

## Psychological impact of COVID-19 worldwide

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### ABSTRACT

Humans are social beings composed of physical, psychological, spiritual and many other aspects too. Since there is an ongoing pandemic situation of covid-19, incepted around January 2020 has been recognized as a global pandemic by the WHO. The presence of the pathogen and fear of its spread changed the entire economy of the world upside down. Each country did its best to insulate its citizens from global and regional hotspots this necessitated preventive and curative measure which includes lockdown, self-isolation, quarantine, social distancing to name a few. There are many sudden changes in the individual that led to many psychological issues in society like, Stress, Depression, Deprivation of basic psychological needs, Conspiracy, Catastrophic potentials etc. This review presents psychological and behavioural changes due to the new scenario presented by Covid-19.

**Keywords:** Covid-19, Depression, Stress, Catastrophe, Conspiracy.

The Covid-19 pandemic represents a massive global health crisis. Since the crisis requires large-scale behavioural change, that places significant psychological burden on individuals, insights from the social and behavioural sciences can be used to help align human behaviour with the recommendations of health experts. It is not easy to change the behaviour and life style of an individual, it has more psychological effect on people to put themselves in to a change all of a sudden.<sup>[1]</sup> Public and Patients with the coronavirus disease (Covid-19) have different degrees of psychological issues, such as anxiety and depression and other etc. Anxiety is characterised by somatic symptoms, severe sweating, palpitation, feeling of dread and diarrhoea. The major depression is characterised by loss of interest in pleasurable activities, loss of appetite, disturbed sleep, psychomotor retardation, feeling of worthlessness, in severe cases we find suicidal ideations.<sup>[2]</sup> Covid-19 has become a fatal situation worldwide. It was reported in Wuhan china which subsequently affected worldwide.<sup>[3]</sup> When it comes to disease, it has both physiological and psychological pains together sometimes the situation is still worse, the world is already facing lots of death situation and it is still going on. Physiological conditions apply only to the actual patients who are infected by the virus. Psychological conditions are common in hospitalized patients with varying degrees according to the level of issues, especially people tend to have a higher level of anxiety and somatization symptoms.<sup>[4]</sup>

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Due to corona virus condition, lockdown is a necessary action that has to be followed worldwide. Lockdown resulted in travel restrictions, social distancing was practiced by cancelling events and gatherings, closing of public places as well as schools and universities. Additionally, outside activities were extremely limited. Health care system and security activities were in process. These developments transform the current Covid-19 outbreak into a global pandemic.<sup>[5]</sup> All these lock down conditions are depriving the basic psychological need (independence, competence, connectedness) of an individual by putting them into a sudden change.<sup>[6]</sup> Not only Covid-19 patients are bearing the severe physical pain, and mental distress, even for the public who are facing lockdown situation due to the Covid-19 is going through anxiety, depression and fear. People have worries even due general pneumonia, and normal fever symptoms since they comorbid with the symptoms of Covid-19. The transmission of Covid-19, the virus is spreading worldwide and the rate of transmission is very fast. People are worried about their family and even regarding the severity of the corona virus. It spread to respiratory tract, and the recovery rates are very less. The virus Covid-19, is very new in human body, was named after by the world health organization (WHO) on January 12, 2020. People have no much knowledge about the new disease, less knowledge about the characteristics of the virus, treatment and prognosis are still exploring, so the uncertainty is adding to the patients and public with tension and fear about the virus. In a short period of time, a large number of Covid-19 patients broke out, the news media continuously reported, the death of patients in china and Italy, the continuous reporting about virus and number of infected people and death. All these information makes public psychological bearing capacity is low, this leads to anxiety, depression, or even negative ideas.<sup>[7]</sup>

### *Objective*

- The present review summaries the psychological impact of Covid-19 condition.

