
STUDIES AND RESEARCHES

Impact of emotional vulnerabilities on the students' engagement in online courses during the lockdown period in SARS-COV2 pandemic crisis

Lect. **Carmen COSTEA-BĂRLUȚIU**

Special Education Department, Babeș-Bolyai University, Cluj-Napoca

Prof. **Adrian ROȘAN**

Special Education Department, Babeș-Bolyai University, Cluj-Napoca

Assoc.Prof. **Raluca MATEI**

Ovidius University, Constanța

Abstract

Our study investigated the association between the severity of impact of the SARS-COV2 pandemic crisis, the level of vulnerability (depression, anxiety, anger-hostility and somatic symptoms), emotional regulation (cognitive reappraisal and emotional suppression) and the level of engagement in online courses at the beginning of the SARS-COV2 crisis, during the lockdown period. A number of 931 participants, students in various Romanian universities, completed measures for the impact of events, emotional symptoms, emotional regulation and engagement in online course. The correlations show that the impact of the pandemic as traumatic event was associated with higher levels of vulnerability to psychopathology in our sample but did not have a highly negative impact on student engagement in online education. In turn, higher severity of psychopathological symptoms, especially hostility, was associated with lower engagement. Emotional regulation strategies had only a small effect on both vulnerability to psychopathology and trauma effects, with cognitive reappraisal being associated with higher engagement in online education.

Keywords: emotional vulnerability, impact of COVID-19 trauma, student engagement, online courses

Introduction

The problem of the Corona virus (SARS-CoV-2) infection (COVID-19) was declared by the World Health Organization a public health emergency at the beginning of 2020, while in March 2020 this problem was declared world pandemic (WHO, 2020). The usual life course was profoundly hijacked by the presence of the pandemic and the general quarantine state instituted in March had multiple effects on the general population, as well as on the university teaching system, which faced the need to adapt to a high challenge.

Faced with an unprecedented situation, governments took several measures in the attempt to effectively manage the impact of the pandemic on the general population, namely, to limit contamination and diminish the number of people needing intensive care unit support, as well as the number of deaths. Physical and social distancing were among the most widely implemented measures (Jaspal & Nerlich, 2020), while the population varied in the level of compliance to the imposed policies.

Impact of the SARS-CoV-2 pandemic on the university education

The sudden outbreak of the COVID-19 pandemic has implied a hastened transition from ordinary learning to the use of technologies and digital platforms in the learning process, as the replacement of face-to-face teaching with online teaching was among the preventive measures that governments took in the attempt to limit the virus spreading (Chen, 2021). For many teachers this transition was abrupt, as they lacked proper preliminary training and they had to adjust in a very short period of time to a totally new way of teaching, of interacting with students and presenting their course materials (Frey, 2021). In some cases, students' experiences were negatively impacted, and solutions needed to be found to develop a virtual classroom culture (Greenan, 2021).

Despite the effort to find ways to adapt to the new environment, the transition to emergency remote teaching raised several concerns about the impact on both teachers and students (Chen, 2021), although research on the effectiveness of online learning has proved that it can be as high as the traditional, brick-and-mortar learning (Potts, 2019), as well as popular, accessible, satisfactory for those involved in it (Omar, Hassan, & Atan, 2012). Overall, online courses were found to be as effective as traditional courses for students in higher education, as research cited by Dixon (2015) shows, but there is a need to implement various strategies in order to enhance teaching and learning in this environment.

In a world marked by immense fear, novelty, incertitude, unpredictability, the university system faced the need to propose a viable alternative, in which the students to be protected, the learning process to have continuity (Felix, 2021). The state of confusion from the quarantine period, the lack of stability and the lack of a clear deadline for the temporary situation of the school system were among the challenges that the university system faced during the pandemic period. The multitude of changes that the pandemic imposed, as well as the lack of knowledge about its course led to uncertainty, and subsequent anxiety for those involved in training in the field of health service psychology (Bell, Self, Davis III, Conway, Washburn, & Crepeau-Hobson, 2020). Many of the characteristics of the pandemic course could explain the increase of psychological symptoms of students and trainees, as well as teachers and trainers.

