

THE PSYCHOLOGICAL IMPACT OF COVID-19 ON UNIVERSITY LECTURERS IN THE FIELD OF SPORTS EDUCATION

**Galina Domuschieva-Rogleva
Evelina Savcheva**

National Sports Academy "Vassil Levski" (Bulgaria)

Abstract. The COVID-19 pandemic sets a precedent in modern history and is a threat to almost all countries in the world while challenging all existing systems. Efforts to reduce the spread of the COVID-19 virus among the younger and adult populations has prompted the widespread closing of schools, colleges, universities, and other educational institutions in many countries.

The aim of this study is to establish the influence and interrelations between the psychological aspects of perceived stress, post-traumatic stress symptoms and well-being in university lecturers in the field of sports education with distance teaching during COVID-19.

This online study was undertaken at the end of May 2020. Participants were 67 university lecturers in the field of sports education, between the ages of 25 – 70 years, divided into groups according to their gender, age, professional working experience, and academic positions.

The research methods included: The Perceived Stress Scale (PS-1); Method for psychological assessment of post-traumatic stress symptoms; WHO-5, Well-being Index.

There are significant differences depending on gender, age, professional working experience. Women experience stress stronger, have lower levels of well-being, and show more post traumatic symptoms, compared to men during the quarantine period. A statistically significant decrease of the level of well-being, and increase in the levels of perceived stress with age is found.

None of the studied parameters showed statistically significant differences in the groups that were differentiated by academic positions. The experiencing of post-traumatic stress symptoms increased when there was an increase of the perceived stress. The well-being decreases when the levels of perceived stress are higher and the participants have experienced post-traumatic stress symptoms.

These results may be seen as a starting point for future studies, examining personal and academic factors and the impacts of well-being on university lecturers.

Keywords: perceived stress; post-traumatic stress symptoms; well-being

Introduction

The COVID-19 pandemic is a huge challenge to systems and is affecting nearly all the countries in the world. As a way to combat the rapid spread of COVID-19, most schools, colleges, universities and other educational institutions worldwide have been shut down. As of March 25, 150 countries have closed schools and educational institutions nationwide, impacting over 80% of the world's student population (Sahu, 2020). In Bulgaria the quarantine was announced on 13.03.2020 and continued until 13.05.2020. A growing number of universities across the world have either postponed or canceled all campus events such as workshops, conferences, sports and other activities. Universities have rapidly switched various courses and programs from face-to-face to online delivery mode (Gewin, 2020).

Since their founding, universities, like any other social institution, were forced to change their structures and methods in the face of different challenges and complications, be it social, political or economic. Nevertheless, they have survived and continued their mission even with their doors closed. The decision to temporarily close higher education institutions was prompted by the principle that large gatherings of people constitute a serious risk to safeguarding public health during a pandemic. All educational institutions tend to close their doors in situations where some form of confinement or quarantine has been legislated.

The last 50 years have seen huge growth worldwide in the provision of education at all levels. COVID-19 is the greatest challenge that these expanded national education systems have ever faced. Many governments have ordered institutions to cease face-to-face instruction for most of their students, requiring them to switch, almost overnight, to online teaching and virtual education (Daniel, 2020). Most governments played catch-up to the exponential spread of COVID-19, so institutions had very little time to prepare for a remote-teaching regime. Preparations could have included staff preparation and training; arrangements for safeguarding; division of work between departments; and brief and simple updates on learning technologies already somewhat familiar. Many institutions had plans to make greater use of technology in teaching, but the outbreak of COVID-19 meant that changes intended to occur over months or years had to be implemented in a few days. The current imperative of continuing schooling by hasty transitions to remote learning may have the opposite impact.

