

Negative and Positive Emotions of Individuals Worldwide During COVID-19

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Abstract: The mental health of individuals has received widespread attention during the COVID-19 pandemic. However, there is still a lack of unified explanations for the emotional responses of different countries and regions during the pandemic. Therefore, this study analyzed the changes in negative and positive emotions among people from different countries during the epidemic from a cross-cultural perspective. This study found that people experienced higher levels of anxiety, depression and loneliness during the quarantine period than before the pandemic. Studies reveal that the imposition of quarantine restrictions has made mental health issues worse by restricting social interactions and elevating emotions of despair and dissatisfaction. Despite the increase in negative emotions, the study also found that people during the epidemic promoted positive emotions in a number of ways. Prior studies suggest that engaging in prosocial behaviors—such as helping others—can enhance individuals' emotional well-being. Moreover, physical activity (PA) and mindfulness meditation have been identified as effective strategies for mitigating NE and fostering PE. This study explores the situation of individual emotional responses globally and provides theoretical support for the management of future public health crises.

Keywords: Emotions, Worldwide, COVID-19.

1. Introduction

The COVID-19 epidemic has a great impact on people's lives around the world and seriously endangers people's health. The weekly report from the European Centre for Disease Prevention and Control (ECDC) shows a total of 109,206,497 cases and 2,407,469 deaths in 219 national, territorial and international transport vehicles as of 18 February 2021 [1]. COVID-19 has not only harmed people's physical health but has also had a serious impact on mental health (MH). Santomauro et al. found that global cases of major depression increased by 27.6% in 2020 during the epidemic, while global cases of anxiety disorders increased by 25.6% [2]. The global quarantine of people at home is an important strategy to combat the outbreak and reduce the spread of the virus. Some studies showed that compared with before the outbreak of the epidemic, people's anxiety and depression are generally increased during the epidemic quarantine, which has a significant impact on college students [3-6]. Although negative emotions (NE) have increased significantly, research has also found that practices such as prosocial behavior (PB), physical activity (PA) and meditation can help improve people's emotional stability and happiness during the epidemic [7-9].

This study will analyze and summarize the emotional impact of quarantine on people during the epidemic and the reasons for it, based on the research reports during the epidemic. This study will combine the research findings from multiple countries and regions. The present study offers a new and integrate insight into the impact of the epidemic on the positive and negative emotions of individuals around the world.

2. The Impact of Epidemic on Individual Negative Emotions (NE)

Liu et al. showed that quarantine during an epidemic could lead to adverse MH consequences and increase the likelihood of depression [10]. Tang et al. studied the association between PA and anxiety and depression in college students under closed management during the pandemic [3]. This study recruited a sample of 479 college students aged 17-26 from a university in Jiangsu Province, China. The study used four self-assessment measures. The research results of Tang et al. show that although participation in sports activities helped alleviate NE, the management of campus closures during the pandemic led to an increase in overall NE among college students. For example, they are more likely to be nervous, anxious and angry, have persistent low moods, and have poor sleep quality. This means that locking down schools during the pandemic has restricted the freedom of college students to enter and leave the campus, so some of their personal needs cannot be satisfied. Campus lockdowns can also lead to fewer extracurricular activities and make it difficult to relieve the pressure of learning. In addition, Cao et al. found that during the pandemic, taking online classes and having uncertain exam schedule would further aggravate students' anxiety [4]. Meanwhile, it is difficult to establish connections with the outside world when living with roommates for a long time, and interpersonal pressure will also increase.

During the COVID-19 epidemic, not only did the NE of college students in China increase, but this also happened in the United States and European countries. Hagen et al.'s study found that levels of NE among American adults increased significantly during the epidemic [5]. The study had a very broad sample coverage, with data from about 80,000 adults in all 50 states and one district. Respondents were randomly selected every day to ask whether they had experienced NE such as sadness or loneliness the day before. Later inquiries also included whether they had experienced depression or anxiety. The analysis showed that early stress and worry were the most prominent NE. As the epidemic continues, feelings of depression, anxiety and loneliness are increasing. Compared with 2019 (data for 2019 was collected through a Gallup World Poll survey of 1026 United States respondents), the prevalence of worry and anger increased significantly, being 11.3% and 9.1% higher respectively [5]. This means that the negative emotional stress brought by the epidemic period is much higher than the normal period, reflecting the serious impact of public health crisis on the MH of residents. In addition, Oliverira Carvalho et al. conducted a meta-analysis of 13 research reports on NE among students in European countries during the pandemic, involving 18,220 participants from 9 different European countries [6]. These data showed that more than half of the samples had anxiety and depression during the lockdown period, which fully demonstrated the significant impact of COVID-19 on anxiety and depression among students.

Li and Zhao found that COVID-19 led to an increase in individuals' NE, which in turn affected their judgment of risks, causing them to perceive risks as higher and assess benefits as lower [11]. The study recruited 373 Chinese participants and divided them into areas severely affected by the epidemic and areas less affected. Participants rated 12 specific risk events (in terms of risk and benefit), and then measured their fear and anxiety about the risk events. The results showed that people in the severe area increased their judgment of risk and reduced their judgment of benefit; The study did not detail the extent to which participants in less affected areas were affected in their judgments of risk and benefit. However, the findings suggest that the severity of the epidemic has an important impact on an individual's judgment of risk and benefits. Meanwhile, Li and Zhao shown

that NE played a mediating role in the impact of the COVID-19 epidemic on risk and benefit judgment [11]. This means that people who have experienced severe epidemics tend to overestimate the risks of events and reduce the benefits of events due to their fear and concern about risk events.

