sciendo

Physical Culture and Sport. Studies and Research, 2023, 99, 21–26
DOI: 10.2478/pcssr-2023-0010

OPEN ACCESS

Impact of Covid-19 on the Psychology of Coaches

Authors' contribution:
A) conception and design of the study
B) acquisition of data
C) analysis and interpretation of data
D) manuscript preparation
E) obtaining funding

Evangelos Bebetsos[1A,C*], Christos Konstantinidis[1B], George Bebetsos[2,B,D]

[1] *School of Physical Education & Sport Science, Democritus University of Thrace, Komotini, Greece*
[2] *European Handball Federation (EHF), Austria*

Received: 12.01.2023
Accepted: 20.03.2023

***Correspondence:** Prof. Evangelos Bebetsos, School of Phy. Education & Sport Science, Democritus University of Thrace, Komotini, Greece, E-mail: empempet@phyed.duth.gr

Abstract

The development of the COVID-19 pandemic, according to the World Health Organization (WHO), raises concerns about heightened stress and anxiety in people's lives. The purpose of this research was to investigate the emotional influence of COVID-19 that professional coaches faced and how they managed to deal with social seclusion during the second wave of COVID-19. More precisely, it was investigated whether the age and educational level of coaches had an impact on their psychological condition during this period. The sample consisted of 605 Greek National coaches, 398 men, 206 women, and one coach who did not indicate sex preference, between the ages of 18-67 (M=38.18, SD=11.19). The results indicated the age differences between the youngest and oldest groups, and between high school and Ph.D. graduates. Overall, it was found that the Greek version of ERQ constitutes a reliable instrument for measuring emotion regulation situations in a professional sports environment.

Keywords: COVID-19, emotional influence, PSS, age, education level

Introduction

At the end of 2019 and the beginning of 2020, the entire world was afflicted by the outbreak of the new, at the time, Coronavirus (SARS-CoV-2). The COVID-19 outbreak affected most nations in Asia, Europe, Oceania, and America (WHO, 2020). As a result, it declared a global pandemic by the World Health Organization (WHO, 2020). During the epidemic, strict confinement to the home was a vital tactic in preventing the spread of the disease. As a result of this policy more than a fifth of the world's population was affected (Konstantinidis, Konstantoulas, Bebetsos & Bebetsos, 2021; Cheval et al., 2020; Mudenda et al., 2020). For both practical and emotional reasons, the COVID-19 epidemic had a significant impact on people's daily physical activity and way of life (Konstantinidis et al., 2021). Initially, restrictive measures such as the closure of gyms and sports venues upset people's daily routines by dramatically reducing public mobility (Boberska et al., 2018; Fitbit Staff, 2020).

The development of the COVID-19 pandemic, according to the World Health Organization (WHO), raises concerns about heightened stress and anxiety in persons caught up in the coronavirus danger, whether actual or imagined (Bebetsos, Konstantinidis, & Konstantoulas, 2021; Zandi & Pourhosein, 2020). The key difference between coronavirus and other diseases, such as the common cold, is that it was presented by the media as a unique threat, which causes panic, contributes to stress, and increases the probability of hysteria (Bebetsos et al., 2021; Kim & Su, 2020).

The risk of a major increase in the clinical number of persons experiencing anxiety, depression, and other potentially harmful behaviors causes concern (Bebetsos et al., 2021; Gunnell et al., 2020), and the sharp increase in general fear, along with a decline in social and economic activities, is quite likely to lead to psychological instability. People who have experienced quarantine may feel depression, fear, guilt, and anger (Bebetsos et al., 2021; Brooks et al., 2020).

Although we are still experiencing the coronavirus epidemic, the direct and indirect psychological and social consequences of COVID-19 have already become apparent and are damaging people's mental health. This is not a passing phase, and it endangers people's mental health today and in the future (Bebetsos et al., 2021; Ford et al., 2020; McManus, Bebbington, Jenkins & Brugha, 2016). Furthermore, there are fears that the virus causing COVID-19 will harm the mental health of persons who have been afflicted (Holmes et al., 2020). Many of the predicted repercussions of quarantine, as well as those connected with physical and social distance, play important roles in the onset of mental health problems (Brooks, et al., 2020).