The Covid-19 pandemic has an impact not only on physical health but also on mental health. Uncertainty, instability, and the threat of the disease increase the perceived symptoms of stress. Therefore, the disease itself is a stressor, causing excessive and continuous stress, and possibly leading to mental disorders, primarily manifested as anxiety, depression, and fear (Wang, Wang, Yang, 2020; Cao, et al., 2020; Pan, 2020). People had to adapt to living in an isolated environment without being able to practice their usual activities, having unclear prospects and experiencing fear of getting diseased (Iancheva, et al., 2020). Furthermore,

domestic violence, the feeling of isolation, and loneliness are also shown to increase during the pandemic. Initially, the World Health Organization used the term “social distancing” but later, the term was changed to “physical distancing” to signify the importance of the restriction of the actual physical contact between people to protect each other from infecting. But it’s important that people remain connected – otherwise a long-term mental and physical health crisis might follow the viral one, warns Stanford psychologist Jamil Zaki. He suggests that instead of social distancing, people should practice “distant socializing” (<https://news.stanford.edu/2020/03/19/try-distant-socializing-instead/>).

Most reviewed studies reported negative psychological effects, including post-traumatic stress symptoms, confusion, and anger. Stressors included longer quarantine duration, infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss, and stigma. Some researchers have suggested long-lasting effects (Brooks et al., 2020). The imposition of unfamiliar public health measures that infringe on personal freedoms, large and growing financial losses, and conflicting messages from authorities are among the major stressors that undoubtedly will contribute to widespread emotional distress and increased risk of psychiatric illness associated with COVID-19 (Pfefferbaum, North, Carol 2020).

Stress is one of the most important psychological constructs in behavior science and that is why there are many approaches to its study. Stress has become an inseparable part of human life and can be observed in every sphere of life. Regardless of the huge interest towards stress, due to the complexity, the multifaceted nature of the phenomenon, and the different theoretical orientations of its researchers, there is no standardized concept on stress and its nature, specifics, mechanisms of formation and functioning. The representatives of the divergent strands in the different areas of scientific research give a specific interpretation of its gist and functional characteristics.

The interactive approach defines stress as a lack of balance between the demands of the environment and the individual abilities to cope, i.e. the level of stress is a function of the ability of a person to answer the requirements of a given situation (Lazarus, 1990).

Perceived stress, during the COVID-19 pandemic, is in the spotlight of numerous studies (Pedrozo-Pupo, Pedrozo-Cortes, Campo-Arias A., 2020; Sheroun, et. al., 2020). Post-traumatic stress symptoms (PTSS), as well as post-traumatic stress disorder (PTSD) itself, are common consequences of disasters, including disease outbreaks such as the COVID-19 pandemic. Understanding their frequency and correlation is essential to developing preventive, therapeutic, and supportive measures in a time of crisis (Rajkumar, 2020).

Post-traumatic stress symptoms (PTSS) follows traumatic occurrences outside the range of common human experience such as violent physical assaults, torture, accidents, rape or natural disasters and is characterized by a typical symptom

pattern of intrusions, persistence of trauma, relevant stimuli avoidance, emotional numbing and physiological hyper-arousal (Deja, Denke, Weber-Carstens, & Schröder, 2006).

Post-traumatic stress disorder is defined by chronic stress that can be observed in different types of individuals that were exposed to extreme stress conditions (Keane, Weathers, Kaloupek, 1992; Janoff-Bulman, 1988). This stand brings the problem of its diagnosis beyond the limits of the risky conditions of activity. Symptoms of PTSD could be detected in many people, who have experienced strong sudden stress, big personal losses or the continuous exposure to threats.

The term well-being encompasses all the ways in which people experience and evaluate their lives positively. Psychical well-being includes components referring to cognitive and affective aspects: life satisfaction, and presence of positive and negative emotions in one's life, and a subjective feeling of happiness (Topp et al., 2015; Tov, 2018). Factors that influence the mental well-being are connected to heredity (Lykken, Tellegen, 1996), personal characteristics (McCrae, Costa, 1994), the surrounding conditions (Veenhoven, 1991), access to information (Schwarz, Strack, 1999), the different time perspectives – long-term and short-term (Headey, Wearing, 1989), the mechanisms for comparing the personal experience with the set standards or the system of desired goals, motivation and values (Emmons, 1996).

Most studies in the field of education from the discussed period (COVID-19 pandemic) are focused on researching the effect of the pandemic on the mental health among students in schools, colleges, and universities (Sheroun, et.al., 2020; Cao, et.al., 2020). Another aspect of interest for research is the impact of the pandemic on university lecturers, and the new requirements they are supposed to follow. They were expected to quickly switch to online teaching, that was accompanied by various problems, e.g. technical difficulties.

