

From “The Interpersonal Theory of Suicide” to “The Interpersonal Trust”: an unexpected and effective resource to mitigate economic crisis-related suicide risk in times of Covid-19?

Alessandra Costanza¹, Andrea Amerio^{2,3}, Andrea Aguglia^{2,3}, Gianluca Serafini^{2,3}, Mario Amore^{2,3}, Elena Macchiarulo⁴, Francesco Branca⁴, Roberto Merli⁴

¹Department of Psychiatry, Faculty of Medicine, University of Geneva (UNIGE), Geneva, Switzerland; ²Department of Neuroscience, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DINOEMI), Section of Psychiatry, University of Genoa, Genoa, Italy; ³IRCCS Ospedale Policlinico San Martino, Genoa, Italy; ⁴Department of Mental Health, Mental Health and Suicide Prevention Center, Biella, Italy.

Abstract. Suicide risk and resilience strategies during the different phases of the COVID-19 pandemic are of great interest to researchers. At the pandemic onset, a dramatic suicides exacerbation was feared. Some authoritative authors warned the scientific and clinical community about this risk by pointing out that especially psychiatric, psychological, and social factors could interact with each other to create a vicious cycle. While worldwide case-reports and studies conducted at emergency departments did indeed find an increase in suicidal behavior, recent systematic reviews, meta-analyses, and time-series analyses could not confirm this for the first COVID-19 wave. Instead, it appears that the increased suicide risk outlasted the acute phase of the pandemic and thus affected people more during the pandemic following phases. One possible reason for this phenomenon may be a persistent state of insecurity regarding the economic crisis evolution with serious financial stressors in terms of income decrease, unemployment, repaying debts difficulty, home loss, one's social status derive, social hierarchy drop, and poverty. During the COVID-19 first wave, with particular regard to vulnerable populations, one of the postulated theories unifying different risk factors under a single frame was the “Interpersonal Theory of Suicide”. Conversely, the “Interpersonal Trust” theory emerged as a protective factor even during an economic crisis. In a possible mirroring of the two theories, it seems to be feasible to find common themes between them and, above all, to gain relevant insights to devise effective prevention and supportive strategies for dealing with suicide risk challenges that COVID-19 will continue to pose in the foreseeable future. (www.actabiomedica.it)

Key words: Suicide, suicidal behavior, suicide attempt, suicidal ideation, COVID-19, Interpersonal Theory of Suicide, Interpersonal Trust, economic crisis, financial stressors, risk factors, protective factors, resilience, mental health

Introduction

The risk of suicide and possible resilience strategies to address this risk during the different phases of the novel Coronavirus 2019 (COVID-19) pandemic is

a topic of great interest to researchers (1-5). While it is well established that the association between traumatic experiences and mental health problems can be mediated by the presence of individual psychological and social strengths that include resilience, coping

strategies, and social network, only a handful of studies have attempted to investigate these different mitigating factors during the different phases of the pandemic (3, 6-9).

From a public health perspective, in order to devise effective preventive and supportive psychosocial interventions, it is therefore pivotal to identify the specific bio-psycho-social factors pertaining to the chronological pandemic's phases that may exacerbate mental health problems, including the suicide risk, as well the different resilience strategies adopted by the general population (1).

While the COVID-19 situation is constantly evolving, as societies pass through a succession of different phases and alternate between periods of lockdown and no-lockdown, a factor that may be critical for the evolution of suicide risk during these different phases is the economic crisis related to COVID-19 and its implications.

The early pandemic and lockdown periods

At the onset of the pandemic and during its early stages, several authors had warned the scientific and clinical communities about a possible exacerbation of suicide risk, pointing out that various factors (especially psychiatric, psychological, and social) could interact to create a vicious cycle (10-13).

Despite many worldwide case reports (e.g., Thakur and Jain (14) for a first gathering of cases published in the press, 15-19) and some studies conducted on patients admitted to emergency departments (ED) and hospital wards (20-23) having found increased suicidal ideation and behavior, recent analyses based on data from the first COVID-19 wave could not confirm these initial findings (5, 24-28). Compared to the pre-pandemic situation, only one meta-analysis published during COVID-19 (29) reported an increase in suicidal ideation (10.81%), suicide attempts (4.68%), and self-harm (9.63%) during the COVID-19 pandemic. Moderation analysis identified younger adults and women as being most susceptible to suicidal ideation (29). Two dynamics have emerged in recent summary analyses: there are higher rates of suicidal behavior in less industrialized countries and lower rates in the more developed parts of the world (22, 24, 25).