The global expansion of the COVID-19 epidemic has affected people of all professions and socioeconomic classes, which cannot be overlooked in the lives of athletes, coaches, and support personnel. Like everyone else, coaches were forced to self-isolate at home. This constraint limited their capacity to engage in their vocation and communicate with their athletes regularly. Therefore, the pandemic is more likely to have influenced their mental health (Santi et al., 2021).

The global COVID-19 epidemic affected the sports world as well. International athletic and sporting activities were cancelled or postponed (Corsini, Bisciotti, Eirale & Volpi, 2020; Gallego, Nishiura, Sah, & Rodriguez-Morales, 2020; Schinke, Papaioannou, Henriksen, Si, Zhang & Haberl, 2020). Aside from the effect on competition, the COVID-19 lockdown affected athletes, coaches, and staff who were separated from their typical work surroundings and social relationships (Santi et al., 2021; Costa et al., 2020, Di Fronso et al., 2020, Jukic et al., 2020). Apart from the normal competitive behavior and preparation for the next sports challenge, new and fully restrictive living conditions combined with obligatory confinement to the home could impair the psychological well-being of players, coaches and support staff. (Santi et al., 2021).

COVID-19 anxiety and mental disturbance during the lockdown are well documented in the literature (Santi et al., 2021). Both clinical and non-clinical populations have been studied for the relationship between perceived stress and emotion management in healthcare practitioners. These precautions were taken both during and after the quarantine period (Anti et al., 2021; Katana, Röcke, Spain & Allemand, 2019; Extremera & Rey, 2015; Moore, Zoellner & Mollenholt, 2008). According to Mafukata, Dhlandhlara, and Kancheya (2015), one's social capital and capacity to engage with people increase with age and education level. This study also found a link between leisure-time physical exercise and education level (Bebetsos & Konstantinidis, 2021; He & Baker, 2005). According to Shaw and Spokane (2008), not working and job losses such as those experienced during the pandemic are related to lower physical activity in persons with lower education, but the opposite for those who are highly educated. Given the relationship between educational level and involvement (or lack of involvement) in exercise, and the relationship of age and education level with social capital competence and the capacity to interact with others, how likely is it to play a larger role for people whose involvement in exercise is not only a livelihood but also a way of life?

The purpose of this research is to investigate the emotional influence COVID-19 had on coaches at the Greek National level and how they managed to comply with social seclusion during the second wave of COVID-19. More precisely, it investigates whether the age and educational level of coaches had an impact on their psychological condition during the period of lockdown . It should be noted that this is the first time this group has been surveyed during this period. Due to a lack of research in this context, this initiative emphasizes the distinctiveness of both Greek and international studies.

Methods

Subjects and instrument

The sample consisted of 605 Greek National coaches. More specifically, 398 were men (65.8%), 206 were women (34%), and one did not indicate sex preference (0.2%). Additionally, the sample was divided according to age: a) 18-28, N=165, 27.3%, b) 29-42, N=202, 33.4%, c) 43->, N=238, 39.3%, and education level: a) PreUni N=42, 7%, b) BSc N=406, 67.2%, c) MSc N=133, 22%, and d) PhD N=24, 3.8%.

The Greek version of PSS (Perceived Stress Scale) was employed in the investigation (Andreou, Alexopoulos, Lionis, Varvogli, Gnardellis, Chrousos & Darviri, 2011). The instrument was designed as a 14-item scale for the sample to indicate their impression of stressful events and circumstances from the preceding month. There is also a short form, the PSS-10, which has 10 items chosen from the original PSS-14 form. Seven items address negative impressions, while seven address favorable perceptions. Each item is graded on a Likert-type scale ranging from 0=Never to 4=Very Often. A total score of 56 (40 on the PSS-10) shows that you are under a lot of stress.

Procedure

The researchers deemed the use of an electronic form/questionnaire (Google Form) required in line with the new Coronavirus protection regulations (COVID-19), minimiz-

ing needless physical interaction. Three months were spent collecting data (March-May 2021). The reason for choosing a certain period is due to the duration of the COVID-19 epidemic and the period of social seclusion in Greece.

Participants were informed about all of the characteristics and ethical considerations of the study , such as voluntary participation, participant anonymity, the ability to leave willingly at any stage of the questionnaire, and the use of the data solely for research purposes. They were informed by filling out the first page of the questionnaire with all of the essential information. If consent was given, the procedure was carried out.

