

# Why does Wellness Matter So Much in the Age of COVID-19? A Selective Literature Review

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# **WHY DOES WELLNESS MATTER SO MUCH IN THE AGE OF COVID-19?**

## **A SELECTIVE LITERATURE REVIEW**

Donghyun Park and Pilipinas Quising

### **Abstract**

Coronavirus disease (COVID-19) is a once-in-a-century global health and economic crisis. In this paper, we document the link between the twin crises and individual well-being, especially mental health, by looking at past and current evidence. Past studies of the nexus between economic crisis and mental health, as well as the nexus between disaster outbreaks and mental health, point to significant, negative relationship. Emerging studies which analyze the effect of COVID-19 confirm a negative effect, which is likely to be large and persistent given the unprecedented nature of the health and economic crisis. Our review, thus, strengthens the case for wellness, or the active pursuit of activities, choices, and lifestyles that promote happiness and well-being. Wellness will empower and enable individuals to achieve and maintain their mental and physical well-beings, which are invaluable assets for navigating the uncertain and stressful post-COVID-19 world.

### **JEL Code**

H10

### **Keywords**

COVID-19, pandemic, economic crisis, wellness, health

## **COVID-19 Triggers a Global Health and Economic Crisis**

Coronavirus disease (COVID-19) is a highly infectious disease caused by a newly discovered coronavirus, which first emerged in Dec 2019. COVID-19 is an unprecedented, once-in-a-century shock to global health and world economy. Although the disease initially affected the People's Republic of China and other Asia and Pacific economies in December 2019 and January 2020, it has rapidly spread to all corners of the world. The World Health Organization (WHO) declared COVID-19 a pandemic on 11 March. The pandemic has exacted a heavy toll on global public health, infecting about 5.8 million people and causing almost 360,000 deaths worldwide by 28 May. As of that date, the 12 countries with the highest number of confirmed cases were, in descending order, the United States, Brazil, the Russian Federation, Spain, the United Kingdom, Italy, France, Germany, Turkey, India, Iran, and Peru. The list of countries reflects the truly global nature of COVID-19. The future trajectory of the pandemic still remains subject to a great deal of uncertainty.

Asia too has been hit by COVID-19, which affected all subregions and countries of the continent. Although some Asian countries have been hit harder than others, no countries have been immune from the coronavirus. The People's Republic of China, the original epicenter of the pandemic, managed to contain it relatively effectively with stringent public health measures. The Republic of Korea (ROK), which suffered a major outbreak in late February, also brought the pandemic under control. On the other hand, India has seen a rapid growth of cases. In addition to infecting large numbers of Asians, which has strained the health care systems of Asian countries, the virus has also adversely affected their mental health. Most developing Asian economies have already responded to the COVID-19 outbreak in various ways. Many governments have mobilized inter-agency task forces and other coordinating mechanisms to ensure a harmonized public health response.

In addition to COVID-19's devastating impact on global health, the lockdowns, travel bans, community quarantines, and other restrictions, which were necessitated by the pandemic, have derailed the world economy. In April, the International Monetary Fund projected global output to contract by 3% and trade by 11% in 2020. This would mark the deepest global downturn in the postwar period, even worse than the Great Recession in the aftermath of the global financial crisis. The economies of developing Asia too will suffer a sharp downturn as a result of the pandemic. The evolution of the pandemic, and hence developing Asia's outlook, remains highly uncertain, but the baseline forecast is that regional growth will slow steeply from 5.2% in 2019 to 2.2% in 2020 before recovering to 6.2% in 2021. Excluding the newly industrialized economies, growth is seen to slow from 5.7% in 2019 to 2.4% in 2020, and then to pick up to 6.7% in 2021. The region is set to grow at its slowest pace since 1998, when it suffered the Asian financial crisis.