Students' engagement in classes (active engagement by thinking, talking, interacting with the content, to their colleagues, to the teacher) is critical to deep learning and may be a bigger challenge in online education, and phenomena such as the temptation to do other activities during classes (eg., play video games) represent critical elements in their involvement in the course, in their learning process (Dixon, 2015), and subsequently in the efficacy of the process. Various challenges to engagement, such as the disruptions in communication, the lack of social cues and limitation of nonverbal information (Greenan, 2021) are encountered in the online education environments, especially since some of the courses have an asynchronous structure (Purinton & Burke, 2019), meaning that they do not require the presence of all members at the same time. The impact of learning in virtual environments on cognitive presence (exploration), social presence (cohesion within groups, communication), as well as teaching presence (instruction, understanding) (Greenan, 2021) can lead to modified satisfaction in learning, as well as modification of the students' motivation, presence in courses, inclusion process,

development of relationships with peers, as well as the development of relationships with tutors (Greenan, 2021), the erosion of the sense of community among students (Chen, 2021). Thus, student engagement is an important goal in the effective virtual education process.

Psychological effects of the pandemic

It is nowadays widely accepted that the exposure to excessive and prolonged stress is associated to various clinical disorders (Goldstein, 2010), and adaptive coping strategies are required to reduce the impact of stressors on wellbeing. COVID-19 as public health emergency, along with the policies introduced in order to reduce its impact, represented a major prolonged stressor during 2020 academic year and represents a major crisis on medical, economic, and psychological levels (Zacher & Rudolph, 2021). Various countries reported a decline on the mental health of the population during COVID-19 crisis and university students were found to be a population with high psychological vulnerability to mental health concerns (Hamza, Ewing, Heath, & Goldstein, 2020), such as anxiety, depression, and psychological distress. Several other symptoms, such as loneliness, decrease in motivation, and sleep disturbances were also reported in populations of college students after the cancellation of in-person courses (Tasso, Hisli Sahin, San Roman, 2021).

As a result of the confrontation with the effects of the SARS outbreak in Taiwan and Hong Kong, research studies reported psychological and collective trauma effects (Lei & Klopach, 2020). The social impact of COVID-19 is much larger, so its effects are expected to be more dramatic. However, exposure to psychological trauma may also increase preparedness and risk awareness, which in turn lead to the effective engagement of coping mechanisms.

Another phenomenon that is associated with psychological sequelae is loneliness and social isolation (Luchetti, Lee, Aschwanden, Sesker, Strickhouser, Terracciano, & Sutin, 2020). Beam & Kim (2020) argue that teenagers and young adults are vulnerable populations to the negative effects of loneliness on physical, cognitive, and psychological health. Despite the negative effects that loneliness might have, some people, if not most of them, may be resilient (Luchetti et al., 2020) and not develop psychological symptoms.

Therefore, adaptive coping strategies are necessary to approach this threat, but positive behavioral changes cannot be obtained by eliciting negative affect, such as fear (Ruiter et al., 2014, in Jaspal & Nerlich, 2020). It is a fact that media coverage of the COVID-19 pandemic was many times threatening and news from various channels showed an abundance of fear-inducing messages, while the variety of restrictive measures might have had a threatening effect, although their purpose was primary a protective one.

Healthy emotion regulation is an important process that mediates the impact of stress on psychopathology. Emotional dysregulation is a characteristic in several mood and anxiety disorders, and regulation of emotions is crucial for healthy adaptation, both at individual and social levels (Cutuli, 2014). Although some emotion regulation strategies are considered more adaptive than others, research shows that there is no universally effective strategy for daily emotional well-being, and no strategy is inherently good or bad (Brockman, Ciarrochi, Parker, & Kashdan, 2016).

Cognitive reappraisal as emotion regulation strategy was considered a more adaptive way to deal with emotional content (Cutuli, 2014), as it involves cognitive change of the negative

content of potentially emotion eliciting situation in a way that modifies its impact, its meaning, thus decreasing negative affect without physiological expense (Cutuli, 2014, Brockman et al., 2016). Cognitive reappraisal was contrasted with emotion suppression, which involves active hiding, inhibition or reducing of emotion expressive behavior, with several costs on cognitive, physiological, relationship functioning domains (Cutuli, 2014, Brockman et al., 2016). Emotional suppression was associated with consequences on both social and physiological levels, increasing stress levels, blood pressure, reducing involvement and communication in relationships (Butler, Egloff, Wilhelm, Smith, Erickson, & Gross, 2003), as shown in experimental studies.

