

Prospective posttraumatic growth following the COVID-19 health crisis. Younger people consider more the probability of positive outcomes following the pandemic

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Abstract: In the current study we explored prospective posttraumatic growth outcomes four weeks following restrictive social measures imposed by the Romanian government (i.e., social distancing, self-isolation, closing schools) in order to contain the novel coronavirus. Our cross-sectional, mixed-method study approach included a sample of 237 adults, aged 18 to 68 ($M=28.63$, $SD=11.41$, 77.6% females). Our main findings revealed that younger individuals were more likely to consider the possibility of positive outcomes following the pandemic, while older ones instead considered them improbable. The most favorable outcomes were anticipated within prospective environmental improvements (i.e., pollution reduction), followed by interpersonal relationship changes. Younger individuals were more likely to consider positive outcomes related to interpersonal relations, personal power, spiritual change, and pollution reduction. At the same time, older people were more likely to consider pandemic-related positive outcomes in terms of new possibilities and appreciation of life. Results are discussed within the posttraumatic growth framework, emphasizing their importance in explaining people's social and psychological responses to the COVID-19 pandemic.

Keywords: pandemic, age, trauma, posttraumatic growth, positive outcomes, psychological response

Introduction

Since its beginning in March 2020, the COVID-19 pandemic that emerged in Wuhan, China, brought significant changes to the world as we knew it. Millions of people worldwide lost their jobs, hundreds of thousands have died, and millions have been infected with the novel coronavirus. While we are still adjusting to the new social and legal norms imposed by the highly contagious SARS-CoV-2, we are also facing a global disrupted

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society and a considerable amount of individual and collective problems such as uncertainty, depression and anxiety, posttraumatic stress disorders, fear, and panic (see Bo *et al.*, 2020; Horesh, Brown, 2020; Lai *et al.*, 2020; Liu *et al.*, 2020; Jakovljevic, Bjedov, Jaksic, Jakovljevic, 2020; Mahmud, Talukder, Rahman, 2020; Özdin, Bayrak Özdin, 2020; Vindegaard, Benros, 2020). According to Lyons, Frampton, Naqvi, Donohoe, Adams, and Glinn (2020), the world should prepare for a persistent negative mental health impact following the COVID-19 epidemic, in line with previous similar contexts, such as the SARS (2003) and H1N1 (1918) outbreaks.

Although there is a growing number of studies examining the negative psychological impact of the COVID-19 pandemic, only a few of them (e.g., Kalaitzaki, Tamiolaki, Rovithis, 2020; Shakespeare-Finch *et al.*, 2020; Tamiolaki, Kalaitzaki, 2020) explored the potential positive outcomes (i.e., posttraumatic growth) that may occur in the context of the current coronavirus health crisis, despite its adversities. Posttraumatic growth (PTG) explains the positive psychological changes one may experience following trauma or a highly challenging life crisis (Tedeschi, Calhoun, 2004). The theory of posttraumatic growth argues that the negative experience of trauma is necessary for the reconstruction of disturbed belief systems. Numerous other studies supported this perspective, according to which the perception of posttraumatic personal development increases in people who report a previous confrontation with PTSD, following exposure to trauma (see Blix, Hansen, Birkeland, Nissen, Heir, 2013; Wlodarczyk, *et al.*, 2016). According to some researchers, traumatic stress may coexist with PTG, a certain level of stress being considered essential for the occurrence of PTG in some areas (Angel, 2016; Lancaster, Klein, Nadia, Szabo, Morgan, 2015). A low level of PTSD symptomatology may indicate that a person may be less affected by an adverse event, suggesting that the likelihood of PTG is relatively low.