All of developing Asia's subregions will see their growth weaken in 2020. Global demand weakened by the pandemic will weigh on the 2020 outlook, particularly in the more open subregions and tourism-dependent economies like those in the Pacific. Growth in East Asia will dip from 5.4% in 2019 to 2.0% in 2020 before reaccelerating to 6.5% in 2021. Southeast Asia is forecast to slow to 2.8% in 2020 before recovering to 4.4% in 2021.

Growth in Central Asia will also slow to 2.9% this year with lower oil prices, and the Pacific will contract by 0.3% with declining tourism, before rebounding in 2021. South Asia's growth rate is forecast to slow from 5.0% in fiscal 2019 to 4.7% in fiscal 2020, and reaccelerate to 6.2% in fiscal 2021, largely tracking recovery in India. Even Asian countries that managed to effectively contain the pandemic, such as the ROK, will see a sharp decline in their growth because of the sharp deterioration of the global outlook. The pandemic of recession has spread to all subregions and countries.

Across developing Asia, governments have introduced fiscal stimulus packages and central banks eased monetary policy to support economic activity. To support economic growth and help the most vulnerable population groups, the region's governments are ramping up spending. While countercyclical fiscal and monetary policies will help to soften the severe economic blow of the pandemic, the region clearly faces a highly uncertain economic future. In common with other parts of the world, the region faces the twin strategic challenges of tackling the health crisis while reopening and rebuilding the economy.

### **Global Health and Economic Crisis Brings Wellness to the Fore**

The catastrophic effect of COVID-19 cannot be captured by simple numbers. Health impact figures, such as the number of confirmed cases and deaths, are informative and revealing. So too are economic impact figures such as gross domestic product and export data. However, above all, COVID-19 has had a profound *human* effect. It has adversely affected billions of human lives around the world. More precisely, the pandemic has had a detrimental effect on the happiness and well-being of people in developing Asia and elsewhere. Fear of COVID-19 infection, economic hardship, uncertainty about the future, social isolation, and extended home confinement can all take a heavy toll on happiness and well-being. This is precisely why wellness, or the pursuit of happiness and well-being, is receiving a lot of attention from the public since the outbreak.

According to the Global Wellness Institute wellness is the active pursuit of activities, choices, and lifestyles that lead to a state of holistic health<sup>1</sup>. Wellness is conceptually distinct from happiness and well-being, which refer to a subjective *condition*—being happy or in a state of well-being. On the other hand, wellness is associated with the *process* of actively making choices that lead toward optimal health and well-being. Wellness is also related to but distinct from the medical paradigm. While the two overlap when it comes to preventive health care, much of medical care is focused on treating and curing illness, whereas wellness focuses on moving from neutral to optimal health. Examples of wellness include exercising, eating healthy food, and meditating. Wellness is multidimensional and holistic in that it includes physical, mental, emotional, and social dimensions.

Even before the onset of COVID-19, Asia's demand for wellness has been growing for some time because of structural factors. In particular, higher incomes, noncommunicable diseases (NCDs), and population aging are driving the demand for wellness. Decades of

