear retrieval in healthy men. *Psychoneuroendocrinology, 41,* 89-96. [DOI:10.1016/j.psyneuen.2013.12.009] [PMID]

Miller, E. K., & Cohen, J. D. (2001). An integrative theory of prefrontal cortex function. *Annual Review of Neuroscience, 24,* 167-202. [DOI:10.1146/annurev.neuro.24.1.167] [PMID]

Mirza, S. S., Ikram, M. A., Bos, D., Mihaescu, R., Hofman, A., & Tiemeier, H. (2017). Mild cognitive impairment and risk of depression and anxiety: A population-based study. *Alzheimer's & Dementia, 13*(2), 130-139. [DOI:10.1016/j.jalz.2016.06.2361] [PMID]

Moghanibashi-Mansourieh, A. (2020). Assessing the anxiety level of Iranian general population during COVID-19 outbreak. *Asian Journal of Psychiatry, 51,* 102076. [PMID] [PMCID]

Nooraei, S., Entezari, M., Hushmandi, K., & Raei, M. (2020). [Stress and anxiety caused by covid-19 in the communities (Persian)]. *Journal of Marine Medicine, 2*(1), 65-66. [Link]

Osmanağaoğlu, N., Creswell, C., & Dodd, H. F. (2018). Intolerance of Uncertainty, anxiety, and worry in children and adolescents: A meta-analysis. *Journal of Affective Disorders, 225,* 80-90. [PMID]

Payne, T. W., & Schnapp, M. A. (2014). The relationship between negative affect and reported cognitive failures. *Depression Research and Treatment, 2014,* 396195. [PMID] [PMCID]

Rast, P., Zimprich, D., Van Boxtel, M., & Jolles, J. (2009). Factor structure and measurement invariance of the cognitive failures questionnaire across the adult life span. *Assessment, 16*(2), 145-158. [DOI:10.1177/1073191108324440] [PMID]

Sahoo, S., Rani, S., Parveen, S., Pal Singh, A., Mehra, A., & Chakrabarti, S., et al. (2020). Self-harm and COVID-19 pandemic: An emerging concern-A report of 2 cases from India. *Asian Journal of Psychiatry, 51,* 102104. [PMID] [PMCID]

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Schäfer, S. K., Ihmig, F. R., Lara H, K. A., Neurohr, F., Kiefer, S., & Staginnus, M., et al. (2018). Effects of heart rate variability biofeedback during exposure to fear-provoking stimuli within spider-fearful individuals: Study protocol for a randomized controlled trial. *Trials, 19*(1), 184. [DOI:10.1186/s13063-018-2554-2] [PMID] [PMCID]

Schnapp, M. (2007). Affect and cognitive failures: A comparison of positive and negative mood factors. *Kenyon Summer Science Scholars Program, 364.* [Link]

Shahed hagh ghadam, H., Fathi Ashtiani, A., Rahnejat, A. M., Ahmadi Tahour Soltani, M., Taghva, A., & Ebrahimi, M. R., et al. (2020). [Psychological consequences and interventions during the covid-19 pandemic: Narrative review (Persian)]. *Journal of Marine Medicine, 2*(1), 1-11. [DOI:10.30491/2.1.7]

Shihata, S., McEvoy, P. M., & Mullan, B. A. (2017). Pathways from uncertainty to anxiety: An evaluation of a hierarchical model of trait and disorder-specific intolerance of uncertainty on anxiety disorder symptoms. *Journal of Anxiety Disorders, 45,* 72-79. [DOI:10.1016/j.janxdis.2016.12.001] [PMID]

Steele, J. D., & Lawrie, S. M. (2004). Segregation of cognitive and emotional function in the prefrontal cortex: A stereotactic meta-analysis. *Neuroimage, 21*(3), 868-875. [DOI:10.1016/j.neuroimage.2003.09.066] [PMID]

Tirre, W. C. (2018). Dimensionality and determinants of self-reported cognitive failures. *International Journal of Psychological Research, 11*(1), 9-18. [PMID] [PMCID]

Mesa Vieira, C., Franco, O. H., Gómez Restrepo, C., & Abel, T. (2020). COVID-19: The forgotten priorities of the pandemic. *Maturitas, 136,* 38-41. [PMID] [PMCID]

Wannemueller, A., Moser, D., Kumsta, R., Jöhren, H. P., Adolph, D., & Margraf, J. (2018). Mechanisms, genes and treatment: Experimental fear conditioning, the serotonin transporter gene, and the outcome of a highly standardized exposure-based fear treatment. *Behaviour Research and Therapy, 107,* 117-126. [DOI:10.1016/j.brat.2018.06.003] [PMID]

Widge, A. S., Zorowitz, S., Basu, I., Paulk, A. C., Cash, S. S., & Eskandar, E. N., et al. (2019). Deep brain stimulation of the internal capsule enhances human cognitive control and prefrontal cortex function. *Nature Communications, 10*(1), 1536. [PMID] [PMCID]

Zhu, Z., Xu, S., Wang, H., Liu, Z., Wu, J., & Li, G., et al. (2020). COVID-19 in Wuhan: Immediate psychological impact on 5062 health workers. *MedRxiv,* 1-24. [DOI:10.1101/2020.02.20.20025338]

Zufferey, V., Donati, A., Popp, J., Meuli, R., Rossier, J., & Frackowiak, R., et al. (2017). Neuroticism, depression, and anxiety traits exacerbate the state of cognitive impairment and hippocampal vulnerability to Alzheimer's disease. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring, 7,* 107-114. [PMID]

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Hayati et al. (2023). Cognitive Failure and Fear of COVID-19. *JPCP, 11*(1), 1-8