### *Basic psychological need satisfaction*

For effective human functioning and well-being, autonomy (independence), competence (capability), relatedness (connectedness) are the three basic psychological needs. The satisfaction of these three basic psychological needs holds many positive outcomes.<sup>[8]</sup> Due to Covid-19 and lockdown condition, there are so many rules and regulations which limit people's autonomy and decision-making.<sup>[9]</sup> Covid-19 has detracted individuals from their sense of competence. Due to inability to work properly and job insecurity even though there is work from home situation, there is lack of competence in people.<sup>[10]</sup> Social distancing and lockdown have created a sense of disconnectedness feeling in people for some degree.<sup>[11]</sup> So, when all these basic psychological needs are insufficiently filled there is lack of satisfaction in the psychological well-being. Higher the satisfaction of basic psychological needs has a link or association towards the lower stress. This indicates that the people's stress level is high and they tend to have negative thoughts and negative emotions due to covid-19 condition.<sup>[12]</sup>

### *Negative Emotions*

Declaration of covid-19 led to more negative emotions by people. Like, anxiety, depression, indignation and positive emotions were expressed less. This has already been reflected in BIS theory, which says that people generate more negative emotions towards self-protection.<sup>[13]</sup> These emotional conditions were even expressed during public health emergencies like SARS, all these epidemic situations have triggered a series of negative emotions and stress, high level of anxiety in people.<sup>[14]</sup> Emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without

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their awareness.<sup>[15]</sup> Neuroscientists assumed that specific emotions and motivations are connected to brain since long time, and these are very helpful in survival and well-being of an organism. Covid-19 places a role in some imbalance in regular emotions and motivations in lifestyle of an individual this leads to lack of well-being.<sup>[16]</sup>

### *Functional fear and lifestyle changes*

In the initial days of covid-19 situation, there was a scenario where in government has made a rule to use masks and sanitizers frequently to be safe, but there was no availability of masks and sanitizers in most of the countries. Even though they were available, they were not affordable by everyone. There is a sudden increase in the cost of living and the unavailability of everyday stuffs, there is lot of behavioural and lifestyle change of an individual.<sup>[17]</sup> Further declaration of lockdown due to Covid-19 has led to an increase relationship between social risk judgement and life satisfaction which is lower. This is also consistent with BIS (behavioural immune system) which says that, with increase in social uncertainty people tend to develop negative cognitive assessment. In addition, preventive policies such as quarantine, social distancing and regulations in terms of travel restrictions and self-isolation has decreased quality of life and hence life satisfaction.<sup>[18]</sup>

### *Anxiety and Fear*

Fear and anxiety are very common in everyone's life, but it depends on the severity of the situation. One of the central emotional responses during a pandemic is fear. Humans and other animals, possess a set of defensive systems for combating ecological threats. When the situation can be handled by an individual, they possess a positive fear. But when the situation cannot be handled by the individual fear leads people to change their behaviour, sometimes leads to defensive reactions when they feel helpless to act. suggest that strong fear appeals produce the greatest behaviour change.<sup>[19]</sup> Due to current ongoing Coronavirus disease (Covid-19) is a new type of respiratory infections, since December, 2019. Due to this disease people with general pneumonia, fever, a slight change in body condition due to climate change will leads to fear and anxiety provoking situation in population. One of the study which was conducted using Hamilton scale of anxiety, on Covid-19 patients and Non-Covid-19 patients indicates that, the infected patients has a high level of anxiety, but the non-infected patients also has shown the anxiety level which is normally high, compared to general population.<sup>[20]</sup>

### *Separation anxiety and mental health*

There are many different types of fear and anxieties depending in the situation and severity, one of them among is separation anxiety which is taking a lead in Covid-19 situation. To control the transmission of Covid-19, the individuals are being told to maintain social distance, but due to certain conditions the individuals have come in close contact with the affected Covid-19 individuals, which resulted in being quarantined and isolated. Quarantined is more specifically separated individuals, who is prone to develop some psychological problems. Where in separation initially starts making the person feel fear, anxious, depressed and finally reaches in the outcome of separation anxieties, mood disorders and post-traumatic stress symptoms. The quarantined children and adults feel they are being separated from their parents, care givers and family in which there is chances of developing separation anxiety. This also results in disruption between parent and child's ongoing attachment process which results in association with poorer mental health outcomes.<sup>[21][22]</sup>