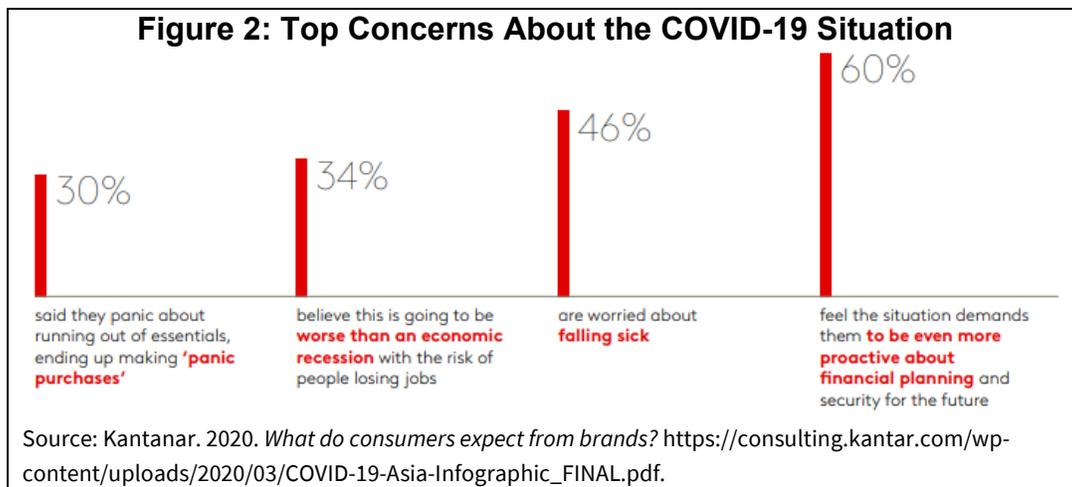
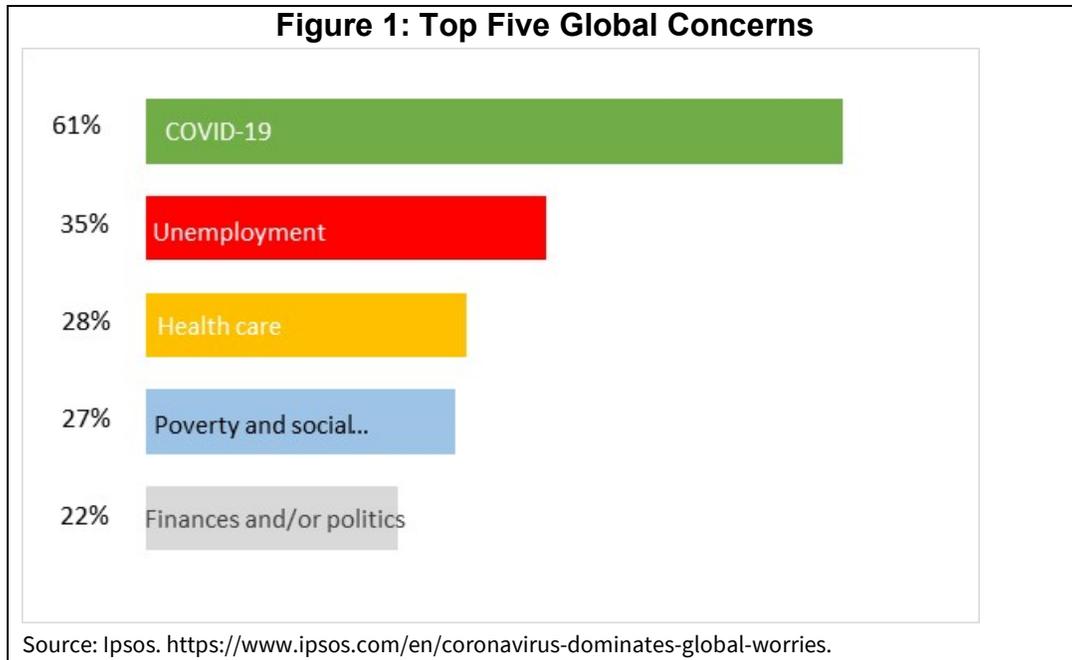
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<sup>1</sup> See <https://globalwellnessinstitute.org/what-is-wellness/>

rapid economic growth have left many Asians much richer than their forebears. As a result, Asians are becoming more aware of the benefits of healthier lifestyles. For instance, the quest for more calories is giving way to a quest for better nutrition. The growth of NCDs, such as heart diseases, stroke, diabetes, and cancer in the region, is encouraging Asians to exercise more, eat better, and seek healthier life choices. In addition, Asia's population is aging. Older populations are associated with chronic diseases as well as loneliness and mental health issues. And Asia's worsening pollution presents a clear and present danger to the health of Asians.