Furthermore, in times where internet searches and user behavior on social networks generate large amounts of data (Big Data), several studies have employed Big Data to investigate suicidal ideation during the first and second waves of COVID-19. While some studies examined how online expressions of mental health changed throughout the pandemic, others specifically investigated whether containment measures or increases in COVID-19 cases and deaths were associated with increases in internet searches using mental health related search queries (see 30 and references therein). In a recent review of several international studies that had analyzed Big Data resources from 24 countries, Gianfredi and colleagues (30) found a statistically significant increase throughout the COVID-19 pandemic of internet searches with search terms related to mental health issues, with the most used search terms being fear, stress, solitude, anxiety, depression, and suicide thoughts.

A belated increase in suicide risk?

Contrary to what had originally been postulated (10-13, 31), it seems that the increased suicide risk has outlasted the acute phase of the current pandemic and has affected people more during subsequent phases. McIntyre and colleagues (32) performed a longitudinal analysis of admissions to a psychiatric ED in a cohort of Irish 760 patients during the early and late phases of the initial lockdown. They found a sharp decrease in suicidal behavior during the early months of the lockdown followed by a compensatory increase in subsequent months that peaked as the lockdown measures began to be eased. Similarly, in a multi-centric study conducted in Italian psychiatric EDs, significant increases in both suicidal ideation and suicidal attempts were reported for post-lockdown period (33).

In the "post-COVID-19 syndrome", "long COVID-19", or "post-acute COVID-19" syndrome, persistent psychiatric symptoms observed among COVID-19 survivors, such as depression, anxiety, post-traumatic symptoms, and cognitive impairment, may be related to psychological factors and neurobiological injuries, or to neurologic impairments in which the neural injury overlaps hopelessness (34-36), which can ultimately lead to an increased suicide risk

(37, 38). This risk has also been hypothesized to occur in COVID-19 survivors without post-COVID syndrome (37, 38).

The reason could reside in the persistent state of uncertainty (13, 39), particularly the insecurity regarding the evolution of the economic crisis (39). A recent study (40) comparing data collected during the pandemic to pre-COVID-19 data found that Japanese suicide rates in 2020 increased among men during October and November 2020, while among women the increase occurred between July and November. These authors pointed to economic difficulties as a determinant for suicide risk, especially in women, who were more representative of those who lost their jobs due to the pandemic between July and September (39, 40). A lower income, unemployment, difficulty in repaying debts, loss of home, decline of one's social status, drop in the social hierarchy, and poverty, were reported by the majority of studies as the main financial stressors involved (41-46).

“The Interpersonal Theory of Suicide”

During the COVID-19 first wave, with particular regard to vulnerable populations, one of the postulated theories unifying different risk factors under a single frame was the “Interpersonal Theory of Suicide” (47-50). This theory is based on three main constructs. It posits that desire for suicide, in its most dangerous form, is promoted by a combination of “thwarted belongingness” and “perceived burdensomeness”, the first two constructs, alongside a sense of hopelessness about the possibility of change of these states (47-50). The third construct, “acquired capability for suicide” (acquired through repeated exposure to both mental and physical pain) is considered a necessary prerequisite for action after sensing the desire for suicide (47-50). Groups considered vulnerable are patients with psychiatric and chronic somatic conditions who cannot receive routine healthcare, healthcare professionals who are incessantly exposed to dramatic events, and individuals in precarious conditions (51-59). Additional factors such as social isolation/entrapment/loneliness, increase in alcohol consumption, increase in domestic violence, access to lethal means, stigma, and intensive exposure to stories of hopelessness through

the media, accentuate the already unfavorable state of these populations, fostering the development of the three constructs from the aforementioned theory and creating the proper atmosphere for an increased suicide risk (22, 60-64). Interestingly, neurobiological substrates of suicide in times of social isolation and loneliness have also been elucidated (65).

From a different perspective, the three constructs of the “Interpersonal Theory of Suicide” (47-50) have been used as cues to identify the vulnerabilities targeted by national suicide prevention campaigns during this historical pandemic (39). It has become clear that resilience is formed at both the individual and community level (39, 66). As a result, aspects such as “I’m alone” or “I’m a burden” (47-50) could be buffered if the individual is surrounded by less vulnerable populations to experience a general feeling of solidarity, the ability to share one's difficulties, meet people who are equally overwhelmed by the same circumstances, find strength in family ties as families are being re-united, and encounter mutual support, all of which serving as possible strategies for resilience (39). A large body of literature has been emerging that suggests a possible association between social support and mental health, not only in the context of family but also in the context of more extended social networks (67-70).