According to Tedeschi and Calhoun (2004), 40 to 70% of people experiencing trauma might report benefits from their experience. A subsequent systematic review (Linley, Joseph, 2004) confirmed the positive change in survivors of various traumatic events, such as health issues (e.g., HIV/AIDS, leukemia, or cancer), inter-personal experiences (e.g., rape, sexual assault), bereavement, or immigration. Optimism, social support, religious coping, and positive reappraisal coping are among the most significant factors that enhance positive change after traumatic experiences (see Prati, Pietrantonio, 2008). Following natural disasters, for example, the research found that people's employment status, religiousness, family type, and flexibility were positively associated with PTG (Augustine, 2014).

A generous amount of studies also focused on both the physical and psychological consequences of a similar life-threatening situation, the severe acute respiratory syndrome (SARS) outbreak. Most of them revealed the adverse outcomes (see Nickell *et al.*, 2004), with only a few exceptions related to the positive consequences (see Cheng, Wong, Tsang, 2006; Lau, Yang, Tsui, Pang, Wing, 2005). Findings showed that the SARS epidemic made people pay more attention to their mental health, care more about their families and friends, and made them more altruistic (Lau, Yang, Tsui, Pang, Wing, 2005). Nevertheless, the COVID-19 epidemic is no SARS (SARS-COV) outbreak. Though the whole genome of the COVID-19 (SARS-COV-2) is 86% similar to SARS-COV (Chan *et al.*, 2020), and they both emerged in China, the epidemic trajectory is not the same (Wilder-Smith, Chiew, Lee, 2020), and this applies for people's psychological reactions and adjustments, as well. For example, since its emergence in November 2002 to the moment it was contained, SARS killed almost 800 people.

Meanwhile, at the time of writing (October 2020), COVID-19 killed more than 1.1 million people worldwide¹, and 40 million people were infected. Therefore, though PTG outcomes may be similar, those related to the present pandemic might be even more powerful. The interest in researching the mechanisms associated with posttraumatic development is all the more critical as the way we cope with disaster and the lessons we struggle to learn and understand following the COVID-19 pandemic might serve as PTG strategies for our children.

The present research

The researchers that already addressed the possible link between posttraumatic growth and COVID-19 (see Kalaitzaki, Tamiolaki, Rovithis, 2020; Shakespeare-Finch *et al.*, 2020; Tamiolaki, Kalaitzaki, 2020) explored the connection at a theoretical level. In the current study, we took a step forward by exploring the anticipated posttraumatic growth following the COVID-19 health crisis in a sample of Romanian adults, four weeks after the pandemic outbreak. Based on Tedeschi and Calhoun's PTG conceptual foundations, we expected a series of prospective positive changes following the COVID-19 pandemic. We were interested in the way participants considered these posttraumatic outcomes in terms of appreciation of life, interpersonal relationships, spiritual change, openness to new possibilities, and a reevaluation of choices and their meaning to our existence. We chose to assess prospective posttraumatic growth instead of current PTG, at the time of the assessment, due to: a) the previous findings related to the importance of goal priming, future planning, and goal characteristics on one's general psychological adjustment following adverse events such as the current pandemic (see Coffey, Gallagher, Desmond, 2014; Papiés, 2016); b) the unpredictable and uncertain character of the pandemic.

Method

We designed and ran a web-based survey four weeks following the lockdown measures (i.e., to contain the SARS-CoV-2 virus) imposed by the Romanian government in April 2020. We followed the ethical standards implied by the 2013 Helsinki Declaration. A consent form presented the study's primary objective as being related to the general perception of the COVID-19 pandemic. All participants were informed of their right to withdraw from the study any time they wanted and that all the data they provided would be kept confidential. The testing procedure took around ten minutes.

The participants were 237 Romanian adults, aged 18 to 68 ($M=28.63$, $SD=11.41$, 77.6% females). Participation was voluntary, and the only exclusion criterion was age-related (i.e., participants had to be 18 or older). The survey was distributed using online social platforms and university groups, and the link was available for one week.