Aim of the research

To establish the influence and interrelations between the psychological aspects of perceived stress, post-traumatic stress symptoms, and well-being in university lecturers in the field of sports education with distance teaching during COVID-19;

Tasks of the research:

- to determine the levels of perceived stress, post-traumatic stress symptoms, and well-being of university lecturers during the COVID-19 pandemic;
- to establish whether there is a difference between the research variables of the examined factors: gender, age, professional working experience, and academic positions;
- to establish the existence of different relations and interdependencies between the studied variables.

Methodology

Participants

67 university lecturers in the field of sports education, between the ages of 25 – 70 years were surveyed. The participants were from two universities in Sofia, Bulgaria (National Sports Academy “Vassil Levski” and University of National and World Economy /UNWE/). The demographics information is shown in Table 1.

Table 1. Researched individuals differentiated in groups

		N
Gender	Women	31
	Men	36
Age	25 – 40	22
	41 – 55	27
	56 – 70	18
Years of professional working experience	1 – 5	11
	6 – 13	20
	14 – 21	6
	22 – 30	15
	over 30	15
Academic positions	Assistants	20
	Chief assistants	10
	Associate professors	29
	Professors	8

Procedure

The data were collected with anonymous, self-reported electronic questionnaires, at the end of May 2020, two weeks after the lockdown in Bulgaria was announced.

Data analysis

Data were analyzed with SPSS Version 23.0. Different methods were used: variation analysis, comparative analysis (U-criterion of Mann-Whitney, H – Criterion of Kruskal-Wallis), correlation analysis, and stepwise regression analysis.

Method

1. *The Perceived Stress Scale (PS-1)* (Cohen, Kamarck, Mermelstein, 1983), adapted for Bulgarian conditions (Karastoyanov, Russinova, 2000). The scale is the most widely used psychological instrument for measuring the perception of stress. It consists of 7 positively and 7 negatively formulated items. The researched people have to evaluate from 1 to 5 the frequency of their feelings and thoughts during the two months of lockdown. The results characterize a relatively stable evaluation style for a given period of time.

2. *Method for psychological assessment of post-traumatic stress symptoms* (Velichkov, Radoslavova, 2005). The scale describes 21 symptoms, each one assessed by a 5-level frequency scale, depicting how often one experiences the said symptoms. The studied individuals assess their experiences with each symptom during the lockdown (up until they have been tested with this method). The common assessment, according to this method, varies from 0 to 84.

3. *WHO-5, Well-being Index* – short questionnaire covering 5 positive items, related to positive mood, vitality, and general interests (being interested in things). Each of the five items is rated on a 6-point Likert scale from 0 (= not present) to 5 (= constantly present). Higher scores signify higher level of well-being (<https://www.psykiatri-regionh.dk/who-5/who-5-questionnaires/Pages/default.aspx>).

Results

The results from the comparative analysis show that there is a statistically significant difference between the average values of the researched variables in the participants, differentiated by gender (criterion Mann-Whitney – U); age, professional working experience, and academic positions (criterion Kruskal-Wallis – H test – for more than two groups of studied individuals).

Women experience stress stronger, have lower levels of well-being, and show more post traumatic symptoms, compared to men during the quarantine period ($U=1.96$) (Table 2). The comparative analysis (criterion Kruskal-Wallis – H test) does not show significant differences for this indicator in the groups, differentiated by age, professional working experience, and academic position. A tendency of perceived stress levels rising with higher age is observed; highest levels of perceived stress are found in the group from 55 to 70 years (Table 2).

Table 2. Average values of perceived stress

	Min	Max	Mean	SD
Perceived stress – all researched lecturers	14.00	51.00	34.06	8.03
Perceived stress women	19.00	51.00	36.00	<i>8.04</i>
Perceived stress men	14.00	48.00	32.39	7.75
Perceived stress 25 – 40 years	18.00	43.00	31.73	7.71
Perceived stress 41 – 55 years	14.00	51.00	34.81	8.43
Perceived stress 56 – 70 years	18.00	49.00	35.78	7.57

In order to assess what percentage of the surveyed lecturers have low, medium or high levels of perceived stress, the experience of post-traumatic symptoms and

well-being, a frequency analysis was applied. Statistically significant differences, which are observed in the groups, differentiated by gender, require the derivation of norms separately for women and men for all three studied variables.