“The Interpersonal Trust”

The link between financial stressors and increased suicide risk is not new, as demonstrated by what happened during the Great Depression of 1929 (46). Also during the severe economic crisis of 2008 a significant increase in suicidal behavior was recorded in several countries (41-46) and the term “economic suicides” began to appear in the literature (71). Apart from the recent Japanese study mentioned above (40), all studies dealing with the 2008 economic crisis found that the association between suicidal behavior and financial stressors was more significant in men than in women who appeared as more vulnerable during the actual crisis (28, 39, 40). Moreover, and rather interestingly, the greatest increase in suicidal behavior occurred many months before the worst period of the crisis itself (46, 72, 73). This could also be hypothesized for the near future.

Concerning possible factors that can mitigate the effects of financial stressors on suicidal risk, it has emerged that countries with active labor market programs, sustained welfare, targeted interventions for unemployed people, and good primary and mental health care services had a less marked increase in suicide rates compared to countries without such programs or where funding for these support measures had been cut prior to the pandemic (74, 75). In all these studies, the encouragement to maintain strong family support and foster social relationships/networks were crucial factors to mitigate the associations between unemployment and suicide risk (66, 74-76).

With regard to contrasting the harmful effects of economic hardship on suicide risk during the 2008 economic crisis, the “Interpersonal Trust” played a pivotal role (77). Defined as “a willingness to accept vulnerability or risk based on expectations regarding another person’s behavior” (78) or “the belief that others will not, at worst, knowingly or willingly do you harm, and will, at best, act in your interests” (79), the “Interpersonal Trust” theory has been reported to be relevant to virtually every facet of social functioning and has profound effects on mental and physical health throughout a person’s lifespan and under the most adverse conditions (80). When Economu and colleagues (42, 41) studied the recent economic crisis in Greece, “Interpersonal Trust” emerged as the only significant protective factor with respect to suicidal ideation.

Conclusion

In this article, we have examined how the “Interpersonal Theory of Suicide” and the concept of “Interpersonal Trust” can be used to extract insights regarding the mitigation of suicide risk during a pandemic such as Covid-19.

From a public health perspective, several conclusions can be drawn: (i) at an institutional level: the implementation of active labor market programs, sustained welfare, and targeted interventions for unemployed people have all been shown to be effective a mitigating suicide risk; (ii) at an individual and inter-individual level: fostering family support and

social networks can foster resilience again isolation, loneliness, and suicidal ideation; (iii) during periods of confinement, remote supporting devices (e.g., telepsychiatry or telephone counseling) can be used to provide the general public with continued access to both primary and mental health care services (81); (iv) finally, Big Data can provide valuable insights and information in near real-time regarding the mental health of the general public, including population segments that are often beyond the reach of general health practitioners. By leveraging this information, and especially as the use of Big Data in scientific research and daily healthcare practice is destined to grow (82), it should become possible to devise and plan improved and tailor-made public health strategies (82), including personalized strategies for SI/SB prevention (83). Given the large amount of information that can be extracted from Big Data, exploiting this information may prove extremely useful to inform policymakers and health authorities on the implementation of healthcare services and policies, including the provision of care to those affected by direct and indirect mental health consequences (30).

In a possible mirroring of the “Interpersonal Theory of Suicide” and the “Interpersonal Trust”, it seems possible to find common themes between the two theories and, above all, both theories can be used to gain important insights into the specific approaches of how to devise effective prevention and supportive psychosocial strategies for dealing with suicide risk challenges that COVID-19 will continue to pose for the foreseeable future (Figure. 1).

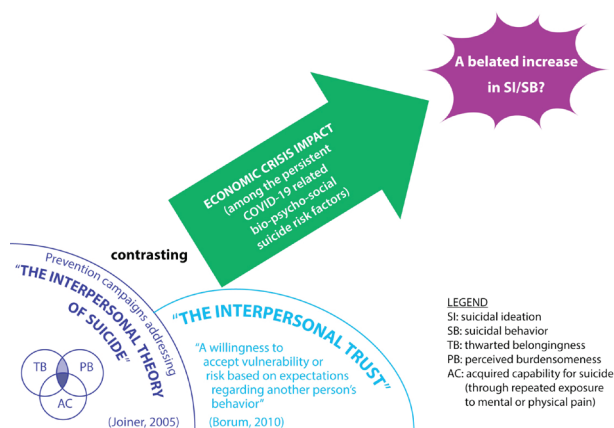


Figure 1.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

Acknowledgements: This work was developed within the framework of the DINOGMI Department of Excellence of MIUR 2018-2022 (Law 232/2016).