Measures

Following the demographic scale (i.e., participants' age and gender), we addressed two open-end questions: 1) *Do you think there is a positive outcome post-pandemic?*; 2) *If you answered "yes" to the previous question, please offer your perspective upon the positive consequences following the COVID-19 pandemic.* There was no textual limitation of the answers given.

Results

Two independent researchers analyzed the participants' answers. Each answer was coded into a category, detailed in Table 1. Out of the 237 participants, 74% of them considered that the COVID-19 would bring positive outcomes; therefore, 26% answered negatively to our first question. Cohen's kappa ($\kappa=.89$) indicated strong inter-rater reliability between the two coders (McHugh, 2012).

Most of the participants (around 25%) considered that the main positive effect of the pandemic would reflect upon pollution reduction and environmental dimensions (i.e., "We will finally have fresh air", "People will start realizing how bad we injured our environment"), followed by finding of new possibilities (16%). An increase in quality of interpersonal relations (i.e., "I would appreciate more time spent with my friends") was considered by 15% of the respondents, followed by a different appreciation of life (around 10%), an increase of personal power (7%), and spiritual change (4%). However, several participants ($N=57$, 24.1%) could not offer a specific positive outcome, though they answered our second question affirmatively. In other words, they confirmed a positive potential outcome of the pandemic but could not provide a specific example.

Table 1. Positive outcomes following the COVID-19 epidemic ($N=237$)

Positive outcome	Sample of answers given	N	%
Interpersonal relations	<i>We will enjoy our family and friends more.</i>	36	15.2
New possibilities	<i>We will now consider doing the things we have been postponing due to several reasons such as the lack of time.</i>	38	16.0
Personal power	<i>When facing real difficulties such as these, we are forced to grow, to find ourselves, and to rediscover our power and abilities.</i>	16	6.8
Spiritual change	<i>The pandemic is a general moment for introspection and spiritual reconnection, for all humankind.</i>	9	3.8
Appreciation of life	<i>We will pay more attention to health, life, and the people around us.</i>	23	9.7
Pollution reduction	<i>The planet would no longer be suffocated by pollution.</i>	58	24.5
I do not know	<i>I do not know.</i>	57	24.1

We further performed Chi-square tests to explore the associations between demographic variables (i.e., gender and age) and: a) the possibility of positive outcomes following the pandemic; b) the nature of these prospective positive outcomes. We found no association between gender and the possibility of positive outcomes ($X^2=.094$, $p=.759$). However, we found a significant association with age ($X^2=7.04$, $p=.008$): younger individuals were more likely to consider the possibility of positive outcomes following the pandemic, while older ones instead considered them improbable. Results also suggested no significant links to gender ($X^2=1.73$, $p=.942$) but a marginally significant association with age ($X^2=12.36$, $p=.054$). Thus, younger individuals were more likely to consider positive outcomes related to interpersonal relations, personal power, spiritual change, and pollution reduction. At the same time, older people were more likely to consider pandemic-related positive outcomes in terms of new possibilities and appreciation of life.

General discussion

The main objective of the current research was to assess potential positive outcomes following a worldwide tragedy such as the current one. Following the PTG framework, we explored participants' assessments of prospective post-pandemic benefits in terms of interpersonal relationships, new possibilities, personal power, spiritual change, or appreciation of life.

Results suggested that most participants (74%) considered the current health crisis as an opportunity for positive changes in interpersonal relationships, self-power, and within their general perception and attitude towards life and nature, in general. Though we followed Tedeschi and Calhoun's conceptual guidelines and included participants' answers according to the authors' five categories, we unexpectedly found a significant number of people considering environmental benefits following the pandemic (e.g., pollution reduction). This particular result highlights the general concern for unhealthy nature-oriented behaviors and suggests an optimistic possibility for fewer such destructive environmental conducts. Thus, the moral responsibility towards nature may be determined by the different appreciation for nature due to lockdown measures that restricted outdoor activities.