### ***Effect on Children's Mental Health***

A significant modulation of mental health has occurred due to sudden changes in the lifestyle of people because of coronavirus. This has major psychological effect on children and adult both, since children are weak minded compared to adults, children are more prone to develop mental health issues. Covid-19 has left great impact on mental health specifically on quarantined children. One of the reasons for these impression lefts is sudden changes in the environment, this may result negatively among the quarantined children, with negative thoughts like withdrawal symptoms, lack of interests in academics, frustrations, low self-esteem, lack of self-acceptance, separation anxiety. There are chances of children developing attention deficit hyperactive disorder, bullying, fighting, running out of school, adjustment problems. These children after the completion of quarantine there are chances that they may refuse to go to school because of anticipation of non-acceptance from peer group due to quarantine and if they attempt, there are possibilities of children exhibiting aggressive behaviours and non-acceptance behaviour. These quarantined children i.e., who are kept away from the parents, care givers, friends where you find social distancing have a tendency of developing psychiatric disorders specifically separation disorders which may lead to stress, anxiety, post-traumatic stress disorder. If this separation exists for longer period this has a high risk of developing mood disorders and might induce suicidal ideations in children.<sup>[23][24]</sup>

### ***Depression and impact on health care workers and covid-19 patients***

In the epidemic condition, psychological distress appeared in the form of fear and anxiety which decreases in the early stages. But depression, psychophysical symptoms and post-traumatic stress symptoms appeared for longer period which leads to profound impacts on individuals.<sup>[25][26]</sup> People who are quarantined have more negative thoughts and they get depressed and post-traumatic stress symptom will appear for longer time. The quarantined people experience anger, loneliness, boredom and the symptoms of the viral infection may cause even more worsened in cognitive distress and anxiety due to the fear of contracting the Covid-19 among people.<sup>[27]</sup> Depression has become so usual among people where, there is a sudden change in environment. Specifically, current scenario Covid-19 aspects which will have a great impression left over. Substantial evidence from the past studies of the impact of SARS, Ebola epidemics put at high risk population. The results are relative to the current episode of Covid-19. During the current scenario, it is medical practitioners almost go through and suffer with depression and anxiety.<sup>[28][29]</sup> Some of the previous study indicates that, the individuals with Covid-19 undergoes different degrees of psychological pain such as depression and anxiety which is related with their prognosis. It is known with past studies on general pneumonia and healthy participants undergone with interventions and the results indicated that the scores in depression and anxiety is significantly higher than the healthy during the period of admission but on the observation for a week with psychological needs and counselling the scores of depression and anxiety were gradually decreased. This reveals that patient who were diagnosed with Covid-19 and in general pneumonia in observation ward had different degrees of depression and anxiety.<sup>[30]</sup>

### ***Effect of stress on Sleep deprivation, epidemiological predictors, hormone glands and neuro transmitters***

Covid-19 is a new type of disease which is spreading widely and bringing a lot of stress among population. Initially in the early stages, fear and anxiety is seen in the epidemic condition. But later on, depression and post-traumatic stress symptoms had left great impressions and impact for a longer time.<sup>[31][32][33]</sup> Due to Covid-19, there are children who are put into quarantine in which the children are being separated from the parents,

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caregivers, where social distancing are put forth. This isolation during pandemic diseases were more likely to develop acute stress disorder, adjustment disorders and grief. These are of at high risk of psychiatric disorders.<sup>[34]</sup>The current scenario has more negative effect on many factors that has impact on sleeping patterns, this results in living with more of stress, insecurities regarding their health, worries and sudden changes in daily routines such as less day light and almost the day is spent off thinking of virus issues, rather than spending on sleep. People with more stress could not sleep due to intense thinking of their jobs and health conditions and change in everyday life. This put them in such a condition that they don't give time towards their family. This may cause insomnia associated with psychological disorders and have a great impact.<sup>[35]</sup> Due to the outbreak of Covid-19 situation, there were some regulations towards quarantine, social isolation. The covid-19 condition includes Severe Acute Respiratory syndrome and other pneumonia conditions. The previous condition like Ebola, Novel influenza A, H1N1, Middle east Respiratory Syndrome (MERS) and equine influenza, this has a major harm on Mental Health outcomes, this includes higher levels of Depression, Anxiety, Post Traumatic Stress symptoms, anger, fear. Based on these data available from the previous history the covid-19 situation is also leading the same as other epidemic conditions.<sup>[36][37]</sup>The severity of current episode Covid-19 has a great level of stress on population, due to this stress there is a huge variation in hormone glands specifically Hypothalamic and amygdala, Corticotrophin Releasing Hormone (CRH).<sup>[38]</sup>Hormonal imbalance this induce an increase in pro-inflammatory cytokines stress also lower the levels of serotone and melatonin and serotone is associated with depression, though serotonin is a forerunner for the melatonin production which is associated with most stress conditions including psychiatric and general medical conditions.<sup>[39]</sup>