References

- Fiorillo A, Gorwood P. The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. *Eur Psychiatry* 2020; 63(1): e32. Doi:10.1192/j.eurpsy.2020.35
- Fiorillo A, Sampogna G, Giallonardo V, et al. Effects of the lockdown on the mental health of the general population during the COVID-19 pandemic in Italy: Results from the COMET collaborative network. *Eur Psychiatry* 2020; 63(1): e87. Doi:10.1192/j.eurpsy.2020.89
- Giallonardo V, Sampogna G, Del Vecchio V, et al. The Impact of Quarantine and Physical Distancing Following COVID-19 on Mental Health: Study Protocol of a Multi-centric Italian Population Trial. *Front Psychiatry* 2020; 11: 533. Doi:10.3389/fpsy.2020.00533
- Gorwood P, Fiorillo A. One year after the COVID-19: What have we learnt, what shall we do next? *Eur Psychiatry* 2021; 64(1): e15. Doi:10.1192/j.eurpsy.2021.9
- Prati G, Mancini AD. The psychological impact of COVID-19 pandemic lockdowns: a review and meta-analysis of longitudinal studies and natural experiments. *Psychol Med* 2021; 51(2): 201-11. Doi:10.1017/S0033291721000015
- Coulombe S, Pacheco T, Cox E, et al. Risk and Resilience Factors During the COVID-19 Pandemic: A Snapshot of the Experiences of Canadian Workers Early on in the Crisis. *Front Psychol* 2020; 11: 580702. Doi:10.3389/fpsyg.2020.580702
- Feldman R. What is resilience: an affiliative neuroscience approach. *World Psychiatry* 2020; 19(2): 132-50. Doi:10.1002/wps.20729
- Kar N, Kar B, Kar S. Stress and coping during COVID-19 pandemic: Result of an online survey. *Psychiatry Res* 2021; 295: 113598. Doi:10.1016/j.psychres.2020.113598
- Karatzias T, Shevlin M, Hyland P, et al. The network structure of ICD-11 complex post-traumatic stress disorder across different traumatic life events. *World Psychiatry* 2020; 19(3): 400-01. Doi:10.1002/wps.20795
- Gunnell D, Appleby L, Arensman E, et al. Suicide risk and prevention during the COVID-19 pandemic. *Lancet Psychiatry* 2020; 7(6): 468-71. Doi:10.1016/S2215-0366(20)30171-1
- Niederkrötenhaler T, Gunnell D, Arensman E, et al. Suicide Research, Prevention, and COVID-19. *Crisis* 2020; 41(5): 321-30. Doi:10.1027/0227-5910/a000731
- Reger MA, Stanley IH, Joiner TE. Suicide Mortality and Coronavirus Disease 2019-A Perfect Storm? *JAMA Psychiatry* 2020; 77(11): 1093-94. Doi:10.1001/jamapsychiatry.2020.1060
- Sher L. The impact of the COVID-19 pandemic on suicide rates. *QJM* 2020; 113(10): 707-12. Doi:10.1093/qjmed/hcaa202
- Thakur V, Jain A. COVID 2019-suicides: A global psychological pandemic. *Brain Behav Immun* 2020; 88: 952-53. Doi:10.1016/j.bbi.2020.04.062
- Goyal K, Chauhan P, Chhikara K, Gupta P, Singh MP. Fear of COVID 2019: First suicidal case in India ! *Asian J Psychiatr* 2020; 49: 101989. Doi:10.1016/j.ajp.2020.101989
- Mamun MA, Griffiths MD. First COVID-19 suicide case in Bangladesh due to fear of COVID-19 and xenophobia: Possible suicide prevention strategies. *Asian J Psychiatr* 2020; 51: 102073. Doi:10.1016/j.ajp.2020.102073
- Liu Y, Cao L, Li X, Jia Y, Xia H. Awareness of mental health problems in patients with coronavirus disease 19 (COVID-19): A lesson from an adult man attempting suicide. *Asian J Psychiatr* 2020; 51: 102106. Doi:10.1016/j.ajp.2020.102106
- Pirnia B, Dezhakam H, Pirnia K, Malekanmehr P, Rezaeian M. Grief of COVID-19 is a mental contagion, first family suicide in Iran. *Asian J Psychiatr* 2020; 54: 102340. Doi:10.1016/j.ajp.2020.102340
- Berardelli I, Vaia A, Pompili M. Thoughts of death, depression, and guilt in a healthcare worker who infected her husband with SARS-CoV-2: A case report. *CNS Neurol Disord Drug Targets* 2020; Doi:10.2174/1871527319666201223155533
- Montalbani B, Bargagna P, Mastrangelo M, et al. The COVID-19 Outbreak and Subjects With Mental Disorders Who Presented to an Italian Psychiatric Emergency Department. *J Nerv Ment Dis* 2021; 209(4): 246-50. Doi:10.1097/NMD.0000000000001289
- Aly L, Sondergeld R, Holzle P, et al. [The COVID-19 pandemic has not changed the number but the type of psychiatric emergencies : A comparison of care data between 2019 and 2020]. *Nervenarzt* 2020; 91(11): 1047-49. Doi:10.1007/s00115-020-00973-2
- Ambrosetti J, Macheret L, Folliet A, et al. Impact of the COVID-19 Pandemic on Psychiatric Admissions to a Large Swiss Emergency Department: An Observational Study. *Int J Environ Res Public Health* 2021; 18(3): Doi:10.3390/ijerph18031174
- Boldrini T, Girardi P, Clerici M, et al. Consequences of the COVID-19 pandemic on admissions to general hospital psychiatric wards in Italy: Reduced psychiatric hospitalizations and increased suicidality. *Prog Neuropsychopharmacol Biol Psychiatry* 2021; 110: 110304. Doi:10.1016/j.pnpbp.2021.110304
- John A, Eyles E, Webb RT, et al. The impact of the COVID-19 pandemic on self-harm and suicidal behaviour: update of living systematic review. *F1000Res* 2020; 9: 1097. Doi:10.12688/f1000research.25522.2
- Pirkis J, John A, Shin S, et al. Suicide trends in the early months of the COVID-19 pandemic: an interrupted