Our data suggested that individuals were more likely to consider the possibility of positive outcomes following the pandemic, while older ones instead considered them improbable. Younger people's more optimistic perspective may be based on the fact that the novel coronavirus is highly dangerous for older people compared to younger ones (Gardner, States, Bagley, 2020; Leung, 2002; Morley, Vellas, 2020). Therefore, older individuals may be significantly more emotionally affected by the pandemic, and, consequently, their perspective is more pessimistic, all the more with the daily news that abounds with stories reporting a large number of deaths among the elderly.

A comprehensive meta-analysis exploring gender differences in self-reported post-traumatic growth by Vishnevsky, Cann, Calhoun, Tedeschi and Demakis (2010) suggested that women reported more posttraumatic growth than men. More recent studies confirmed these findings among HIV patients (Rzeszutek, Oniszczenko, Włodzimierz, Firląg-Burkacka, 2016) and disaster survivors (Akbar, Witruk, 2016). However, our results did not confirm previous data related to women's proneness to higher posttraumatic growth outcomes than males. One potential explanation may rely on the pandemic's exceptional character, dominated by uncertainty, unknown, and, generally, fear.

A series of limits for the current research must be addressed. First, all measures were self-reported, and social desirability may have interfered with the veracity of participants' answers. Second, our convenient samples were not balanced in terms of gender. Future research may want to explore the present ideas using more extensive, more representative samples of adults. However, the present research contributes to a better understanding of people's perception of prospective posttraumatic growth following the COVID-19 pandemic.

Conclusion

People's social and psychological responses to the SARS-CoV-2 health crisis are crucial during challenging times such as the current ones. Therefore, exploring prospective PTG outcomes is highly important for the future collective and individual counseling programs following the pandemic, and our preliminary results may be considered a valuable starting point for effective intervention strategies. Our preliminary findings highlight the importance of focusing on resilience and coping strategies among the elderly, who are at a

higher risk of developing depression and anxiety symptoms, and other health-risk related factors due to their proneness of getting infected with the novel coronavirus.

Rezumat: În studiul de față am explorat dezvoltarea post-traumatică prospectivă în contextul pandemiei COVID-19, la patru săptămâni după impunerea de către guvernul român a unor măsuri sociale restrictive (distanțarea socială, autoizolarea, închiderea școlilor) pentru a preveni răspândirea noului coronavirus. Abordarea transversală din prezentul studiu a utilizat metode mixte de analiză și a inclus un eșantion de 237 de adulți, cu vârste cuprinse între 18 și 68 de ani ($M=28.63$, $SD=11.41$, 77,6% femei). Principalele noastre constatări au sugerat că persoanele mai tinere consideră într-o proporție semnificativ mai mare posibilitatea unor consecințe pozitive în urma pandemiei, în timp ce persoanele mai în vârstă le consideră mai degrabă improbabile. Cele mai favorabile consecințe post-pandemice au fost anticipate în contextul schimbărilor climatice și cele ce vizează natura în general (respectiv reducerea nivelului de poluare), urmate de schimbări semnificative în contextul relațiilor interpersonale. De asemenea, persoanele mai tinere au avut tendința de a lua mai mult în considerare rezultatele pozitive legate de relațiile interumane, puterea personală, schimbările spirituale și reducerea poluării. În același timp, persoanele în vârstă s-au axat mai mult pe rezultatele pozitive post-pandemice în ceea ce privește noile posibilități și aprecierea vieții. Rezultatele sunt discutate în contextul teoriilor legate de dezvoltarea post-traumatică, subliniind importanța acestora în explicarea răspunsurilor sociale și psihologice ale oamenilor la pandemia COVID-19.

