ISSN: 2755-0192

# Journal of Psychiatry Research Reviews & Reports



Letter to Editor Open Access

## Effect of Chronic Stress During the COVID-19 Pandemic on Cognitive Function

### Fereshteh Bagheri

1Department of Audiology, School of Rehabilitation Sciences, Babol University of Medical Sciences, Mazandaran, Iran

### \*Corresponding author

Fereshteh Bagheri, PhD, 1Department of Audiology, School of Rehabilitation Sciences, Babol University of Medical Sciences, Mazandaran, Iran; E-Mail: bagheri.audio@gmail.com

Received: August 19, 2020; Accepted: September 03, 2020; Published: September 25, 2020

It has been a long time since the Coronavirus Disease 2019 (COV-ID-19) involved different people around the world. So stress is significantly high, especially in the areas with crucial situation, during the COVID-19 pandemic [1,2].

The COVID 19 demonstrated challenges in all population, particularly the older adults [3].

Cholinergic system as a stress regulator has a main role in cognitive decline. Exposure to acute or chronic level of stress activates the hypothalamic-pituitary-adrenal (HPA) axis and released stress hormones (glucocorticoids). Glucocorticoids disturbed the function of the hippocampus and prefrontal cortex which highly involved in memory and learning [4]. Moreover chronic stress changed the dendritic structural and prevented of synaptic activity in the hippocampus [4-7].

There is a close relationship between stress and mental health. Stress increased the difficulty involving of mental health such as depression and anxiety and those of elderly with chronic stress are at the risk of developing neurodegenerative disorder such as mild cognitive impairment (MCI) and Alzheimer disease (AD) [8,9]. Decrease of motivation is one of the daily behavioural characteristics after exposed to prolonged stress [5].

Prolonged stress can influenced the function and structure some area of the brain [10].

Stress is the body's response to internal or external stressful stimuli. Executive function that contain of important cognitive processes affect by stress [11]. Sustained stress resulted in impaired working memory [8].

In the other hand confronted with long-term stress leading to overproduction of free radicals and causes oxidative stress situation that harmful for the body [12]. Oxidative stress is one of the essential reasons for developing AD [13].

Several studies have been shown various methods to cope with stress such as meditation, yoga, dancing and listen to the music. The basis of all these exercises is on the mindfulness and decrease of negative emotions [14-16]. Staying at home and doing these exercises during the COVID-19 pandemic can provide a stress reliever condition.

### Disclosure statement

No financial interest or benefit has arisen from writing this paper.

## References

- 1. Organization WH (2020) Mental health and psychosocial considerations during the COVID-19 outbreak.
- Zandifar A & Badrfam R (2020) Iranian mental health during the COVID-19 epidemic. Asian journal of psychiatry 51: 101990
- Wang H, Li T, Barbarino P, Gauthier S, Brodaty H, et al. (2020) Dementia care during COVID-19. The Lancet 395: 1190-1191.
- 4. Wu J, Liu C, Zhang L, Qu CH, Sui XL, et al. (2017) Histone deacetylase-2 is involved in stress-induced cognitive impairment via histone deacetylation and PI3K/AKT signaling pathway modification. Molecular Medicine Reports 16: 1846-1854.
- 5. Kleen JK, Sitomer MT, Killeen PR, Conrad CD (2006) Chronic stress impairs spatial memory and motivation for reward without disrupting motor ability and motivation to explore. Behavioral neuroscience 120: 842.
- 6. McLaughlin KJ, Gomez JL, Baran SE, Conrad CD (2007) The effects of chronic stress on hippocampal morphology and function: an evaluation of chronic restraint paradigms. Brain research 1161: 56-64.
- Ramkumar K, Srikumar B, Rao BS, Raju T (2008) Selfstimulation rewarding experience restores stress-induced CA3 dendritic atrophy, spatial memory deficits and alterations in the levels of neurotransmitters in the hippocampus. Neurochemical research 33: 1651-1662.
- 8. Bhagya V, Christofer T, Rao BS (2016) Neuroprotective effect of Celastrus paniculatus on chronic stress-induced cognitive impairment. Indian journal of pharmacology 48: 687.
- 9. Srikumar B, Raju T, Rao BS (2006) The involvement of cholinergic and noradrenergic systems in behavioral recovery following oxotremorine treatment to chronically stressed rats. Neuroscience 143: 679-688.

J Psychi Res Rev Rep, 2020 Volume 2(2): 1-2

Citation: Fereshteh Bagheri (2020) Effect of Chronic Stress during the COVID-19 Pandemic on Cognitive Function. Journal of Psychiatry Research Reviews & Reports. SRC/JPSRR-123. DOI: doi.org/10.47363/JPSRR/2020(2)111

- 10. Paul S, Jeon WK, Bizon JL, Han JS (2015) Interaction of basal forebrain cholinergic neurons with the glucocorticoid system in stress regulation and cognitive impairment. Frontiers in aging neuroscience 7: 43.
- 11. Cibrian-Llanderal T, Melgarejo-Gutierrez M, Hernandez-Baltazar D (2018) Stress and Cognition: Psychological Basis and Support Resources. Health and Academic Achievement 11.
- 12. Maneenet J, Daodee S, Monthakantirat O, Boonyarat C, Khamphukdee C, et al. (2019) Kleeb Bua Daeng, a Thai Traditional Herbal Formula, Ameliorated Unpredictable Chronic Mild Stress-Induced Cognitive Impairment in ICR Mice. Molecules 24: 4587.
- 13. Bagheri F, Rashedi V Simultaneous exposure to noise and

- carbon monoxide increases the risk of Alzheimer's disease: a literature
- 14. Bamber MD, Schneider JK (2016) Mindfulness-based meditation to decrease stress and anxiety in college students: A narrative synthesis of the research. Educational Research Review 18: 1-32.
- 15. Knestaut M, Devine MA, Verlezza B (2010) It gives me purpose": The use of dance with people experiencing homelessness. Therapeutic Recreation Journal 44: 289-301.
- 16. Beddoe AE, Murphy SO (2004) Does mindfulness decrease stress and foster empathy among nursing students? Journal of Nursing Education 43: 305-312.

**Copyright:** ©2020 Fereshteh Bagheri. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

J Psychi Res Rev Rep, 2020 Volume 2(2): 2-2