Wellness can contribute to sustainable development as well as the mental and physical health of the poor. Wellness or the active pursuit of well-being is in line with the United Nations Sustainable Development Goals (SDGs), in particular SDG 3: to ensure healthy lives and promote well-being for all at all ages. A focus on wellness would also provide a more balanced and holistic view on development progress than simply pursuing increases in income per capita. In principle, many wellness activities, such as physical exercise, are available to all. In practice, the poor are at a disadvantage since they have less money and time to devote to wellness, and have more limited access to, or knowledge about, health facilities or nutritious foods. Public investment in wellness infrastructure, such as community recreation centers and green parks in poor neighborhoods, as well as health education campaigns, can help level the playing field.

To sum up, higher incomes, NCD, population aging, and other structural factors were fueling Asians' growing demand for wellness even before the advent of COVID-19. The demand for wellness is likely to grow even more because of the pandemic, which has predictably become the overriding global concern since the outbreak (Figure 1). Thus, COVID-19 will add impetus to a long-term structural trend. Given that the pandemic has given rise to both a health crisis and an economic crisis, it is not surprising that the general public has a wide range of concerns (Figure 2). The pandemic has had a negative impact on the happiness and well-being of Asians, and they are likely to actively pursue activities, choices, and lifestyles which lead to happier, more fulfilling lives.



## Economic Crises and Health: Existing Evidence

COVID-19 is not a garden-variety economic crisis but a once-in-a-century economic crisis. Indeed, the current economic downturn is projected to be the worst since the Great Depression of the late 1920s and 1930s. Nevertheless, it is useful to review the existing literature on the effects of economic crisis on health, which can provide us with at least some clues about the likely impact of the COVID-19 economic crisis on health.

There are two conflicting schools of thought on the effects of economic crises on health. One theory says that psychological and behavioral morbidity is procyclical in that it increases in good times. The other view says it is countercyclical—declining economies spell more incidence of illness (Catalano et al. 2011). Existing evidence is mixed.

According to the procyclical theory, people who lost their jobs or had their work hours reduced spent more time exercising, cooking healthy meals, sleeping, caring for the children, managing the home, and gaining additional knowledge (Aguiar et al. 2013, Antillon 2014, Ásgeirsdóttir et al. 2014, and Brochu et al. 2012). Changes in the use of time may also influence well-being in a general way by lowering the risk of contracting communicable disease (Barmby and Larguem 2009 and Cooley et al. 2011) and lowering the incidence of vehicular accidents. Less driving during economic downturns improves the quality of air, which may lead to better health outcomes (Heutel and Ruhm 2013) and lower infant mortality (Chay and Greenstone 2003).

Viewed from another perspective, the daily grind, the fast pace in life, the high work stress, and the higher disposable income associated with economic expansion can lead to poorer health. A study of American adults during 1972–1981 showed an increase in reported medical problems (e.g., heart disease and back problems) during labor market expansion (Ruhm 2003). Mexican data from 1995 to 2010 showed positive relationship between gross domestic product per capita and ischemic heart disease and hypertension—diseases which are categorized as lifestyle diseases (Quast and Gonzales 2014).

Aside from time use changes, consumption changes may also be procyclical. For example, Ásgeirsdóttir et al. (2012 and 2014) investigated the effects of the 2008 economic crisis in Iceland and found that health-compromising behaviors like smoking, alcohol drinking, and consumption of non-healthy foods declined, but the practice of consuming fish oil and adequate sleeping improved. Some studies showed that smokers reduce the number of cigarettes they smoke during recessions (Ruhm 2000 and 2005). Similarly, cigarette smoking increased during periods of economic booms when work hours (and consequently income and stress) rise (Xu and Kaestner 2010).

Although we do not discount the possibility of economic crises positively affecting health, we will look primarily at the negative health effects of economic crises. There is a much larger body of evidence which supports a negative link.