- time-series analysis of preliminary data from 21 countries. *Lancet Psychiatry* 2021; 8(7): 579-88. Doi:10.1016/S2215-0366(21)00091-2
26. Kahil K, Cheaito MA, El Hayek R, et al. Suicide during COVID-19 and other major international respiratory outbreaks: A systematic review. *Asian J Psychiatr* 2021; 56: 102509. Doi:10.1016/j.ajp.2020.102509
 27. Phiri P, Ramakrishnan R, Rathod S, et al. An evaluation of the mental health impact of SARS-CoV-2 on patients, general public and healthcare professionals: A systematic review and meta-analysis. *EClinicalMedicine* 2021; 34: 100806. Doi:10.1016/j.eclinm.2021.100806
 28. Leske S, Kolves K, Crompton D, Arensman E, De Leo D. Real-time suicide mortality data from police reports in Queensland, Australia, during the COVID-19 pandemic: an interrupted time-series analysis. *Lancet Psychiatry* 2021; 8(1): 58-63. Doi:10.1016/S2215-0366(20)30435-1
 29. Dube JP, Smith MM, Sherry SB, Hewitt PL, Stewart SH. Suicide behaviors during the COVID-19 pandemic: A meta-analysis of 54 studies. *Psychiatry Res* 2021; 301: 113998. Doi:10.1016/j.psychres.2021.113998
 30. Gianfredi V, Provenzano S, Santangelo OE. What can internet users' behaviours reveal about the mental health impacts of the COVID-19 pandemic? A systematic review. *Public Health* 2021; 198: 44-52. Doi:10.1016/j.puhe.2021.06.024
 31. Costanza A, Di Marco S, Burroni M, et al. Meaning in life and demoralization: a mental-health reading perspective of suicidality in the time of COVID-19. *Acta Biomed* 2020; 91(4): e2020163. Doi:10.23750/abm.v91i4.10515
 32. Mcintyre A, Tong K, McMahon E, Doherty AM. COVID-19 and its effect on emergency presentations to a tertiary hospital with self-harm in Ireland. *Ir J Psychol Med* 2021; 38(2): 116-22. Doi:10.1017/ipm.2020.116
 33. Balestrieri M, Rucci P, Amendola D, et al. Emergency Psychiatric Consultations During and After the COVID-19 Lockdown in Italy. A Multicentre Study. *Front Psychiatry* 2021; 12: 697058. Doi:10.3389/fpsy.2021.697058
 34. Costanza A, Xekardaki A, Kovari E, Gold G, Bouras C, Giannakopoulos P. Microvascular burden and Alzheimer-type lesions across the age spectrum. *J Alzheimers Dis* 2012; 32(3): 643-52. Doi:10.3233/JAD-2012-120835
 35. Costanza A, Baertschi M, Weber K, Canuto A. [Neurological diseases and suicide: from neurobiology to hopelessness]. French. *Rev Med Suisse* 2015; 11(461): 402-5.
 36. Costanza A, Amerio A, Aguglia A, et al. When Sick Brain and Hopelessness Meet: Some Aspects of Suicidality in the Neurological Patient. *CNS Neurol Disord Drug Targets* 2020; 19(4): 257-63. Doi:10.2174/1871527319666200611130804
 37. Sher L. Are COVID-19 survivors at increased risk for suicide? *Acta Neuropsychiatr* 2020; 32(5): 270. Doi:10.1017/neu.2020.21
 38. Sher L. Post-COVID syndrome and suicide risk. *QJM* 2021; 114(2): 95-98. Doi:10.1093/qjmed/hcab007
 39. Pompili M. Can we expect a rise in suicide rates after the Covid-19 pandemic outbreak? *Eur Neuropsychopharmacol* 2021; 52: 1-2. Doi:10.1016/j.euroneuro.2021.05.011