Results

Reliability Analysis

The average inter-item correlations (coefficient alpha values) for the negative subscale were .84 for both PSS-14 and PSS-10. For the positive subscales they were .82 and .74, respectively. Overall, the scores for the two versions of PSS were computed by adding the negative and the reverse of the positive subscale scores. The Cronbach's alpha values of the full scales were similar (.85) for PSS-14 and PSS-10. It should be noted that similar results were declared by previous research (Andreou et al., 2011).

Univariate Analyses

Univariate Analyses were conducted to investigate any possible differences among the sample. More specifically:

a) For the full PSS-14 scale, the analysis revealed statistically significant differences between age groups [$F_{(2,604)} = 4.185$, $p<0.05$]. More specifically, the post-hoc multiple comparisons Scheffe test indicated the differences between the first group (youngest) and the third group (oldest). Similar results were indicated for the full PSS-10 scale [$F_{(2,604)} = 3.064$, $p<0.05$]. Additionally, similar results were found among both scales only on the positive subscales, ([PSS-14 $F_{(2,604)} = 8.845$, $p<0.001$], [PSS-10 $F_{(2,604)} = 6.993$, $p<0.001$]) (table 1).

b) For the full PSS-14 scale, the analysis revealed statistically significant differences between the education level groups [$F_{(3,603)} = 3.740$, $p<0.05$]. More specifically, the post-hoc multiple comparisons Scheffe test indicated the differences between the first group (PreUni) and the fourth group (PhD). Similar results were indicated for the full PSS-10 scale [$F_{(3,603)} = 3.964$, $p<0.05$]. In addition, similar results were found among both scales only on the positive subscales, ([PSS-14 $F_{(3,603)} = 3.240$, $p<0.05$], [PSS-10 $F_{(3,603)} = 3.093$, $p<0.05$]) (table 2).

Table 1. Age differences

	PSS-14 scores		**PSS-10 scores**	
	Full Scale		Full Scale	
	M	*SD*	*M*	*SD*
18-28	41.39	7.87	28.83	6.13
43->	39.03	8.16	28.21	6.61
	Positive Subscale		Positive Subscale	
	M	*SD*	*M*	*SD*
18-28	19.25	4.62	16.05	4.00
43->	17.28	4.68	14.58	3.92

Table 2. Education level differences

	PSS-14 scores		**PSS-10 scores**	
	Full Scale		Full Scale	
	M	*SD*	*M*	*SD*
PreUni	38.00	7.63	27.52	6.56
PhD	40.92	8.25	29.68	6.69
	Positive Subscale		Positive Subscale	
	M	*SD*	*M*	*SD*
PreUni	16.47	4.73	13.78	3.95
PhD	18.44	4.65	15.47	3.91

Discussion

The purpose of this study was to determine the emotional impact of the experience on Greek National level coaches and how they dealt with anxiety that may have been created by the second wave of COVID-19. In particular, the author investigated whether the psychological condition of the coach was affected by their age and educational level.

Stress is a significant factor in determining a person's quality of life and responsible for a huge range of negative life outcomes. According to current data, population ageing and worries about the prevalence of illness in the population are at their greatest levels ever (Bebetsos & Konstantinidis, 2021).

In terms of education, stress has a substantial impact on quality of life (Ribeiro Santiago, Nielsen, Smithers, Roberts & Jamieson, 2020) and has been linked to a variety of negative life outcomes, as well as an increased chance of dropping out of higher education (Nielsen & Dammeyer, 2019; Dyrbye et al., 2010). The degree of educational attainment has an inverse relationship with the level of stress. More precisely, samples with the lowest educational level had the most stress, whereas those with the greatest degree had the least (Ribeiro et al., 2020; Nielsen & Dammeyer, 2019). This study yields the same conclusion. The lower the stress level, the higher the educational level. Although the role of educational attainment has not been recognized in the literature on stress in the general population (Nielsen & Dammeyer, 2019), the specific results are consistent with the global literature (Vallejo, Vallejo-Slocker, Fernández-Abascal & Maanes, 2018; Lesage, Berjot & Deschamps, 2012; Fiocco, Joober & Lupien, 2007). The position of a coach necessitates educational instruction; therefore, the outcome of this study is extremely plausible. According to Shaw and Spokane (2008), for those with little education, unemployment and losing a job are related to decreased physical activity, but for people with higher education, the opposite is true. Further education - and hence involvement in intellectual pursuits - played a crucial effect in the amount of stress people, and by extension coaches, felt during the COVID-19 era (Bebetsos & Konstantinidis, 2021). This result may be substantiated by the fact that those with a greater degree of education had a stronger conviction in the efficacy of their efforts and exhibited less fatalism (Ribeiro et al., 2020).