The commonness of the above studies is that they all show a significant increase in people's NE during the COVID-19 pandemics, especially anxiety, depression, and loneliness. This phenomenon is widespread among different countries and groups. All studies used scales or self-assessment tools to measure changes in mood, but they had different emphases. Tang et al. emphasized that PA could alleviate NE in university students, while Cao et al. focused on study pressure aggravating anxiety [3,4]. Li and Zhao further explored the impact of NE on risk and benefit judgment, revealing how emotions affect cognition [11]. Hagen et al.'s study covers a broader scope, showing the mood swings of United States residents during the epidemic [5]. Similarly, a study by Oliverira Carvalho et al. analyzed NE among students in nine European countries during the pandemic [6].

3. The Impact of Epidemic on Individual Positive Emotions (PE)

However, in addition to triggering NE, COVID-19 can also have a positive impact on an individual's emotions. Varma et al. showed that PB during the COVID-19 epidemic increased positive effects and promoted people's emotional health [12]. PBs during COVID-19 include helping others by donating money, blood and protective gear [12]. Varma et al.'s experiment 2 had 1,421 participants, of which 664 were female, with a relatively balanced gender ratio. Participants were randomly assigned to different conditions. The study surveyed participants about COVID-19 related and unrelated purchases and measured their positive and negative feelings through self-reports. The results of the study found that both conditions boosted PE, but the positive benefits were higher when people made purchases unrelated to COVID-19. This means that when people are under closed management of the epidemic, PB will bring greater happiness and sense of meaning. All the people are united for one goal - to fight the epidemic, which enhances the interaction and connection between people and the individual's sense of belonging to society.

Exercising during quarantine can also boost an individual's positive mood. Carriedo et al. found that elderly people who often insisted on exercise during isolation had higher PE [7]. The study recruited 483 elderly Spaniards aged 60-92 to assess their resilience during the pandemic and investigate their emotional state and PA during the period. The study found that higher levels of PA can help older people relieve NE and reduce the likelihood of depression. This means that during home isolation, exercise is very helpful for older people to maintain a healthy body and mind. This greatly increased their happiness, increased their control over their lives, and made them feel more self-worth. Fernandez-Rio et al. also showed that PA during COVID-19 home isolation was associated with better mental state [8]. Fernandez-Rio et al.'s study is similar to Carriedo et al.'s in sample selection. In Fernandez-Rio et al.'s study, 2,423 Spanish citizens ranging in age from 16 to 88 were selected [8]. The study used online questionnaires to collect data on self-reported weight and height, as well as how often and how long they exercised before being quarantined at home. Participants used four self-assessment scales to test their own PA, depressive symptoms, resilience, and mood state during home isolation. The findings suggest that higher levels of PA are strongly associated with better MH. The two studies obtain similar conclusions, which further suggests that the positive effects of PA on people's mood during the epidemic isolation were independent of age.

Practicing mindfulness meditation during the epidemic is also a way to relieve stress and promote MH. Matiz et al. studied the effects of meditation on the emotional and MH of school teachers during the COVID-19 epidemic [9]. The study recruited 67 Italian school teachers and gave them an eight-week meditation training. The study used questionnaires to assess teachers' meditation participation, as well as MH status and emotional levels. The results of the study showed that participants who meditated more frequently performed better in terms of PE, especially in terms of happiness,

satisfaction and optimism. Participants reported that meditation practice helped them during isolation, and that lack of meditation practice during this period made their mood worse. This suggests the use of meditation as a self-regulation tool during the pandemic. It can effectively help people relieve psychological stress, improve emotional stability and happiness index.

The above studies have shown that different adjustment methods and behaviors can effectively alleviate people's psychological stress caused by the epidemic. This improvement in PE was seen across countries and groups. All research used self-report or self-assessment scale but focused on different research directions. Varma et al. highlighted the increase in PB during the pandemic, which contributes to people's sense of well-being and belonging [12]. Carriedo et al. focused on the positive impact of physical exercise on the emotions of elderly people in Spain. Fernandez-Rio et al. extended their study to a broader age group in Spain [8]. Matiz et al. 's study focused on school teachers and explored the promoting effect of mindfulness meditation on emotional regulation [9].

4. Conclusion

This study examines the emotional impact of COVID-19 on individuals around the world. First of all, from the negative emotional level, people have a significant increase in anxiety, depression and loneliness during the quarantine period. Meanwhile, the study also discussed the impact of PBs, PA, and meditation on alleviating NE and promoting and maintaining a positive and healthy mental state during the quarantine. By analyzing studies from different countries and regions, the results show the emotional responses of individuals across the globe during the pandemic. This study provides a theoretical basis for future responses to pandemic infectious diseases and reminds people to pay attention to individual MH issues when facing global public health issues. Individuals should maintain a positive attitude and improve their sense of well-being through other means, such as PA and meditation. Future studies can further explore the differences in the causes of negative and PE in different countries, when they are in the face of similar pandemic environments in cross-cultural contexts.

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