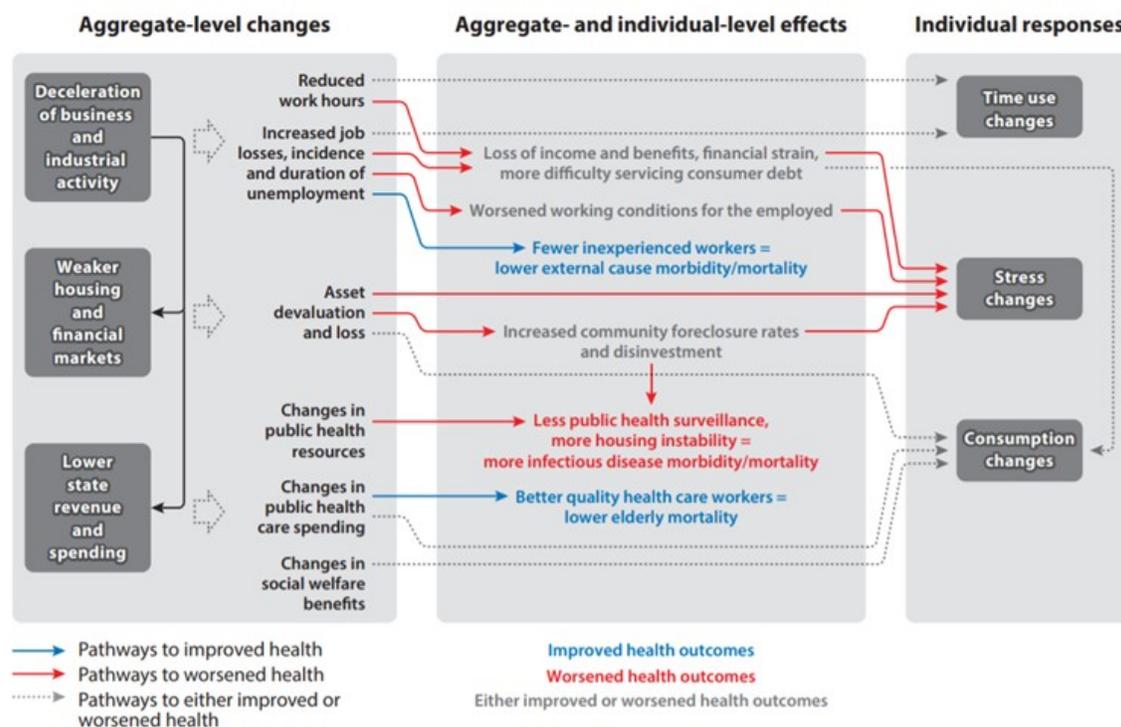
There are three key macroeconomic changes associated with recessions: (1) a deceleration of economic activity that may lead to (2) weakened housing and financial markets and (3) lower government revenues (Figure 3). These changes affect an individual's resources and behaviors in ways that eventually influence their health. Following Burgard and Kalousova (2015), we will look at the links between economic crises and health, particularly mental health.

### **Aggregate Changes**

While crises may have transitory impacts on economic activity, their effects on households and individuals may persist over the long term. At the macroeconomic level, the fiscal strain, because of the reduction of fiscal revenues during economic downturns, can force governments to implement severe cuts in public spending, including spending on health and welfare services. As a result, public health services may be unable to offer services at lower rates and may be ill-equipped to absorb any surges in demand. The result may be a worsening in the quality of health care coupled with the increase in health care costs. During the Asian financial crisis, real public health expenditures declined significantly in Indonesia, the ROK, the Lao People's Democratic Republic, the

Philippines, and Thailand (Knowles, Pernia, and Racelis 1999). During the same period, immunization coverage in several regions in the Philippines declined (Reyes, Manasan, Orbeta, and de Guzman 1999). In Europe during the 2008–2009 global financial crisis, the delivery of social services suffered, especially in health. Waiting lists in the health services for treatments and operations increased and patients were asked to pay a share of their treatment cost (Hanan 2012).

**Figure 3: Macroeconomic Changes During Economic Downturns and Individual Responses**



Source: Burgard and Kalousova 2015.