### *Attitude towards foreign nationalities*

Covid-19 is not originated in India, it has transmitted from other foreign country. Even though people from other country is not directly a reason for current epidemiological situation. It has created a negative attitude towards foreign nationalities. The world currently experiencing an outbreak of Covid-19 disease, in this situation prejudice towards other nationalities places an important role. Media exposure also places a very important role in developing these attitudes. The current epidemiological situation of Covid-19 has created a negative distancing attitude towards some nations like, Italian, china, Germany, Russian, America etc. <sup>[40]</sup>

### *Information on social media and psychological distress*

Due to the outbreak of Covid-19, there is much information related to the disease that are spreading. This has both true and fake information. This information is prone to develop fear, anxiety, stress, depression among people. Through spreading of information related to Covid-19 cannot be controlled whether it is fake or true, but this has an intense impact on mental health, that may lead to interfere day to day routines. Due to lockdown, individuals spent most of time in social media to get updates regarding the disease. The misleading information put them into a diplomatic condition, which affects the individual psychologically.<sup>[41]</sup> Both fake and true information has equal effects. Once, the authentic information is received, that will have an adverse effect on population, that creates a problematic situation, where they will feel anxious, more stressed and depressed regarding the information which they gathered newly and previously.

### *Catastrophic potentials and conspiracy belief*

People are experiencing many changes in their emotions (negative emotions like fear anxiety etc) due to Covid-19 condition. There are many emotional and belief system changes during this scenario, emotional response, anticipation regarding growth of the epidemic situation, belief that authorities might not take any action, suspiciousness that authorities are not able to take actions. Due to incomplete knowledge regarding Covid-19 condition, perception of people leads to more negative belief system and emotional outburst. These increases the risky communication which people are not sure about regarding covid-19.<sup>[42][43]</sup> The Covid-19 situation has already increased anxiety and stressful feeling, in this situation people can't control themselves from thinking or communicating the ideas which they know or think it's true. There are many previous studies which indicates that anxiety and lack of control in thinking has association with conspiracy belief.<sup>[44]</sup> In Covid-19 situation people are facing stressful and anxiety provoking situations which leads to conspiratorial thinking.<sup>[45]</sup>

### **CONCLUSION**

This paper majorly concentrates on the psychological drawbacks of covid-19 and its containment efforts on individuals. Physical and social confinement has had multi-dimensional psychological dissatisfaction with general laws in competence, connectedness and independence. Anxiety and fear about the present conditions and rate of transmissions and spread of disease has mellow down adults and children alike. Children especially are prone to mental health issues such as negative thoughts, withdrawal symptoms and social isolation. There is havoc in regular routine. This is manifested in change in sleep pattern, which in turn leads to higher stress. Hormones and neuro-transmitters are unsteady as after effect of stress. Behavioural changes follow lifestyle change has there is restriction on movement, social gathering, walking without masks, higher personal hygiene prescriptions, change in food pattern etc.

Media is inseparable from the mentioned social situation. They broadcast a wide range of news of which the catastrophe finds highlight. It is dealt with in different angles which impinges on individuals uniquely. This may enhance catastrophic and conspiracy belief. Furthermore, in the already cripple minded, it can take the form of depression. Treatment, quarantine and return of cured patients is a part and parcel of treatment process. Patients who return from quarantine situation experience separation anxiety due to heightened social distancing and rumours among fear mongers similar is the situation among foreign nationals who stranded or settled in different countries. Corona virus disease 2019 is indeed a massive catastrophe to begin the decade with. It has brought along with it multiple of psychological ailments which population worldwide are subject to. This shows us how important it is to incorporate the domain mental health in public health policies worldwide.