The use of cognitive reappraisal in daily life was associated with higher level of positive emotions, better and more authentic social relationships, as well as better performance in memory tasks, a better interpersonal functioning and well-being, lower depression, more satisfaction and optimism, higher self-esteem, environmental mastery level, personal growth, self-acceptance, coping skills, sense of autonomy (Cutuli, 2014, p. 2). Some of these characteristics have a role in effective learning, as well as in student engagement in online education, as described in the previous section.

Individual, contextual, situational factors, as well as culture, influence the usefulness of the emotional regulation strategies and each of them can be either adaptive or maladaptive depending on these factors. However, emotion suppression as a strategy tends to be generally more associated with increased negative affect and decreased positive affect and is therefore considered a maladaptive strategy, compared to cognitive reappraisal that tends to be more adaptive.

The current research aims at revealing the associations between the impact of COVID-19 as traumatic event, the levels of somatic and psychological symptoms (anxiety, depression, somatic complaints, anger-hostility), the engagement in online education and the type of emotional regulation strategies (cognitive reappraisal and emotion suppression) in college and master students at the beginning of the pandemic, during the lockdown period.

Method

Participants

A number of 931 Romanian students from all over the country, students and MA students in various fields participated in our study, an overwhelmingly high percentage were female gendered (96.1% of the total number), most coming from urban areas (60.1% of the total number). Most of the participants were young adults, with the mean age of the sample of 26.11(±8.89) years. The highest number of participants were students (74.7% of the total number) and the rest (25.3% of the total) master's degree students. Out of the total number who were bachelor level students, a percentage of 47.1% were students in the first year, 27.1% in the second year and 25.8% in the third year of study. Most of the students (89.2%) were enrolled in traditional learning programs (involving in-class meetings and face-to-face contact with teachers and colleagues). Most of the MA students were enrolled in the first year (75.6% of the total) in traditional programs.

Regarding their relational status, most participants (41% of the total number) declared they were involved in a relationship, a percentage of 27.9% were married, 27.5% were not

involved in a couple relationship, 2.4% were divorced and the rest had other types of involvement in a relationship. Most of the participants did not report to have any children (74.6% of the total number), while the rest declared they had children. With respect to their physical health, a high number of participants (88.1% of the total number) declared they had a good physical health, a small number declared they had small physical health problems (11.4% of the total number) and only a very small percentage (0.5% of the total) severe health problems.

Regarding the changes they had to make in order to adjust to the general quarantine instituted during the pandemic, a percentage of 41.6% had to move from the city they were living into their original home place. Most of the participants reported that they were not exposed to contacting the virus (79.4% of the total number) and a higher percentage (45.7%) declared that a close contact person is exposed to contacting the virus due to the professional activity or the proximity with people that can contact the virus.

Measures

Student engagement in online education

The Online Student Engagement Scale (OSE, Dixon, 2010, 2015) is a 19-item measure developed with the purpose to overcome the limitations of previous measures of engagement in online education. The scale is an in-depth measure of perceived engagement that significantly correlated with application behaviors in online courses, although it is a scale that evaluates students' perception of engagement and not their actual engagement (Purinton & Burke, 2019). It proved to be a valid measure that goes beyond behaviors and also measures emotional (5 items) and performance (2 items) engagement, skills (6 items) and participation (6 items) of students in online education. The scale proved to have good internal consistency ($\alpha=.91$), while its factor structure proved to be solid, with each item having a loading of .60 or higher in the corresponding factor (Dixon, 2010).

Emotional regulation

Emotion Regulation Questionnaire (Gross & John, 2003) was used to assess trait cognitive reappraisal and emotion suppression. Cognitive reappraisal refers to the tendency to engage in cognitive processes to change the emotional impact of a situation, while emotion suppression involves the tendency to inhibit emotion expressive behavior. The 10 items of the scale (6 for cognitive reappraisal and 4 for emotion suppression) are assessed on a 7-point Likert scale, from 1 (strongly disagree) to 7 (strongly agree), with higher scores reflecting increased use of the strategy. Both subscales proved to have good psychometric properties, reported by the authors (Gross & John, 2003). The scale was adapted for use in Romanian language by the authors.