Economic crises are sometimes associated with the collapse of financial and housing markets. The decline in asset prices lead to substantial wealth losses. In addition to wealth losses, the housing market’s collapse can intensify residential crowding and homelessness. Abandoned foreclosed buildings can become hosts for insects and other disease vectors which weaken community-level immunity (Suhrcke et al. 2011). For example, Reisen et al. (2008) found that a wave of delinquencies on adjustable-rate mortgages in Kern County, California led to neglected swimming pools and a 276% increase in the number of human West Nile virus cases in 2007 because of increased mosquito reproduction. Even those who remain employed during recessions may face poorer work conditions, which can worsen health conditions (Modrek and Cullen 2013, Burgard and Lin 2013, and Tausig and Fenwick 1999).

The economic difficulties experienced by the population will deepen the existing health inequities and increase the social exclusion of vulnerable groups, which include the poor, the children, young people, single-parent families, unemployed people, ethnic minorities, migrants, and older people. Research using Midlife in the United States (MIDUS) data finds that the 2008/09 recession highlighted the health gap between the haves and have-nots. Comparing adults from time points before (1995–1996) and after (2011–2014) the recession, the authors find that the socioeconomic inequalities that were exacerbated by the global financial crisis were also evident in widening the health gaps (Kirsch and Ryff 2016 and Kirsh et al. 2019). Also using MIDUS data, Goldman, Gleib, and Weinstein (2018) found substantial social stratification in the psychological health among American adults. The lower a person's socioeconomic status, the greater the drop in mental health. In Asia, there was a significant deterioration in the health and nutrition of mothers and children in poor communities in the short term during the 1997 Asian financial crisis (Bhutta et al. 2009).

Economic crisis and unemployment have a devastating impact on families, particularly children. Economic pressure, through its influence on parental mental health, marital interaction, and parenting, affects the mental health of children and adolescents (Conger, Rueter, and Conger 2012; and Conger and Conger 1992).

### **Individual Responses**

Individual responses consist of time use changes, consumption changes, and stress changes.

### **Time Use Changes**

Economic contraction can improve health when the reduced time at work enables the person to have more time available for more productive and healthy practices (e.g., exercise or monitoring the health of chronically ill relatives). However, the opposite can happen also as individuals manage the consequences of lost jobs or lost income. Kumar et al. (2013) showed that, without paid sick days, the employed may stay at work even when ill, increasing the risk of spreading infections. In addition, working conditions worsen in firms that have laid off many workers (Tausig and Fenwick 1999), which could increase stress levels and mental and physical morbidity.

### **Consumption Changes**

Households and individuals who lose income will forego consumption of healthy goods and services which they consider less essential. Catalano et al. (2011) refers to this change in behavior as effect budgeting. The coping mechanisms they adopt may have deleterious consequences. For example, lower quantity and quality of food intake and less utilization of health services may lead to deterioration of household nutrition and health outcomes. Strategies like these were observed among Argentinian households in 2001 when the country was in deep economic and financial crisis (Fisbein, Giovagnoli, and Aduriz 2003), among Asians during the Asian financial crisis of 1997/98 (Knowles, Pernia, and Racelis 1999), in Europe (Bartlett and Uvalic 2013; Habibov, Auchynnikava, Luo, and Fan 2018; and Ramesh 2009), and in the United States (Burgard and Hawkins 2014) during the 2008/09 global financial crisis.

Another form of coping mechanism is the increase in the consumption of unhealthy substances like cigarettes, drugs, and alcohol. Using repeated cross-section individual-level data from 1984 to 1995, Dee (2001) showed that binge drinking in the United States increased substantially during economic downturns. Similarly, drug use and distribution and cigarette smoking rose among teens and young adults during economic downturns (Arkes 2007 and 2012).

## **Stress**

Studies have shown that an economic crisis is a major source of stress that negatively affects health, especially mental health.<sup>2</sup> Stress is linked to rise in unemployment; increased workload; difficulty in meeting financial obligations; wage and income reduction; and decline in institutional resources and social capital, which characterizes economic recessions.