Appendix

Figure 1: different group of people expressing their opinion towards covid-19

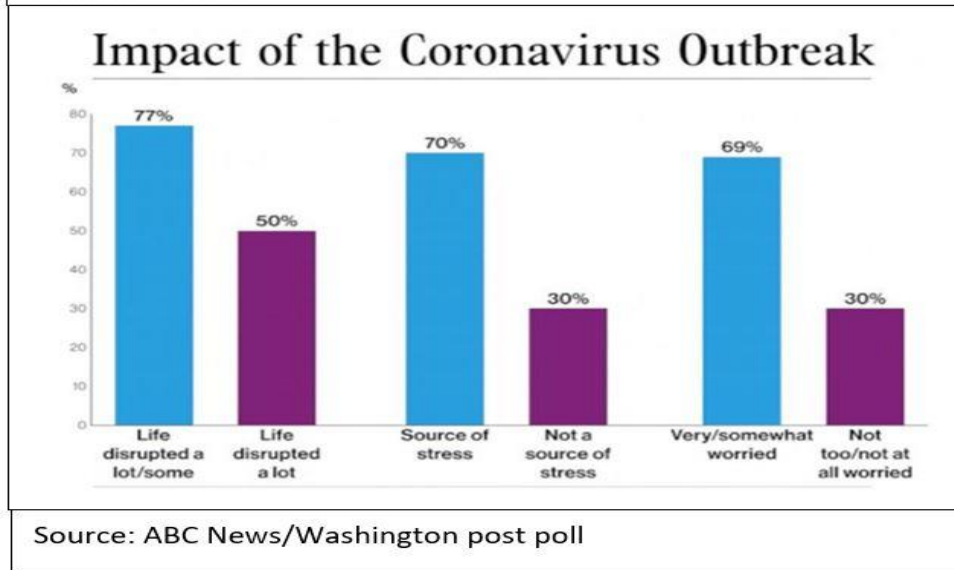
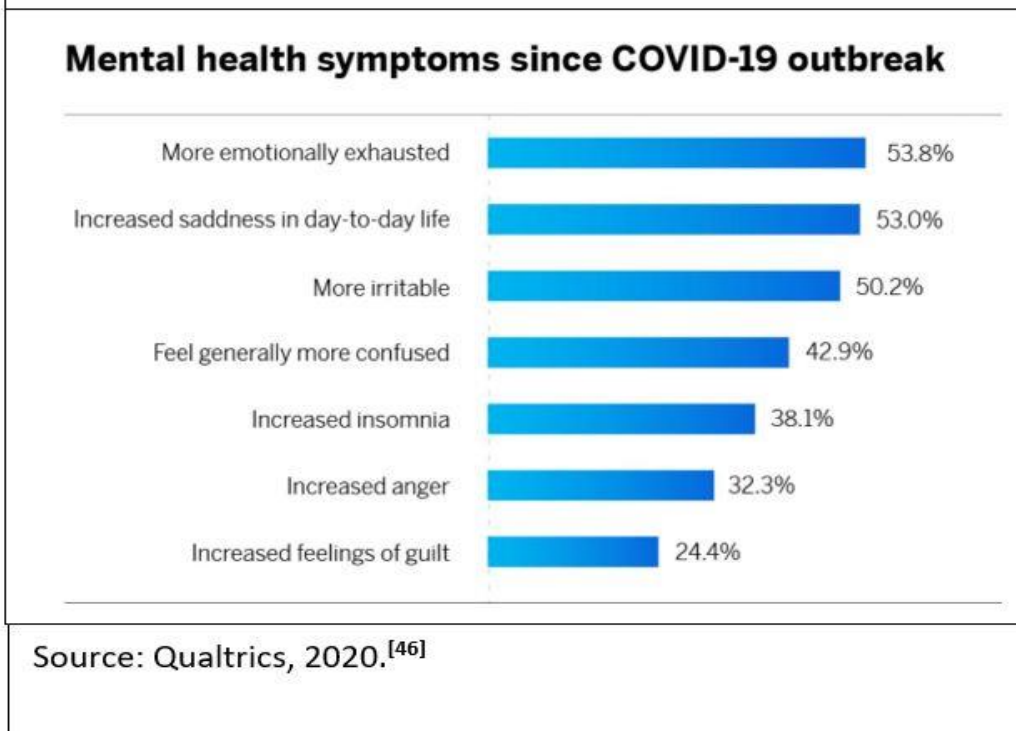
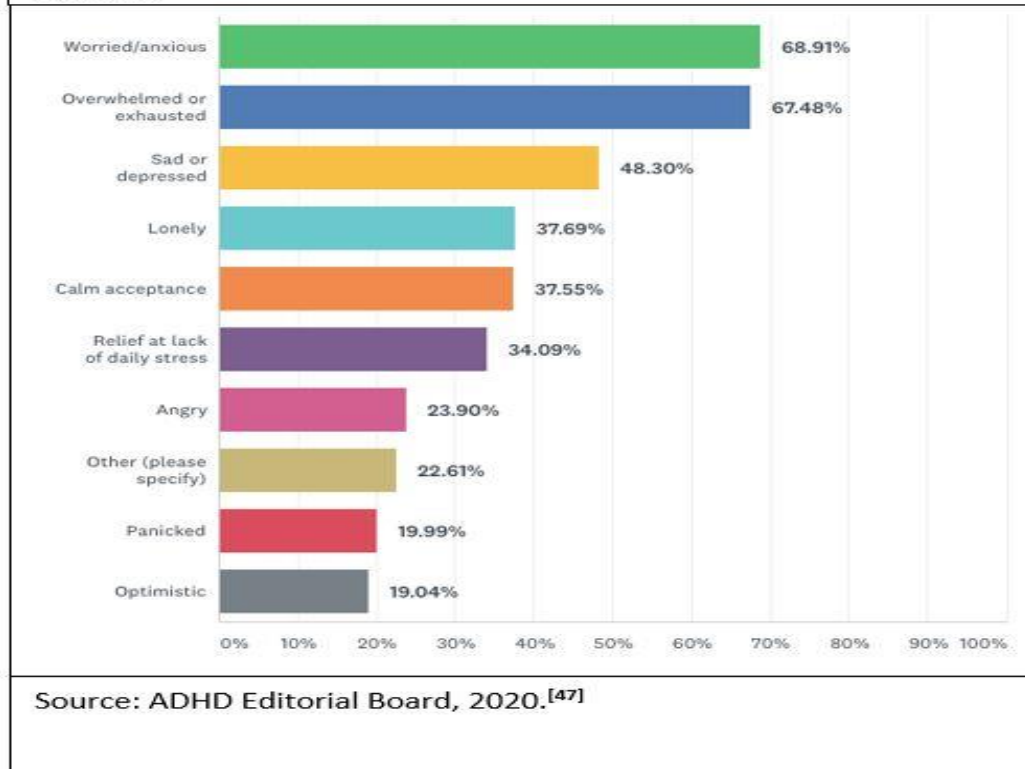