In terms of age, the research found that it has a crucial impact on exposure to stress and how people react to stressful events (Warttig, Forshaw, South & White, 2013). Although age is inversely related to perceived environmental control (Katsarou et al., 2012), it appears that the older the person, the less anxiety they expressed (Warttig et al., 2013; Almeida & Horn, 2004; Stawski, Sliwinski, Almeida & Smyth, 2008). Various hypotheses have previously justified this finding (Warttig et al., 2013), such as Carstensen's Socioemotional Selectivity Theory (SST; Carstensen, 1995; Carstensen, Isaacowitz & Charles, 1999), which states that as you get older, your desire for pleasant emotional experiences rises.

The current study also discovered that an individual's stress level is inversely related to their age. Stress levels drop as one gets older. Perhaps the previously suggested hypothesis can explain this finding. At the same time, another explanation for this finding might be normal physical and professional limitations caused by ageing. The physical health of older people does not enable them to participate in a range of activities (Warttig et al., 2013), but a lack of occupational worries may lead to the appearance of fewer causes of stress.

Competing interests

There are no financial or other conflicts of interest associated with this manuscript.

Funding

No financial support has been received for this study.

References

Almeida, D. M., & Horn, M. C. (2004). Is Daily Life More Stressful during Middle Adulthood? In O. G. Brim, C. D. Ryff, & R. C. Kessler (Eds.), *How healthy are we?: A national study of well-being at midlife* (pp. 425–451). The University of Chicago Press.

Andreou, E., Alexopoulos, E. C., Lionis, C., Varvogli, L., Gnardellis, C., Chrousos, G. P., Darviri, C. (2011). Perceived Stress Scale: Reliability and validity study in Greece. *International Journal of Environmental Research and Public Health, 8*(8), 3287–3298. https://doi.org/10.3390/ijerph8083287

Bebetsos, E., & Konstantinidis, C. (2021). Does Education Level Differentiate Adults' Attitudes Towards Physical Activity during COVID-19 Pandemic? A Preliminary Study. *Aquademia*, *5*(2), ep21009. https://doi.org/10.21601/aquademia/10965

Bebetsos, E., Konstantinidis, C., & Konstantoulas, D. (2021). The Coronavirus pandemic (COVID-19) and Physical Activity: The important role of gender and age. *Archives of Hellenic Medicine*, *38*(2), 231–236.

Boberska, M., Szczuka, Z., Kruk, M., Knoll, N., Keller, J., Hohl, D. H., & Luszczynska, A. (2018). Sedentary behaviours and health-related quality of life. A systematic review and meta-analysis. *Health Psychology Review*, *12*(2), 195–210. https://doi.org/10.1080/17437199.2017.1396191

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of

the evidence. *The Lancet*, *395*(10227), 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science*, *4*(5), 151–156. https://doi.org/10.1111/1467-8721.ep11512261

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, *54*(3), 165. https://doi.org/10.1037/0003-066X.54.3.165

Cheval, S., Mihai Adamescu, C., Georgiadis, T., Herrnegger, M., Piticar, A., & Legates, D. R. (2020). Observed and Potential Impacts of the COVID-19 Pandemic on the Environment. *International Journal of Environmental Research and Public Health*, *17*(11), 4140. https://doi.org/10.3390/ijerph17114140

Corsini, A., Bisciotti, G. N., Eirale, C., & Volpi, P. (2020). Football cannot restart soon during the COVID-19 emergency! A critical perspective from the Italian experience and a call for action. *British Journal of Sports Medicine*, *54*(20), 1186–1187. https://doi.org/10.1136/bjsports-2020-102306