17.9% of the surveyed lecturers are characterized by a low level of perceived stress. At 67.2% the level is within the norm, and 14.9% of the participants in the study have a high level of perceived stress.

Low levels of experience of post-traumatic symptoms during the pandemic and the lockdown is found in 7.5% of all studied individuals. In 76.1% of the studied lecturers the symptoms are within the norm, and in 16.4% – a high level of post-traumatic symptoms is observed.

Women showed statistically significantly more pronounced post-traumatic symptoms compared to the group of men ($U=3.979$; $p=.000$) (Table 3). Statistically significant differences were also found in the subjects, differentiated according to professional working experience ($H=10.243$; $p=.037$). The weakest post-traumatic symptoms are found in the group of lecturers with professional working experience between 6 and 13 years.

Table 3. Average values of post-traumatic stress symptoms (PTSS)

	Min	Max	Mean	SD
PTSS – all researched lecturers	2.00	55.00	13.88	12.55
PTSS women	2.00	55.00	20.06	13.67
PTSS men	2.00	45.00	08.56	8.35
PTSS 1 – 5 experience	1.00	42.00	15.00	11.92
PTSS 6 – 13 experience	2.00	55.00	9.05	8.78
PTSS 14 – 21 experience	1.00	31.00	16.33	13.41
PTSS 22 – 30 experience	1.00	45.00	21.33	14.80
PTSS over 30 experience	2.00	31.00	11.07	8.05

The strongest experience of post-traumatic symptoms is observed in the group with professional working experience between 22 and 30 years. Subjects with professional working experience between 1 and 5 years, and between 14 and 21 years have similar levels of post-traumatic symptoms. There were no significant differences in the experience of post-traumatic symptoms in the groups differentiated by age and academic position.

The studied lecturers as a whole and the individual groups are characterized by an average level of well-being (Table 4). 20.9% of all surveyed teachers have a low level of well-being. A significant part of them - 67.2% are within the norm, and 11.9% – with a high level of well-being. In the group of women there was a statistically significantly lower level of well-being compared to men ($U=2.898$; $p=.004$). With increasing age, the level of well-being decreases and the differences are also statistically significant ($H=6.617$; $p=.042$). Teachers aged between 25 and

40 have the highest level ($M=70.91$; $SD=17.94$). In the age group between 41 and 55 it decreases, and among teachers aged between 56 and 71 it is the lowest level of mental well-being – $M=53.33$; $SD=10.54$). No statistically significant differences were found in the groups differentiated by professional working experience and academic positions.

Table 4. Average values of well-being

	Min	Max	Mean	SD
Well-being – all researched lecturers	12,00	100,00	62,63	22,43
Well-being women	28,00	92,00	54,97	18,65
Well-being men	12,00	100,00	69,22	23,53
Well-being 25 – 40 years	32,00	96,00	70,91	17,94
Well-being 41 – 55 years	12,00	100,00	62,07	24,82
Well-being 56 – 70 years	16,00	96,00	53,33	10,54

In order to reveal the correlations between the researched indexes we applied correlation analysis (criterion of Spearman). The increasing levels of perceived stress correlates with the increasing experience of posttraumatic stress symptoms ($r=.432$; $p=.001$). The low levels of well-being correlate with high levels of perceived stress ($r=-.502$; $p=.001$), and post-traumatic stress symptoms ($r=-.425$; $p=.001$).

In conformity with the aim of the research a step regression analysis was used. In the first model the dependent variables are the levels of post-traumatic stress symptoms. The independent variables are the levels of the perceived stress.

We found out that experience of post-traumatic stress symptoms increased when the perceived stress increased ($\beta=.429^{**}$), (Table 5). The next two models consecutively analyse the influence of the perceived stress and post-traumatic stress symptoms on the level of well-being. The results from the analysis give a reason to believe that well-being decreases with high levels of perceived stress ($\beta=-.542^{**}$) and experience of post-traumatic stress symptoms ($\beta=-.386^{**}$).