Figure 2: expression of different domains of mental health during covid-19



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Figure 3: expression of different emotional states of ADHD population (who were already facing mental health issues) during covid-19



## REFERENCES

1. Van Bavel, J. J., Boggio, P., Capraro, V., Cichocka, A., Cikara, M., Crockett, M., ... & Ellemers, N. (2020). Using social and behavioural science to support COVID-19 pandemic response.
2. Melaku L, Bulcha G. The depression, anxiety, and stress and their sociodemographic correlates among undergraduate medical students of Arsi University, Southeast Ethiopia. *Int J Health Allied Sci* 2020;9:105-15.
3. Xu, Z., Shi, L., Wang, Y., Zhang, J., Huang, L., Zhang, C., ... & Tai, Y. (2020). Pathological findings of COVID-19 associated with acute respiratory distress syndrome. *The Lancet respiratory medicine*, 8(4), 420-422.
4. Yang, L., Wu, D., Hou, Y., Wang, X., Dai, N., Wang, G., ... & Ruan, L. (2020). Analysis of psychological state and clinical psychological intervention model of patients with COVID-19. *medRxiv*.
5. Lau, H., Khosrawipour, V., Kocbach, P., Mikolajczyk, A., Schubert, J., Bania, J., & Khosrawipour, T. (2020). The positive impact of lockdown in Wuhan on containing the COVID-19 outbreak in China. *Journal of travel medicine*.
6. Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and social psychology bulletin*, 26(4), 419-435.
7. Yang, L., Wu, D., Hou, Y., Wang, X., Dai, N., Wang, G., ... & Ruan, L. (2020). Analysis of psychological state and clinical psychological intervention model of patients with COVID-19. *medRxiv*.