The effects of economic crises on mental health can be categorized into four types: (1) psychological wellbeing (as measured by mental health distress, self-rated health (SRH), and wellbeing or quality of life variables); (2) common mental disorders (like depression, anxiety, and somatoform disorders); (3) substance-related disorders; and (4) suicidal behaviors (Frasquilho et al. 2016).

Using balanced panel data for 2008–2011 covering 26 European countries, Brzezinski (2019) found that the incidence of low SRH increased during the crisis. The rise in low SRH was attributed mainly to the rise of material deprivation and job loss. Individual country studies also showed the same results during the economic recession in: Greece (Drydakis 2015, Zavras et al. 2013, Simou and Koutsogeorgou 2014, and VANDOROS et al. 2013); Italy (Minelli, Pignini, Chiavarini, and Bartolucci 2014); Spain (Bartoll, Palencia, Malmusi et al. 2014); Sweden (Blomqvist, Burstrom, and Backhans 2014); and Japan (Kondo et al. 2008). Mental distress can also arise from inability to service debt (Keese and Schmitz 2014, and Turunen and Hiilamo 2014) or wealth losses. One study of Americans showed that those with large stock holdings prior to the global financial crisis were 50% more likely to feel depressed and 20% less likely to report excellent or very good health (McInerney et al. 2013).

Although the employed may not be severely affected as the unemployed, they may also be affected by way of a more negative perception of the future. Giorgi, Arcangeli, Mucci, and Cupelli (2015) looked at the effect of fear of the crisis on the mental health of the employed in Italy during the global financial crisis. The authors found that the fear of the economic crisis lessens the practice of social support as individuals become more preoccupied with their own situations. The decline in social support among employees, in turn, increases job-related stress, which naturally affects one's mental wellbeing.

According to the WHO, close to 800,000 people die of suicide every year, making it the 18th leading cause of death in 2016, the latest year data is available. Suicide is a global phenomenon with a lot of causes. However, studies have shown that there is a substantial increase in the prevalence of suicidal thoughts and attempts and actual suicide cases

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<sup>2</sup> Refer to Mucci, Giorgi, Roncaioli, Perez, and Arcangeli (2016) for a systematic review of studies correlating stress with economic crises.

during and after economic recessions. The Asian financial crisis also saw a rise in suicide cases. There was a marked increase in suicide rates in a number of East Asian and Southeast Asian countries in the late 1990s (Chang, Gunnell, Sterne, Lu, and Cheng 2009; Kim, Song, Yi, Chung, and Nam 2004; Lin and Lu 2008; Khang, Lynch, and Kaplan 2005; Thomyangkoon, Leenaars, and Wasserman 2005; Ueda and Matsumoto 2003; and Yip, Cheung, Chau, and Law 2010).

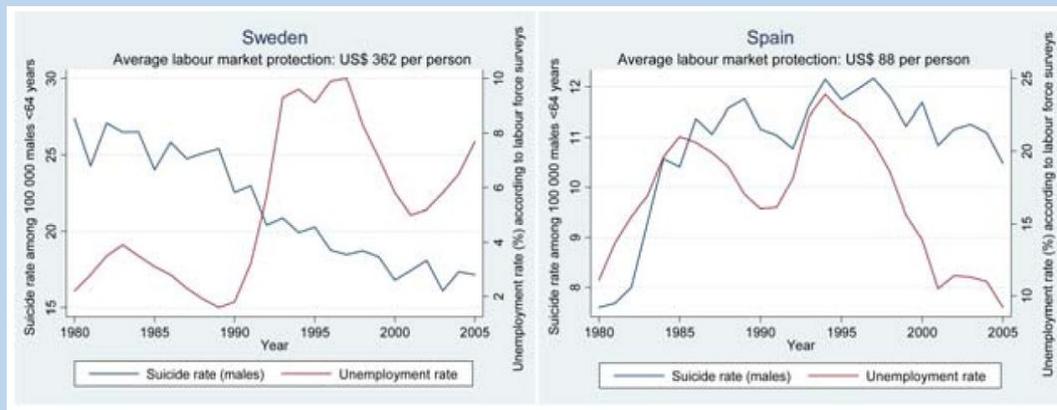
In a population-level study of suicide in 54 countries before and after the global financial crisis, Chang, Stuckler, Yip, and Gunnel (2013) found that there were 4,884 more suicides in 2009 than what would have been expected based on trends between 2000 and 2007, prior to the crisis. European, North American, and South American countries drove the trend, as did men. In the 27 European countries studied, the suicide rate for men increased by 4.2%, while there was no increase for women. In the 18 countries in the Americas included in the analysis, suicide rates for men increased by 6.4%, compared with 2.3% for women. More recently, Economou et al. (2013) found similar results for Greece in 2009 and 2011. People suffering from depression, men, married individuals, people experiencing financial strain, people with low interpersonal trust, and individuals with a history of suicide attempts were found to be particularly vulnerable to committing suicides.