Table 5. Results from the regression analysis

Independent variable	Post-traumatic stress symptoms			ΔR^2
	β	t	Sig.	
Perceived stress – all researched lecturers	.429	3.830	.000	.172
	Well-being			
Perceived stress	-.542	-5.205	.000	.294
Post-traumatic stress symptoms	-.386	-3.379	.001	.136

Discussion

The present study highlights the perceived stress, post-traumatic stress symptoms and well-being of university lecturers in the field of sports education with distance teaching during the COVID-19 pandemic. A majority of participants reported moderate levels of perceived stress (67.2%), while 14,9% reported high levels of stress. The high levels of perceived stress reported in this study are in accordance with the suggestions that there may be an increase in stress levels in the later stages of physical distancing and quarantine (Brooks et al., 2020). An analogous tendency in the experience of post-traumatic stress symptoms and well-being is observed – the majority of university lecturers reported moderate levels (76.1%), while 16,4% reported high levels of post-traumatic stress symptoms. 67,2% of the participants showed an average level of well-being and 20,9% – low level. An increase of affective symptoms due to the COVID-19 is found in other research as well (Rosario et al., 2020).

The established gender differences show that women experience more stress, have a lower level of well-being, and more pronounced post-traumatic symptoms, compared to men during the quarantine period. The development of post-traumatic stress affects the social adaptation and the attitude of the individual to his environment – it is manifested through disturbances in social behavior and impaired ability to work (Velichkov, Radoslavova, 2005).

Various scientific or bibliometric analyses of the impact of COVID-19 on publication output of scholars have already been published. The findings of these studies indicate very uniformly that the scientific publication output of women is much more negatively influenced by the COVID-19 pandemic than that of men (Andersen et al., 2020; Frederickson, 2020; Amano-Patiño et al., 2020). COVID-19 has led to unprecedented day care, school, and workplace closings challenges. Recent data from the USA, the UK, and Germany suggest women spend more time on pandemic-era childcare and home schooling than men (Adams-Prassl, et al., 2020) This is particularly difficult for single-parent households, the majority of which are female-headed (Peterson et al., 2020).

The increase in age is associated with an increase in the level of perceived stress, with highest values in university lecturers aged between 55 and 70 years. In this age group the lowest levels of well-being are observed. These results can be explained by the initial data and the suggestion that the most endangered by COVID-19 are people over 60. The university lecturers with work experience between 22 and 30 years, as well as the professors, have the most pronounced post-traumatic symptoms, although in terms of academic positions the differences are not statistically significant. The level of well-being decreases with age and the differences are statistically significant. The highest level is observed in the youngest lecturers - aged between 25 and 40. No statistically significant differences in the groups differentiated by academic positions were found on any of the studied

parameters. The likely explanation is that the challenges of the COVID-19 pandemic affect all educators, regardless of academic position. There is a positive relationship between the level of perceived stress and the experience of posttraumatic stress symptoms. Low levels of well-being correlate with high levels of perceived stress and posttraumatic stress symptoms. The results of the regression analysis show that the experience of post-traumatic stress symptoms increases when levels of perceived stress rise. The well-being decreases at high levels of perceived stress and experience of post-traumatic stress symptoms.

The findings of this study are limited, as they represent one small group of university lecturers in the field of sports education with distance teaching during COVID-19 pandemic in one country. The current results reflect the impact of COVID-19 circumstances, however, further changes might be noticed during its later stages. They may be seen as a starting point for future studies, examining personal and academic factors, and the impacts on well-being of university lecturers.

Conclusion

The results of this study confirm the impact of the closing of universities and physical distancing during the COVID-19 period on well-being, and the lives of university lecturers, at the time the study was conducted.

Universities affected by COVID-19 should invest in the creation of long-term strategies that transcend traditional approaches in an innovative and proactive manner, while being ready to adapt to changes as they come (Lapovsky, 2020). It is necessary for higher educational institutions to focus on improving online learning, to integrate technology into the teaching environment, and to contribute to the ongoing development of academic staff with the larger goal of enhancing the quality of learning through innovative approaches that aim to motivate and stimulate learning. Institutions, university lecturers, and students will continue to look for flexible ways to repair the damage caused by COVID-19's interruptions to the learning process.