Cuvinte-cheie: pandemie, vârstă, traumă, dezvoltare post-traumatică, consecințe pozitive, răspuns psihologic

Résumé: Dans l'étude présente, nous avons exploré les résultats prospectifs de la croissance post-traumatique quatre semaines à la suite de mesures sociales restrictives imposées par le gouvernement roumain (e.g., c'est-à-dire éloignement social, auto-isolement, fermeture d'écoles) pour contenir le nouveau coronavirus. Notre approche d'étude transversale et à méthodes mixtes a inclus un échantillon de 237 adultes, âgés de 18 à 68 ans ($M=28.63$, $SD=11.41$, 77.6% femmes). Nos conclusions principales ont révélé que les personnes plus jeunes étaient plus susceptibles d'envisager la possibilité de résultats positifs après la pandémie, tandis que les plus âgés les considéraient plutôt comme improbables. Les résultats les plus favorables ont été anticipés dans le cadre des améliorations environnementales prospectives (e.g., réduction de la pollution), suivis des changements des relations interpersonnelles. Les personnes plus jeunes étaient plus susceptibles d'envisager des résultats positifs liés aux relations interpersonnelles, au pouvoir personnel, au changement spirituel et à la réduction de la pollution. Dans le même temps, les personnes âgées étaient plus susceptibles de considérer les résultats positifs liés à la pandémie en termes de nouvelles possibilités et d'appréciation de la vie. Les résultats sont discutés dans le cadre de la croissance post-traumatique, en soulignant leur importance pour expliquer les réponses sociales et psychologiques des gens à la pandémie de COVID-19.

Mots-clés: pandémie, âge, traumatisme, croissance post-traumatique, des résultats positifs, réponse psychologique

Ethics statement. All participants voluntarily participated in the study and gave written informed consent following the Declaration of Helsinki and the national laws from Romania regarding the ethical conduct in scientific research, technological development, and innovation.

Both authors contributed equally to conceive and design the primary goal of the study, analyse the data, and write the manuscript.

Conflict of interest. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare no financial interests/personal relationships, which may be considered as potential competing interests.

Funding information. This research did not receive any specific grant from funding agencies.