## Psychological impact of COVID-19 worldwide

8. Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and social psychology bulletin*, 26(4), 419-435.
9. Winick, B. J. (1992). On autonomy: Legal and psychological perspectives. *Vill. L. Rev.*, 37, 1705.
10. Hellgren, J., Sverke, M., & Isaksson, K. (1999). A two-dimensional approach to job insecurity: Consequences for employee attitudes and well-being. *European journal of work and organizational psychology*, 8(2), 179-195.
11. Cacioppo, J. T., Hawkey, L. C., & Thisted, R. A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago Health, Aging, and Social Relations Study. *Psychology and aging*, 25(2), 453.
12. Cantarero, K., van Tilburg, W. A., & Smoktunowicz, E. (2020). Affirming Basic Psychological Needs Promotes Mental Well-Being During the COVID-19 Outbreak.
13. Mortensen, C. R., Becker, D. V., Ackerman, J. M., Neuberg, S. L., & Kenrick, D. T. (2010). Infection breeds reticence: The effects of disease salience on self-perceptions of personality and behavioral avoidance tendencies. *Psychological Science*, 21(3), 440-447.
14. Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020). The impact of COVID-19 epidemic declaration on psychological consequences: a study on active Weibo users. *International journal of environmental research and public health*, 17(6), 2032.
15. Kramer, A. D., Guillory, J. E., & Hancock, J. T. (2014). Experimental evidence of massive-scale emotional contagion through social networks. *Proceedings of the National Academy of Sciences*, 111(24), 8788-8790.
16. LeDoux, J. (2012). Rethinking the emotional brain. *Neuron*, 73(4), 653-676.
17. Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*, 17(5), 1729.
18. Li, S., Wang, Y., Xue, J., Zhao, N., & Zhu, T. (2020). The impact of COVID-19 epidemic declaration on psychological consequences: a study on active Weibo users. *International journal of environmental research and public health*, 17(6), 2032.
19. Van Bavel, J. J., Boggio, P., Capraro, V., Cichocka, A., Cikara, M., Crockett, M., ... & Ellemers, N. (2020). Using social and behavioural science to support COVID-19 pandemic response.
20. Yang, L., Wu, D., Hou, Y., Wang, X., Dai, N., Wang, G., ... & Ruan, L. (2020). Analysis of psychological state and clinical psychological intervention model of patients with COVID-19. *medRxiv*.
21. Humphreys, K. L. (2019). Future directions in the study and treatment of parent-child separation. *Journal of Clinical Child & Adolescent Psychology*, 48(1), 166-178.
22. Liu, J. J., Bao, Y., Huang, X., Shi, J., & Lu, L. (2020). Mental health considerations for children quarantined because of COVID-19. *The Lancet Child & Adolescent Health*, 4(5), 347-349.
23. Liu, J. J., Bao, Y., Huang, X., Shi, J., & Lu, L. (2020). Mental health considerations for children quarantined because of COVID-19. *The Lancet Child & Adolescent Health*, 4(5), 347-349.
24. Sprang, G., & Silman, M. (2013). Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster medicine and public health preparedness*, 7(1), 105-110.