 40. Sakamoto H, Ishikane M, Ghaznavi C, Ueda P. Assessment of Suicide in Japan During the COVID-19 Pandemic vs Previous Years. *JAMA Netw Open* 2021; 4(2): e2037378. Doi:10.1001/jamanetworkopen.2020.37378
 41. Economou M, Madianos M, Peppou LE, Theleritis C, Patelakis A, Stefanis C. Suicidal ideation and reported suicide attempts in Greece during the economic crisis. *World Psychiatry* 2013; 12(1): 53-9. Doi:10.1002/wps.20016
 42. Economou M, Angelopoulos E, Peppou LE, Souliotis K, Stefanis C. Suicidal ideation and suicide attempts in Greece during the economic crisis: an update. *World Psychiatry* 2016; 15(1): 83-4. Doi:10.1002/wps.20296
 43. Chang SS, Stuckler D, Yip P, Gunnell D. Impact of 2008 global economic crisis on suicide: time trend study in 54 countries. *BMJ* 2013; 347: f5239. Doi:10.1136/bmj.f5239
 44. Pompili M, Vichi M, Innamorati M, et al. Suicide in Italy during a time of economic recession: some recent data related to age and gender based on a nationwide register study. *Health Soc Care Community* 2014; 22(4): 361-7. Doi:10.1111/hsc.12086
 45. Rachiotis G, Stuckler D, Mckee M, Hadjichristodoulou C. What has happened to suicides during the Greek economic crisis? Findings from an ecological study of suicides and their determinants (2003-2012). *BMJ Open* 2015; 5(3): e007295. Doi:10.1136/bmjopen-2014-007295
 46. Agrawal P, Waggle D, Sandweiss DH. Suicides as a response to adverse market sentiment (1980-2016). *PLoS One* 2017; 12(11): e0186913. Doi:10.1371/journal.pone.0186913
 47. Joiner TE. *Why people die by suicide*. Cambridge, MA: Harvard University Press; 2005: 288pp.
 48. Van Orden KA, Witte TK, Cukrowicz KC, Braithwaite SR, Selby EA, Joiner TE, Jr. The interpersonal theory of suicide. *Psychol Rev* 2010; 117(2): 575-600. Doi:10.1037/a0018697
 49. Baertschi M, Costanza A, Canuto A, Weber K. The Function of Personality in Suicidal Ideation from the Perspective of the Interpersonal-Psychological Theory of Suicide. *Int J Environ Res Public Health* 2018; 15(4): Doi:10.3390/ijerph15040636
 50. Costanza A, Amerio A, Aguglia A, Serafini G, Amore M. Meaning in Life and Demoralization Constructs in Light of the Interpersonal Theory of Suicide: A Trans-Theoretical Hypothesis for a Cross-Sectional Study. *Psychol Res Behav Manag* 2020; 13: 855-58. Doi:10.2147/PRBM.S279829
 51. Amerio A, Aguglia A, Odone A, et al. Covid-19 pandemic impact on mental health of vulnerable populations. *Acta Biomed* 2020; 91(9-S): 95-96. Doi:10.23750/abm.v91i9-S.10112
 52. Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. *Lancet Psychiatry* 2020; 7(4): e21. Doi:10.1016/S2215-0366(20)30090-0
 53. Costanza A, Baertschi M, Richard-Lepouriel H, et al. Demoralization and Its Relationship with Depression and Hopelessness in Suicidal Patients Attending an Emergency Department. *Int J Environ Res Public Health* 2020; 17(7): Doi:10.3390/ijerph17072232