REFERENCES

- Adams-Prassl, A., Boneva, T., Golin, M. & Rauh, C. (2020). Inequality in the impact of the coronavirus shock: evidence from real time surveys. *IZA Institute of Labor Economics discussion paper series*. April, 2020. <https://www.iza.org/publications/dp/13183/inequality-in-the-impact-of-the-coronavirus-shock-evidence-from-real-time-surveys>
- Amano-Patiño, N., Faraglia, E., Giannitsarou, C. & Hasna, Z. (2020). *Who is doing new research in the time of COVID-19? Not the female economists*. May 2, 2020. <https://voxeu.org/article/who-doing-new-research-time-covid-19-not-female-economists>

- Andersen, J.P., Nielsen, M.W., Simone, N.L., Lewis, R.E. & Jagsi, R. (2020). *Meta-research: is Covid-19 amplifying the authorship gender gap in the medical literature?* arXiv. 2020 published online May 13. DOI: abs/2005.06303
- Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N. et al. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 2020; 395:912-20. Published Online February 26, 2020 [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J. & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry research*, 287, 112934. <https://doi.org/10.1016/j.psychres.2020.112934>
- Cohen, S., Kamarck, T. & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385 – 396.
- Daniel, S.J. (2020). Education and the COVID-19 pandemic. *Prospects* <https://doi.org/10.1007/s11125-020-09464-3>
- Deja, M., Denke, C., Weber-Carstens, S., & Schr Der, J. (2006). Social support during intensive care unit stay might improve mental impairment and consequently health-related quality of life in survivors of severe acute respiratory distress syndrome. *Critical Care*, 10(5)
- Emmons, R. A. (1996). Striving and feeling: Personal goals and subjective well-being. In P. M. Golwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 313 – 337). New York: Guilford Press.
- Frederickson, M. (2020) *COVID-19's gendered impact on academic productivity*. May 11, 2020. <https://github.com/drfreder/pandemic-pub-bias>
- Gewin, V. (2020). Five tips for moving teaching online as COVID-19 takes hold. *Nature*. [Epub ahead of print]:10.1038/d41586-020-00896-7
- Headey, B. & Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and Social Psychology*, 57, 731 – 739.
- Iancheva, T., Rogaleva, L., García-Mas, A., Olmedilla, A. (2020). Perfectionism, Mood States, and Coping Strategies of Sports Students from Bulgaria and Russia During the Pandemic COVID-19. *Journal of Applied Sports Sciences*. 2020, Vol. 1, pp. 22 – 38. DOI: 10.37393/JASS.2020.01.2
- Janoff-Bulman, R. (1988). Victims of violence, in: S Fisher, J. Reaso (Eds), *Handbook of Life Stress, Cognition and Health*, New York: Willey.
- Karastoyanov, G., Rusinova-Hristova, A. (2000). Bulgarska adaptatsiya na voprosnika za vazpriet stress, *Psihologichni izsledvaniya*, 1 – 2, 2000.