References

- Akbar, Z., Witruk, E. (2016). Coping Mediates the Relationship Between Gender and Posttraumatic Growth. *Procedia – Social and Behavioral Sciences*, 217(5), 1036-1043.
- Andersen, K.G., Rambaut, A., Lipkin, W.I., Holmes, E.C., Garry, R.F. (2020). The proximal origin of SARS-CoV-2. *Nature Medicine*, 26, 450-452. DOI: 10.1038/s41591-020-0820-9
- Angel, C.M. (2016). Resilience, posttraumatic stress, and posttraumatic growth: Veterans' and active duty military members' coping trajectories following traumatic event exposure. *Nurse Education Today*, 47, 57-60. Available online: <https://DOI.org/10.1016/j.nedt.2016.04.001>
- Augustine, J. (2014). Predictors of Posttraumatic Growth Among Adult Tsunami Survivors: The Role of Employment, Religion, and Family Attributes. *Journal of Social Service Research*, 40(4), 491-507. DOI: 10.1080/01488376.2014.894368
- Blix, I., Hansen, M., Birkeland, M., Nissen, A., Heir, T. (2013). Posttraumatic growth, posttraumatic stress and psychological adjustment in the aftermath of the 2011 Oslo bombing attack. *Health and quality of life outcomes*, 11(1), 160. <https://DOI.org/10.1186/1477-7525-11-160>
- Bo, H.X., Li, W., Yang, Y., Wang, Y., Zhang, Q., Cheung, T., Wu, X., Xiang, Y.T. (2020). Posttraumatic stress symptoms and attitude toward crisis mental health services among clinically stable patients with COVID-19 in China. *Psychological medicine*, 1-2.
- Chan, J.F.-W., Kok, K.-H., Zhu, Z., Chu, H., To, K.K.-W., Yuan, S., Yuen, K.-Y. (2020). Genomic characterization of the 2019 novel human-pathogenic coronavirus isolated from a patient with atypical pneumonia after visiting Wuhan. *Emerging Microbes & Infections*, 9(1), 221-236. DOI: 10.1080/22221751.2020.1719902.
- Cheng, C., Wong, W., Tsang, K.W. (2006). Perception of Benefits and Costs During SARS Outbreak: An 18-Month Prospective Study. *Journal of Consulting and Clinical Psychology*, 74(5), 870-879. DOI: 10.1037/0022-006X.74.5.870
- Coffey, L., Gallagher, P., Desmond, D. (2014). A prospective study of the importance of life goal characteristics and goal adjustment capacities in longer term psychosocial adjustment to lower limb amputation. *Clinical rehabilitation*, 28(2), 196-205. Available online: <https://DOI.org/10.1177/0269215513497736>
- Gardner, W., States, D., Bagley, N. (2020). The Coronavirus and the Risks to the Elderly in Long-Term Care. *Journal of Aging & Social Policy*, 32, 1-6. Available online: <https://DOI.org/10.1080/08959420.2020.1750543>
- Horesh, D., Brown, A.D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological trauma: theory, research, practice and policy*, 12(4), 331-335. Available online: <https://DOI.org/10.1037/tra0000592>
- Jakovljevic, M., Bjedov, S., Jaksic, N., Jakovljevic, I. (2020). COVID-19 Pandemia and Public and Global Mental Health from the Perspective of Global Health Security. *Psychiatria Danubina*, 32(1), 6-14. Available online: <https://DOI.org/10.24869/psyd.2020.6>
- Kalaitzaki, A.E., Tamiolaki, A., Rovithis, M. (2020). The healthcare professionals amidst COVID-19 pandemic: A perspective of resilience and posttraumatic growth. *Asian journal of psychiatry*, 52, 102-172. Advance online publication. Available online: <https://DOI.org/10.1016/j.ajp.2020.102172>
- Lancaster, S.L., Klein, K.R., Nadia, C., Szabo, L., Mogeran, B. (2015). An integrated model of posttraumatic stress and growth. *Journal Of Trauma & Dissociation*, 16(4), 399-418.
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., ..., Hu, S. (2020). Factors Associated with Mental Health Outcomes Among Health Care Workers Exposed to Coronavirus Disease 2019. *JAMA network open*, 3(3), e203976. Available online: <https://DOI.org/10.1001/jamanetworkopen.2020.3976>