54. Costanza A, Baertschi M, Richard-Lepouriel H, Weber K, Pompili M, Canuto A. The Presence and the Search Constructs of Meaning in Life in Suicidal Patients Attending a Psychiatric Emergency Department. *Front Psychiatry* 2020; 11: 327. Doi:10.3389/fpsy.2020.00327
55. Kang L, Ma S, Chen M, et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. *Brain Behav Immun* 2020; 87: 11-17. Doi:10.1016/j.bbi.2020.03.028
56. Amerio A, Bianchi D, Santi F, et al. Covid-19 pandemic impact on mental health: a web-based cross-sectional survey on a sample of Italian general practitioners. *Acta Biomed* 2020; 91(2): 83-88. Doi:10.23750/abm.v91i2.9619
57. Que J, Shi L, Deng J, et al. Psychological impact of the COVID-19 pandemic on healthcare workers: a cross-sectional study in China. *Gen Psychiatr* 2020; 33(3): e100259. Doi:10.1136/gpsych-2020-100259
58. Aguglia A, Amerio A, Costanza A, et al. Hopelessness and Post-Traumatic Stress Symptoms among Healthcare Workers during the COVID-19 Pandemic: Any Role for Mediating Variables? *Int J Environ Res Public Health* 2021; 18(12): Doi:10.3390/ijerph18126579
59. Costanza A, Rothen S, Achab S, et al. Impulsivity and Impulsivity-Related Endophenotypes in Suicidal Patients with Substance Use Disorders: an Exploratory Study. *International Journal of Mental Health and Addiction* 2020: Doi:10.1007/s11469-020-00259-3
60. Costanza A, Amerio A, Radoska M, et al. Suicidal-ity Assessment of the Elderly With Physical Illness in the Emergency Department. *Front Psychiatry* 2020; 11: 558974. Doi:10.3389/fpsy.2020.558974
61. Czeisler ME, Lane RI, Petrosky E, et al. Mental Health, Substance Use, and Suicidal Ideation During the COVID-19 Pandemic - United States, June 24-30, 2020. *MMWR Morb Mortal Wkly Rep* 2020; 69(32): 1049-57. Doi:10.15585/mmwr.mm6932a1
62. Fitzpatrick KM, Harris C, Drawve G. How bad is it? Suicidality in the middle of the COVID-19 pandemic. *Suicide Life Threat Behav* 2020; 50(6): 1241-49. Doi:10.1111/sltb.12655
63. Iob E, Steptoe A, Fancourt D. Abuse, self-harm and suicidal ideation in the UK during the COVID-19 pandemic. *Br J Psychiatry* 2020; 217(4): 543-46. Doi:10.1192/bjp.2020.130
64. Kavukcu E, Akdeniz M. Tsunami after the novel coronavirus (COVID-19) pandemic: A global wave of suicide? *Int J Soc Psychiatry* 2021; 67(2): 197-99. Doi:10.1177/0020764020946348
65. Zalsman G. Neurobiology of suicide in times of social isolation and loneliness. *Eur Neuropsychopharmacol* 2020; 40: 1-3. Doi:10.1016/j.euroneuro.2020.10.009
66. Vinkers CH, Van Amelsvoort T, Bisson JI, et al. Stress resilience during the coronavirus pandemic. *Eur Neuropsychopharmacol* 2020; 35: 12-16. Doi:10.1016/j.euroneuro.2020.05.003
67. Santini ZI, Koyanagi A, Tyrovolas S, Mason C, Haro JM. The association between social relationships and depression: a systematic review. *J Affect Disord* 2015; 175: 53-65. Doi:10.1016/j.jad.2014.12.049
68. Costanza A, Ambrosetti J, Wyss K, Bondolfi G, Sarasin F, Khan R. [Prevention of suicide at Emergency Room: from the "Interpersonal Theory of Suicide" to the connectedness]. *French. Rev Med Suisse* 2018; 14(593): 335-38.