Psychological and somatic symptoms

We used the Symptom Questionnaire (SQ, Kellner, 1987) as it is an easy-to-use scale that assesses a wide variety of symptoms. The 92 items of the scale are divided in two subscales: one for symptoms (68 items) and the other for well-being (24 items) and each subscale can be further divided into other 4 subscales, including somatic symptoms/ somatic well-being (23 items), depression/ contented (23 items), anxiety/ relaxed (23 items), and anger-hostility/ friendly (23

items). Each item is phrased in a simple manner and is rated yes/no, depending on the presence or absence of the characteristic. The instrument proved to have good properties, namely high internal consistency, test-retest reliability, as well as significant associations with a variety of other similar measures (Hiller & Janca, 2003). The author documented the usefulness of the SQ in both research and clinical work (Kellner, 1987), while a very recent systematic review of the properties of the measure (Benasi, Fava, & Rafanelli, 2020) concluded that the measure was used on a wide variety of populations and managed to discriminate between clinical and nonclinical cohorts, to differentiate psychiatric patients from healthy controls, was sensitive to symptoms and well-being changes. Therefore, the authors strongly recommended the use of the SQ in clinical trials.

Impact of traumatic events

The reactions to highly stressful, traumatic events, were measured using the Impact of Event Scale (IES, Horowitz, Wilner, & Alvarez, 1979), a 15-item instrument that assesses the reactions that people have to specific events that are considered traumatic. Subscores for intrusive (7 items) and avoidance (8 items) experiences can be computed, as they reflect the experiences that most people have when confronted with trauma. Each of the items is assessed on a 6-point Likert scale, from 0 (not at all) to 5 (often). Good psychometric properties were reported by the authors, namely adequate test-retest values and good internal consistency of the subscales. In the current study, participants were requested to rate the items thinking about their reactions to the COVID-19 pandemic.

Procedure

The participants were recruited based on their willingness to voluntarily participate in our research, from several universities situated in various areas in Romania, with the help of contact persons from the particular universities. An informed consent was given about the goals of our research and the scales were administered using the EU free platform for instrument design (EUSurvey, ec.europa.eu).

Results and discussion

We will report and discuss in the current study the associations we found between symptoms, impact of the traumatic event, emotional regulation, and engagement in online courses. We will report elsewhere the differences we found in psychopathological features, emotional regulation, impact of the COVID-19 pandemic as traumatic event and the engagement in online education, based on various characteristics of our sample (such as their reported physical health, their own and their significant person's risk to contact the virus, the impact of changes they had to make following the debut of the pandemic, such as moving out of the town they were studying in etc.). Also, a deeper discussion of the impact of the pandemic on the increase of psychopathology will be reported in a subsequent publication.

The Pearson correlations between variables shows highly significant and consistent associations between psychopathological traits (anxiety, depression) and the experience of

intrusion and avoidance specific to COVID-19 trauma. As shown in table 1, the participants who experienced higher levels of anxiety, depression, anger, and somatic complaints also experienced higher levels of intrusive thoughts related to the pandemic and to a much lower extent the psychopathological symptoms were related to the experience of avoidance of reminders of the traumatic event.

Our results are interesting, as they prove the higher exposure of vulnerable students to the impact of the pandemic. Thus, the pandemic may increase their psychological vulnerability, or the opposite, their vulnerability might increase their uncomfortable reactions to the pandemic. Either way, the fact that the intrusive reminders of trauma were more related to the psychological vulnerability is a solid argument for the fact that intrusive images in media, as well as the inflation of media coverage and information about COVID-19 that was present during the lockdown period might have negatively influenced the population.

Table 1. Associations between psychopathology, traumatic reactions, emotional regulation and engagement in online education

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------------------|---------|---------|---------|---------|---------|--------|--------|-------|
| 1. SQ_anx | | | | | | | | |
| 2. SQ_depr | .826** | | | | | | | |
| 3. SQ_anger | .720** | .730** | | | | | | |
| 4. SQ_somatic | .652** | .644** | .566** | | | | | |
| 5. IES_intrusion | .637** | .557** | .440** | .478** | | | | |
| 6. IES_avoidance | .220** | .193** | .178** | .151** | .380** | | | |
| 7. ERQ_reappraisal | -.160** | -.187** | -.204** | -.143** | -.073* | .203** | | |
| 8. ERQ_suppression | .137** | .213** | .196** | .149** | .133** | .187** | .068* | |
| 9. OSE | -.229** | -.282** | -.309** | -.211** | -.104** | .058 | .240** | -.054 |