Costa, S., Santi, G., di Fronso, S., Montesano, C., Di Gruttola, F., Ciofi, E. G., Morgilli, L., & Bertollo, M. (2020). Athletes and adversities: athletic identity and emotional regulation in time of COVID-19. *Sport Sciences for Health*, *16*(4), 609–618. https://doi.org/10.1007/s11332-020-00677-9

Di Fronso, S., Costa, S., Montesano, C., Di Gruttola, F., Ciofi, E. G., Morgilli, L., Robazza, C., & Bertollo, M. (2022). The effects of COVID-19 pandemic on perceived stress and psychobiosocial states in Italian athletes. *International Journal of Sport and Exercise Psychology*, *20*(1), 79–91. https://doi.org/10.1080/1612197X.2020.1802612

Dyrbye, L. N., Thomas, M. R., Power, D. V., Durning, S., Moutier, C., Massie, F. S., Jr., & Shanafelt, T. D. (2010). Burnout and serious thoughts of dropping out of medical school: A multi-institutional study. *Academic Medicine*, *85*(1), 94–102. https://doi.org/10.1097/ACM.0b013e3181c46aad

Extremera, N., & Rey, L. (2015). The moderator role of emotion regulation ability in the link between stress and well-being. *Frontiers in Psychology*, *6*, 1632. https://doi.org/10.3389/fpsyg.2015.01632

Fiocco, A. J., Joober, R., & Lupien, S. J. (2007). Education modulates cortisol reactivity to the Trier Social Stress Test in middle-aged adults. *Psychoneuroendocrinology*, *32*(8-10), 1158-1163. https://doi.org/10.1016/j.psyneuen.2007.08.008

Fitbit Staff. (2020) *The impact of coronavirus on global activity.* Fitbit News, 2020. Retrieved from https://blog.fitbit.com/covid-19-global-activity/

Ford, T., Vizard, T., Sadler, K., McManus, S., Goodman, A., Merad, S., Tejerina-Arreal, M., & Collinson, D. (2020). Data resource profile: the mental health of children and young people surveys (MHCYP). *International Journal of Epidemiology*, *49*(2), 363–364g. https://doi.org/10.1093/ije/dyz259

Gallego, V., Nishiura, H., Sah, R., & Rodriguez-Morales, A. J. (2020). The COVID-19 outbreak and implications for the Tokyo 2020 Summer Olympic Games. *Travel Medicine and Infectious Disease*, *34*, 101604. https://doi.org/10.1016/j.tmaid.2020.101604

Gunnell, D., Appleby, L., Arensman, E., Hawton, K., John, A., Kapur, N., ... & Yip, P. S. (2020). Suicide risk and prevention during the COVID-19 pandemic. *The Lancet Psychiatry*, *7*(6), 468–471. https://doi.org/10.1016/S2215-0366(20)30171-1

He, X. Z., & Baker, D. W. (2005). Differences in leisure-time, household, and work-related physical activity by race, ethnicity, and education. *Journal of General Internal Medicine*, *20*(3), 259–266. https://doi.org/10.1111/j.1525-1497.2005.40198.x

Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., ... & Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*, *7*(6), 547–560. https://doi.org/10.1016/S2215-0366(20)30168-1

Jukic, I., Calleja-González, J., Cos, F., Cuzzolin, F., Olmo, J., Terrados, N., ... & Alcaraz, P. E. (2020). Strategies and solutions for team sports athletes in isolation due to COVID-19. *Sports*, *8*(4), 56. https://doi.org/10.3390/sports8040056

Katana, M., Röcke, C., Spain, S. M., & Allemand, M. (2019). Emotion regulation, subjective well-being, and perceived stress in daily life of geriatric nurses. *Frontiers in Psychology*, *10*, 1097. https://doi.org/10.3389/fpsyg.2019.01097

Katsarou, A., Panagiotakos, D., Zafeiropoulou, A., Vryonis, M., Skoularigis, I., Tryposkiadis, F., & Papageorgiou, C. (2012). Validation of a Greek version of PSS-14; a global measure of perceived stress. *Central European Journal of Public Health*, *20*(2), 104–109. https://doi.org/10.21101/cejph.a3698

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

Konstantinidis, C., Konstantoulas, D., Bebetsos, E., & Bebetsos, G. (2021). COVID-19 Lockdown and Physical Activity: How Do Sexes React? *Aquademia*, *5*(1), ep21007. https://doi.org/10.21601/aquademia/10808