69. Santini ZI, Jose PE, York Cornwell E, et al. Social disconnectedness, perceived isolation, and symptoms of depression and anxiety among older Americans (NSHAP): a longitudinal mediation analysis. *Lancet Public Health* 2020; 5(1): e62-e70. Doi:10.1016/S2468-2667(19)30230-0
70. Gianfredi V, Beran M, Koster A, et al. Association between social network characteristics and prevalent and incident depression: The Maastricht Study. *J Affect Disord* 2021; 293: 338-46. Doi:10.1016/j.jad.2021.06.046
71. Reeves A, Mckee M, Stuckler D. Economic suicides in the Great Recession in Europe and North America. *Br J Psychiatry* 2014; 205(3): 246-7. Doi:10.1192/bjp.bp.114.144766
72. Fountoulakis KN, Kawohl W, Theodorakis PN, et al. Relationship of suicide rates to economic variables in Europe: 2000-2011. *Br J Psychiatry* 2014; 205(6): 486-96. Doi:10.1192/bjp.bp.114.147454
73. Nordt C, Warnke I, Seifritz E, Kawohl W. Modelling suicide and unemployment: a longitudinal analysis covering 63 countries, 2000-11. *Lancet Psychiatry* 2015; 2(3): 239-45. Doi:10.1016/S2215-0366(14)00118-7
74. Haw C, Hawton K, Gunnell D, Platt S. Economic recession and suicidal behaviour: Possible mechanisms and ameliorating factors. *Int J Soc Psychiatry* 2015; 61(1): 73-81. Doi:10.1177/0020764014536545
75. Stuckler D, Basu S, Suhrcke M, Coutts A, Mckee M. The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. *Lancet* 2009; 374(9686): 315-23. Doi:10.1016/S0140-6736(09)61124-7
76. Stuckler D, Basu S, Suhrcke M, Coutts A, Mckee M. Effects of the 2008 recession on health: a first look at European data. *Lancet* 2011; 378(9786): 124-5. Doi:10.1016/S0140-6736(11)61079-9
77. Ervasti H, Kouvo A, Venetoklis T. Social and Institutional Trust in Times of Crisis: Greece, 2002-2011. *Social Indicators Research* 2019; 141(3): 1207-31. Doi:10.1007/s11205-018-1862-y
78. Borum R. *The Science of Interpersonal Trust*. University of South Florida, USA; 2010:
79. Zmerli SaN, K. And Montero, J.R. Trust in people, confidence in political institutions and satisfaction with democracy. In: Van Deth JWaM, J.R., and Westholm, A., ed. *Citizenship and involvement in European democracies: A comparative analysis*. Abingdon-on-Thames, UK: Routledge, 2007:
80. Rotenberg KJ. The conceptualization of interpersonal trust: A basis, domain, and target framework. In: Rotenberg KJ, ed. *Interpersonal trust during childhood and adolescence*. Cambridge, UK: Cambridge University Press, 2010: 8-27.

81. Costanza A, Mazzola V, Radomska M, et al. Who Consult an Adult Psychiatric Emergency Department? Pertinence of Admissions and Opportunities for Telepsychiatry. *Medicina (Kaunas)* 2020; 56(6): Doi:10.3390/medicina56060295
82. Murdoch TB, Detsky AS. The inevitable application of big data to health care. *JAMA* 2013; 309(13): 1351-2. Doi:10.1001/jama.2013.393
83. Althouse BM, Scarpino SV, Meyers LA, et al. Enhancing disease surveillance with novel data streams: challenges and opportunities. *EPJ Data Sci* 2015; 4: Doi:10.1140/epjds/s13688-015-0054-0

Correspondence:

Received: 1 September 2021

Accepted: 7 September 2021

Alessandra Costanza, MD,

chargée d'enseignement (ORCID: 0000-0001-6387-6462)

Department of Psychiatry, Faculty of Medicine,

University of Geneva (UNIGE), Rue Michel-Servet 1,

1211 Geneva (CH),

Phone:+41 22 379 59 00,

E-mail:alessandra.costanza@unige.ch