*significant (p<.05) **highly significant (p<.01)

Another interesting result was the significance of the association between psychopathology and emotional regulation in our study. Although consistent with previous research showing that cognitive reappraisal is a more effective strategy for emotional regulation (thus its association with lower levels of anxiety, depression, anger/ hostility, and somatic complaints in our study), the values of the correlations were low, showing a less intense level of association between variables. It is possible that during that period of lockdown, the students' emotional regulation strategies were impacted by the unprecedented situation and that they were left in a dysregulated emotional state, at least at the time of our investigation. Although it is a speculative hypothesis, but based on other research published so far, we think this might have been the case for the general population and not just the sample included in our study.

Suppression as a regulation strategy, as expected, was associated with detrimental effects on both psychological health and the impact of trauma, making it a maladaptive strategy for emotional regulation during the COVID-19 pandemic. As shown in table 1, emotional suppression was associated with higher levels of anxiety, depression, anger/ hostility, and somatic complaints, as well as higher levels of intrusion and avoidance of reminders of the traumatic event.

Both emotional regulation strategies were associated with a higher tendency to avoid the reminders of the COVID-19 traumatic event, with cognitive reappraisal a stronger correlate of avoidance of the trauma reminders. Given the association with higher avoidance, we may face a tendency of the population to withdraw, as a consequence of the pandemic. The measures that were imposed in order to limit the spreading of the infection might have had a role in this association, as well as the exposure to very negative information, to highly intrusive negative images spread by the media and to social phenomena that occurred in the given period of time.

With respect to the student engagement in online classes, our results were show lower engagement of students with higher proneness to anxiety, depression, somatic complaints and especially anger/ hostility. The impact of trauma reactions on student engagement was much lower, although intrusive thoughts were negatively associated with engagement, but with a small intensity. Among the emotional regulation strategies, only cognitive reappraisal was positively associated with the overall student engagement.

Conclusions

Regarding the emotional regulation during the initial period of exposure to COVID-19 pandemic, the student population seemed to be in a particular state. Cognitive reappraisal proved to be a better emotional regulation strategy in the face of the COVID-19 exposure, but its association with lower levels of psychopathological symptoms (anxiety, depression, anger/ hostility, and somatic complaints) was small in intensity. Emotional suppression proved to be a maladaptive strategy in the period of lockdown, as it was associated with higher levels of psychopathological symptoms. We can conclude, on the base of our results, that the population might have been left in state of emotional dysregulation, and an increased risk of psychological vulnerability in the face of COVID-19 pandemic.

Vulnerability to psychopathology seems to negatively impact student engagement in online education, with especially the proneness to anger/ hostility a negative correlate of engagement. Given the negative impact that psychopathology might have on student engagement in online education, psychological support, as well as the care for students' mental health could be a strategy to increase engagement and effectiveness of higher education in online and virtual environments.

We might conclude that educational settings might become the place where students can find protection against negative impact of trauma on their mental health, as learning, belonging to a community of colleagues with similar values and interests might in itself become a buffer in front of risks associated with the pandemic, as well as a strategy to regulate the negative emotional effects of the pandemic.