- Lau, J.T., Yang, X., Tsui, H.Y., Pang, E., Wing, Y.K. (2006). Positive mental health-related impacts of the SARS epidemic on the general public in Hong Kong and their associations with other negative impacts. *The Journal of Infection*, 53(2), 114-124. DOI: 10.1016/j.jinf.2005.10.019
- Leung, C. (2020). Risk factors for predicting mortality in elderly patients with COVID-19: A review of clinical data in China. *Mechanisms of ageing and development*, 188, 111-255. Advance online publication. Available online: <https://DOI.org/10.1016/j.mad.2020.111255>
- Linley, P.A., Joseph, S. (2004). Positive change following trauma and adversity: a review. *Journal of Traumatic Stress*, 17(1), 11-21.
- Liu, N., Zhang, F., Wei, C., Jia, Y., Shang, Z., ..., Liu, W. (2020). Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: Gender differences matter. *Psychiatry Research*. DOI: 10.1016/j.psychres.2020.112921.
- Lyons, D., Frampton, M., Naqvi, S., Donohoe, D., Adams, G., Glynn, K. (2020). Fallout from the Covid-19 pandemic – should we prepare for a tsunami of post viral depression? *Irish journal of psychological medicine*, 1-10. Advance online publication. Available online: <https://DOI.org/10.1017/ijpm.2020.40>
- Mahmud, M.S., Talukder, M.U., Rahman, S.M. (2020). Does “Fear of COVID-19” trigger future career anxiety? An empirical investigation considering depression from COVID-19 as a mediator. *International Journal of Social Psychiatry*. Available online: <https://DOI.org/10.1177/0020764020935488>
- McHugh, M.L. (2012). Interrater reliability: the kappa statistic. *Biochemia Medica*, 22(3), 276-282.
- Morley, J.E., Vellas, B. (2020). Covid-19 and Older Adults. *The Journal of Nutrition, Health & Aging*, 24(4), 364-365. Available online: <https://DOI.org/10.1007/s12603-020-1349-9>
- Nikell, L.A., Crighton, E.J., Shawn Tracy, C., Al-Enazy, H., Bolaji, Y., Hanjrah, S., ..., Upshur, R.E.G. (2004). Psychosocial effects of SARS on hospital staff: survey of a large tertiary care institution. *Canadian Medical Association Journal*, 170(5), 793-798. DOI: 10.1503/cmaj.1031077
- Papies, E.K. (2016). Goal priming as a situated intervention tool. *Current Opinion in Psychology*, 12, 12-16. Available online: <https://DOI.org/10.1016/j.copsyc.2016.04.008>
- Özdin, S., Bayrak Özdin, Ş. (2020). Levels and predictors of anxiety, depression and health anxiety during COVID-19 pandemic in Turkish society: The importance of gender. *The International journal of social psychiatry*, 66(5), 504-511. Available online: <https://DOI.org/10.1177/0020764020927051>
- Shakespeare-Finch, J., Bowen-Salter, H., Cashin, M., Badawi, A., Wells, R., Rosenbaum, S., Steel, S. (2020). COVID-19: An Australian Perspective. *Journal of Loss and Trauma*. DOI: 10.1080/15325024.2020.1780748
- Tamiolaki, A., Kalaitzaki, A.E. (2020). “That which does not kill us makes us stronger”: COVID-19 and Posttraumatic Growth. *Psychiatry Research*, 289, 113044. Advance online publication. Available online: <https://DOI.org/10.1016/j.psychres.2020.113044>
- Vindegard, N., Benros, M.E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, behavior, and immunity*, 89, 531-542. Advance online publication. Available online: <https://DOI.org/10.1016/j.bbi.2020.05.048>
- Vishnevsky, T., Cann, A., Calhoun, L., Tedeschi, R., Demakis, G. (2010). Gender Differences in Self-Reported Posttraumatic Growth: A Meta-Analysis. *Psychology of Women Quarterly*, 34, 110-120. DOI: 10.1111/j.1471-6402.2009.01546.x
- Prati, G., Pietrantonio, L. (2008). Optimism, Social Support, and Coping Strategies As Factors Contributing to Posttraumatic Growth: A Meta-Analysis. *Journal of Loss and Trauma*, 14(5), 364-388. DOI: 10.1080/15325020902724271
- Rzeszutek, M., Oniszczenko, W., Firląg-Burkacka, E. (2016). Gender differences in posttraumatic stress symptoms and the level of posttraumatic growth among a Polish sample of HIV-positive individuals. *AIDS Care*, 28, 1-5. DOI: 10.1080/09540121.2016.1182615

- Wlodarczyk, A., Basabe, N., Páez, D., Reyes, C., Villagrán, L., Madariaga, C., ..., Martínez, F. (2016). Communal Coping and Posttraumatic Growth in a Context of Natural Disasters in Spain, Chile, and Colombia. *Cross-Cultural Research*, 50(4), 325-355. Available online: <https://DOI.org/10.1177/1069397116663857>
- Tedeschi, R.G., Calhoun, L.G. (2004). Posttraumatic Growth: Conceptual Foundations and Empirical Evidence. *Psychological Inquiry*, 15(1), 1-18. Available online: https://DOI.org/10.1207/s15327965pli1501_01
- Wilder-Smith, A., Chiew, C.J., Lee, V. (2020). Can we contain the COVID-19 outbreak with the same measures as for SARS? *The Lancet*, 20(5), E102-E107. Available online: [https://DOI.org/10.1016/S1473-3099\(20\)30129-8](https://DOI.org/10.1016/S1473-3099(20)30129-8)