Lesage, F. X., Berjot, S., & Deschamps, F. (2012). Psychometric properties of the French versions of the Perceived Stress Scale. *International Journal of Occupational Medicine and Environmental Health*, *25*(2), 178–184. https://doi.org/10.2478/S13382-012-0024-8

Mafukata, M. A., Dhlandhlara, W., & Kancheya, G. (2015). Socio-demographic Factors Affecting Social Capital Development, Continuity, and Sustainability among Microfinance Adopting Households in Nyanga, Zimbabwe. *Journal of Social Entrepreneurship*, *6*(1), 70–79. https://doi.org/10.1080/19420676.2014.954257

McManus, S., Bebbington, P. E., Jenkins, R., & Brugha, T. (2016). *Mental health and wellbeing in England: The adult psychiatric morbidity survey 2014*. NHS digital.

Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2008). Are expressive suppression and cognitive reappraisal associated with stress-related symptoms? *Behaviour Research and Therapy*, *46*(9), 993–1000. https://doi.org/10.1016/j.brat.2008.05.001

Mudenda, S., Zulu, A., Phiri, M. N., Ngazimbi, M., Mufwambi, W., Kasanga, M., & Banda, M. (2020). Impact of coronavirus disease 2019 (COVID-19) on College and University students:

A global health and education problem. *Aquademia*, *4*(2), ep20026. https://doi.org/10.29333/aquademia/8494

Nielsen, T., & Dammeyer, J. (2019). Measuring higher education students' perceived stress: An IRT-based construct validity study of the PSS-10. *Studies in Educational Evaluation*, *63*, 17–25. https://doi.org/10.1016/j.stueduc.2019.06.007

Ribeiro Santiago, P. H., Nielsen, T., Smithers, L. G., Roberts, R., & Jamieson, L. (2020). Measuring stress in Australia: validation of the perceived stress scale (PSS-14) in a national sample. *Health and Quality of Life Outcomes*, *18*(1), 1–16. https://doi.org/10.1186/s12955-020-01343-x

Santi, G., Quartiroli, A., Costa, S., Di Fronso, S., Montesano, C., Di Gruttola, F., ... & Bertollo, M. (2021). The Impact of the COVID-19 Lockdown on Coaches' Perception of Stress and Emotion Regulation Strategies. *Frontiers in Psychology*, *11*, 3872. https://doi.org/10.3389/fpsyg.2020.601743

Schinke, R., Papaioannou, A., Henriksen, K., Si, G., Zhang, L., & Haberl, P. (2020). Sport psychology services to high-performance athletes during COVID-19. *International Journal of Sport and Exercise Psychology*, *18*(3), 269–272. https://doi.org/10.1080/1612197X.2020.1754616

Shaw, B. A., & Spokane, L. S. (2008). Examining the association between education level and physical activity changes during early old age. *Journal of Aging and Health*, *20*(7), 767–787. https://doi.org/10.1177/0898264308321081

Stawski, R. S., Sliwinski, M. J., Almeida, D. M., & Smyth, J. M. (2008). Reported exposure and emotional reactivity to daily stressors: the roles of adult age and global perceived stress. *Psychology and Aging*, *23*(1), 52. https://doi.org/10.1037/0882-7974.23.1.52

Vallejo, M. A., Vallejo-Slocker, L., Fernández-Abascal, E. G., & Mañanes, G. (2018). Determining factors for stress perception assessed with the Perceived Stress Scale (PSS-4) in Spanish and other European samples. *Frontiers in Psychology*, *9*, 37. https://doi.org/10.3389/fpsyg.2018.00037

WHO (2020). *Coronavirus Disease 2019 (COVID-19): Situation Report – 52*. WHO. Available online at: https://www.who.int/docs/default-source/coronaviruse/ situation-reports/20200312-sitrep-52-covid-19.pdf?sfvrsn=e2bfc9c0_4.

Zandi, S., & Pourhosein, R. (2020). Using Behavioural Science to Help Fight the Coronavirus: A Rapid, Narrative Review. *Rooyesh-e-Ravanshenasi Journal (RRJ)*, *9*(3), 1–22.

This is Open Access article distributed under the terms of CC-BY-NC-ND 4.0 International License.