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25. Chong, M. Y., Wang, W. C., Hsieh, W. C., Lee, C. Y., Chiu, N. M., Yeh, W. C., ... & Chen, C. L. (2004). Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. *The British Journal of Psychiatry*, 185(2), 127-133.
26. Wu, P., Fang, Y., Guan, Z., Fan, B., Kong, J., Yao, Z., ... & Hoven, C. W. (2009). The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *The Canadian Journal of Psychiatry*, 54(5), 302-311.
27. Xiang, Y. T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry*, 7(3), 228-229.
28. Lee, S. M., Kang, W. S., Cho, A. R., Kim, T., & Park, J. K. (2018). Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. *Comprehensive psychiatry*, 87, 123-127.
29. Shah, K., Kamrai, D., Mekala, H., Mann, B., Desai, K., & Patel, R. S. (2020). Focus on mental health during the coronavirus (COVID-19) Pandemic: applying learnings from the past outbreaks. *Cureus*, 12(3).
30. Yang, L., Wu, D., Hou, Y., Wang, X., Dai, N., Wang, G., ... & Ruan, L. (2020). Analysis of psychological state and clinical psychological intervention model of patients with COVID-19. medRxiv.
31. Chong, M. Y., Wang, W. C., Hsieh, W. C., Lee, C. Y., Chiu, N. M., Yeh, W. C., ... & Chen, C. L. (2004). Psychological impact of severe acute respiratory syndrome on health workers in a tertiary hospital. *The British Journal of Psychiatry*, 185(2), 127-133.
32. Wu, P., Fang, Y., Guan, Z., Fan, B., Kong, J., Yao, Z., ... & Hoven, C. W. (2009). The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *The Canadian Journal of Psychiatry*, 54(5), 302-311.
33. Kang, L., Ma, S., Chen, M., Yang, J., Wang, Y., Li, R., ... & Hu, S. (2020). 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, behavior, and immunity*.
34. Liu, J. J., Bao, Y., Huang, X., Shi, J., & Lu, L. (2020). Mental health considerations for children quarantined because of COVID-19. *The Lancet Child & Adolescent Health*, 4(5), 347-349.
35. Altena, E., Baglioni, C., Espie, C. A., Ellis, J., Gavriloff, D., Holzinger, B., ... & Riemann, D. (2020). Dealing with sleep problems during home confinement due to the COVID-19 outbreak: practical recommendations from a task force of the European CBT-I Academy. *Journal of Sleep Research*.
36. Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*.
37. Nelson, B., Pettitt, A. K., Flannery, J., & Allen, N. (2020). Psychological and Epidemiological Predictors of COVID-19 Concern and Health-Related Behaviors
38. Vanuytsel, T., van Wanrooy, S., Vanheel, H., Vanormelingen, C., Verschuere, S., Houben, E., ... & Van Oudenhove, L. (2014). Psychological stress and corticotropin-releasing hormone increase intestinal permeability in humans by a mast cell-dependent mechanism. *Gut*, 63(8), 1293-1299.
39. Anderson, G. (2020). Psychological Stress and Covid-19: Interactions with Gut Microbiome and Circadian Rhythm in Driving Symptom Severity.

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40. Sorokowski, P., Groyecka, A., Kowal, M., Sorokowska, A., Białek, M., Lebuda, I., ... & Karwowski, M. (2020). Information about pandemic increases negative attitudes toward foreign groups: a case of COVID-19 outbreak.
41. Pennycook, G., McPhetres, J., Zhang, Y., & Rand, D. (2020). Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy nudge intervention.
42. Lohiniva, A. L., Sane, J., Sibenberg, K., Puumalainen, T., & Salminen, M. (2020). Understanding coronavirus disease (COVID-19) risk perceptions among the public to enhance risk communication efforts: a practical approach for outbreaks, Finland, February 2020. *Eurosurveillance*, 25(13), 2000317.
43. Dickmann, P., Abraham, T., Sarkar, S., Wysocki, P., Cecconi, S., Apfel, F., & Nurm, Ü. K. (2016). Risk communication as a core public health competence in infectious disease management: development of the ECDC training curriculum and programme. *Eurosurveillance*, 21(14).
44. van Prooijen, J. W. (2019). An existential threat model of conspiracy theories. *European Psychologist*.
45. Šrol, J., Mikušková, E. B., & Cavojova, V. (2020). When we are worried, what are we thinking? Anxiety, lack of control, and conspiracy beliefs amidst the COVID-19 pandemic.
46. Qualtrics, 2020. The Other COVID-19 Crisis: Mental Health. <https://www.qualtrics.com/blog/confronting-mental-health/>
47. ADHD Editorial Board, 2020. Pandemic Anxiety and the ADHD Brain: Where Worry Takes Root. ADHD News and Research. <https://www.additudemag.com/pandemic-anxiety-adhd-survey/>

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