- Keane, T.M., Weathers, F.W. & Kaloupek, D.G. (1992), Psychological assessment of post-traumatic stress disorder, *PTSD Research Quarterly*, vol.3, No 4.
- Lapovsky, L. (2020). Covid-19: Summer Opportunities For Colleges And Universities To Innovate And Improve Their Bottom. <https://www.forbes.com/sites/lucielapovsky/2020/04/13/covid-19-summer-opportunities-for-colleges-and-universities-to-innovate-and-improve-their-bottom-line/#50a74700c8fb>
- Lazarus, R. S. (1990). Theory-based stress measurement. *Psychological Inquiry*, 1(1), 3 – 13. https://doi.org/10.1207/s15327965pli0101_1
- Lykken, D. & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Science*, 7, 186 – 189.
- McCrae, R. R. & Costa, P. T. Jr. (1994). The stability of personality: Observations and evaluations. *Current Directions in Psychological Science*, 3, 173 – 175.
- Pan, X. (2020). Exercise Under Death-Anxiety: Investigating Individual Exercise Psychology and Behavior from Perspective of Terror Management and Behavioral Immune System Introduction. *Journal of Applied Sports Sciences*. 2020, Vol. 1, pp. 3 – 21. DOI: 10.37393/JASS.2020.01.1
- Pedrozo-Pupo, J. C., Pedrozo-Cortes, M. J. & Campo-Arias, A. (2020). Perceived stress associated with COVID-19 epidemic in Colombia: an online survey. *Cad. Saúde Pública* [online], vol.36, n.5 [cited 2020-07-14], e00090520. Available from: <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0102-311X2020000506003&lng=en&nrm=iso>. Epub June 01, 2020. ISSN 1678-4464. <https://doi.org/10.1590/0102-311x00090520>.
- Peterson Gabster, B., Van Daalen, K., Dhatt, R. & Barry, M. (2020). Challenges for the female academic during the COVID-19 pandemic. *Lancet* 2020; published online June 18. [http://dx.doi.org/10.1016/S0140-6736\(20\)31412-4](http://dx.doi.org/10.1016/S0140-6736(20)31412-4).
- Pfefferbaum, B. & North, C. S. (2020) Mental Health and the Covid-19 Pandemic. *New England Journal of Medicine*: 13 Apr 2020; DOI: 10.1056/NEJMp2008017
- Rajkumar, R.P. (2020). *Post-traumatic stress in the wake of the COVID-19 pandemic: a scoping review* [version 1; peer review: awaiting peer review]. *F1000Research*, 9:675 (<https://doi.org/10.12688/f1000research.24513.1>)
- Rosario Sinta Gamonal Limcaoco, RSG, Mateos, E. M., Fernandez, J. M. & Roncero C. (2020). *Anxiety, worry and perceived stress in the world due to the COVID-19 pandemic*. March 2020. Preliminary results. medRxiv 2020.04.03.20043992; doi: <https://doi.org/10.1101/2020.04.03.20043992>

- Sahu, P. (2020). Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. *Cureus*, 12, 4, e7541, 1 – 6 DOI: 10.7759/cureus.7541
- Schwarz, N. & Strack, F. (1999). Reports of subjective well-being: Judgmental processes and their methodological implications. In: D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 61 – 84). New York: Russell Sage Foundation.
- Sheroun, D., Wankhar, D.D., Devrani, A. et.al. (2020) A study to assess the perceived stress and coping strategies among B.Sc. nursing students of selected colleges in Pune during COVID-19 pandemic lockdown. *International Journal of Science & Healthcare Research*. 2020; 5(2): 280 – 288.
- Topp, C.W., Østergaard, S.D., Søndergaard, S., & Bech P. (2015). The WHO-5 Well-Being Index: A Systematic Review of the Literature. *Psychother-apy and Psychosomatics*, 84, 167 – 176.
- Tov, W. (2018). Well-being concepts and components. In E. Diener, S. Oishi, & L. Tay (Eds.), *Handbook of well-being*. Salt Lake City, UT: DEF Publishers. DOI:nobascholar.com
- Veenhoven, R. (1991). Is happiness relative? *Social Indicators Research*, 24, 1 – 34.
- Velichkov, A. & Radoslavova, M. (2005). *Metodi za psihodiagnostica*. Sofia. (In Bulgarian).
- WHO. (1998). *Wellbeing Measures in Primary Health Care/The Depcare Project*. WHO Regional Office for Europe: Copenhagen <https://www.psykiatri-regionh.dk/who-5/who-5-questionnaires/Pages/default.aspx>
- Wang, J., Wang, J.X. & Yang, G.S. (2020). The Psychological Impact of COVID-19 on Chinese Individuals. *Yonsei medical journal*, 61 (5), 438 – 440. DOI:10.3349/ymj.2020.61.5.438
- Instead of social distancing, practice “distant socializing” instead*, urges Stanford psychologist <https://news.stanford.edu/2020/03/19/try-distant-socializing-instead/> – 29.03.2020

✉ **Galina Domuschieva-Rogleva**
ORCID ID: 0000-0001-9182-0079

Evelina Savcheva
ORCID ID: 0000-0002-8620-3567
National Sports Academy “Vassil Levski”
Sofia, Bulgaria
E-mail: galinarogleva@abv.bg