References

- Beam, C.R., Kim, A.J. (2020). Psychological Sequelae of Social Isolation and Loneliness Might Be a Larger Problem in Young Adults Than Older Adults, in *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), p. S58-S60;
- Bell, D.J., Self, M.M., Davis III, C.D., Conway, F., Washburn, J.J., Crepeau-Hobson, F. (2020). Health Service Psychology Education and Training in the Time of COVID-19: Challenges and Opportunities, in *American Psychologist*, 75(7), p. 919-932;
- Benasi, G., Fava, G.A., Rafanelli, C. (2020). Kellner's Symptom Questionnaire, a Highly Sensitive Patient-Reported Outcome Measure: Systematic Review of Clinimetric Properties, in *Psychotherapy and Psychosomatics*, 89, p. 74-89;
- Brockman, R., Ciarrochi, J., Parker, P. & Kashdan, T. (2016). Emotion regulation strategies in daily life: mindfulness, cognitive reappraisal and emotion suppression, in *Cognitive Behaviour Therapy*, p. 1-23;
- Butler, E. A., Egloff, B., Wilhelm, F. H., Smith, N. C., Erikson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion*, 3, 48-67;
- Chen, S. (2021). Interpersonal Communication Instruction during COVID-19: Challenges and Opportunities, in *Frontiers in Communication*, doi: 10.3389/fcomm.2021.652241;
- Cutuli, D. (2014). Cognitive reappraisal and expressive suppression strategies role in the emotion regulation: an overview on their modulatory effects and neural correlates, in *Frontiers in Systems Neuroscience*, 8, p. 1-6;
- Dixson, M. D. (2010). Creating effective student engagement in online courses: What do students find engaging? *Journal of Scholarship of Teaching and Learning*, 10(2), 1-13;
- Dixson, M. D. (2015). Measuring Student Engagement In the Online Course: The Online Student Engagement Scale (OSE), in *Online Learning*, 19(4), 1-15;
- Felix, J.J. (2021). Higher education in times of instability and disruption: Rethinking notions of values, value creation and instructional practices in Vietnam and beyond, in *Frontiers in Communication*, doi: 10.3389/fcomm.2021.647471;
- Frey, T.K. (2021). Overcoming Technological Barriers to Instruction: Situating Gen Z Students as Reverse Mentors, in *Frontiers in Communication*, doi.org/10.3389/fcomm.2021.630899;
- Goldstein, D.S. (2010). Adrenal Responses to Stress, in *Cell Mol Neurobiol*, 30(8), p. 1433-1440;
- Greenan, K.A. (2021). The Influence of Virtual Education on Classroom Culture, in *Frontiers in Communication*, doi: 10.3389/fcomm.2021.641214;
- Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348-362;
- Hamza, C.A., Ewing, L., Heath, N.L., Goldstein, A.L. (2020). When Social Isolation is Nothing New: A Longitudinal Study Psychological Distress During COVID-19 Among University Students With and Without Preexisting Mental Health Concerns, in *Canadian Psychology/ Psychologie Canadienne*, Advance Online Publication, p. 1-11, <http://dx.doi.org/10.1037/cap0000255>;
- Hiller, W., Janca, A. (2003). Assessment of somatoform disorders: a review of strategies and instruments, in *Acta Neuropsychiatrica*, 15, p. 167-179;
- Horowitz, M., Wilner, N., Alvarez, W. (1979). Impact of Event Scale: A Measure of Subjective Stress, in *Psychosomatic Medicine*, 41(3), p. 209-218;
- Jaspal, R., Nerlich, B. (2020). Social Representations, Identity Threat, and Coping Amid COVID-19, in *Psychological Trauma: Theory, Research, and Policy*, 12(S1), p. S229-S251;
- Kellner, R.A. (1987). Symptom Questionnaire, in *Journal of Clinical Psychiatry*, 48, p. 268-274;
- Lei, M.-K., Klopach, E.T. (2020). Social and Psychological Consequences of the COVID-19 Outbreak: The Experiences of Taiwan and Hong Kong, in *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), p. S35-S37;
- Luchetti, M., Lee, J.H., Aschwanden, D., Sesker, A., Strickhouser, J.E., Terracciano, A., Sutlin, A.R. (2020). The Trajectory of Loneliness in Response to COVID-19, in *American Psychologist*, 75(7), p. 897-908;
- Omar, N.D., Hassan, H., Atan, H. (2012). Student Engagement in Online Learning: Learners Attitude Toward E-Mentoring, in *Procedia – Social and Behavioral Sciences*, 67, p. 464-475;

- Potts, J.A. (2019). Profoundly Gifted Students' Perceptions of Virtual Classrooms, in *Gifted Child Quarterly*, 63(1), p. 58-80;
- Purinton, E.F., Burke, M.M. (2019). Engaging Online Students: Using a Multisensory Exercise for Deeper, Active Learning, in *Marketing Education Review*, 30(1), p. 29-42;
- Tasso, A.F., Hisli Sahin, N.H., San Roman, G.J. (2021). COVID-19 Disruption on College Students: Academic and Socioemotional Implications, in *Psychological Trauma: Theory, Research, Practice, and Policy*, 13(1), p. 9-15;
- Zacher, H., Rudolph, C.W. (2020). Individual Differences and Changes in Subjective Wellbeing During the Early Stages of the CIVID-19 Pandemic, in *American Psychologist*, 76(1), p. 50-62.