Durkheim (1952) proposed a possible explanation to the above phenomenon. According to Dukheim, during economic crises, the risk of suicide of certain individuals increases because they fail to adjust to the sudden deterioration in their socioeconomic status. The risk is intensified when society or institutions fail to help these individuals readapt (box). The stress caused by economic recessions disrupts the equilibrium of the body and “evoke a set of nonspecific physiological responses” that allow the body to cope (Phifer, Kaniasty, and Norris 1988). However, if the exposure is intense, prolonged, or repeated, the physical and mental ability of the person to cope weakens, rendering the body more susceptible to illness and altering normal behavioral patterns.

### **The Need for Supporting Institutions and Programs**

An example of the need for social support is a comparison of suicide rates in Sweden versus Spain from 1980 to 2005. In the early 1990s, Sweden suffered a severe bank crisis that resulted in a very rapid rise in unemployment. However, suicide rates were unaffected, even falling steadily over time. This contrasts sharply with the situation in Spain, which suffered multiple banking crises in the 1970s and 1980s. When unemployment rates rose, suicide rates increased. When unemployment fell, suicide rates fell too (see Figure below). Although there are many differences between Sweden and Spain, one possible explanation is that Sweden traditionally allocated more resources for social protection, such as family support, unemployment benefits, and health care services, than Spain.

## Unemployment Rate and Suicide Rates per 100,000 Males in Sweden and Spain, 1980–2005



Source: World Health Organization 2011.

Another unwelcome manifestation of this behavioral change is the rise in domestic violence. Stressful experiences increase the likelihood of experiencing other stressors not directly associated with the economy. These include marital difficulties or family conflicts. Actual economic hardship can cause abusive behavior. In addition, increasing uncertainty and the resulting fear and anxiety can affect the quality of relationships. For example, Schneider, Harknett, and McInahan (2016) show that the adverse behavioral effects of unemployment shocks persisted even after controlling for individual-level measures of unemployment and material hardship. Unfortunately, domestic violence or marital conflicts not only affects the partners themselves. In particular, children may suffer trauma from witnessing parental violence, and/or experience parental neglect as a consequence of violence (Appel and Holden 1998 and Nicklas and MacKenzie 2013).

### Disease Outbreaks and Mental Health

COVID-19 is both a health crisis and an economic crisis. As such, it is worthwhile to briefly take stock of the impact of health crisis on mental health. Since COVID-19 is a new disease and much of it is still unknown, a high degree of fear and anxiety is engulfing the general population. The highly contagious nature of the disease is fear, and anxiety is especially pronounced among the most vulnerable groups, e.g., health care providers, the elderly, and those with pre-existing health conditions. As the coronavirus pandemic spreads and its impacts are felt widely, sense of helplessness, loneliness, and depression; use of alcohol, drugs, and other toxic substances; and self-harm or suicidal attempts are expected to rise. Historically, outbreaks of epidemics, and pandemics have been found to trigger elevated levels of stress, fear, and anxiety, which can harm the psychological wellbeing of the population. Studies on the severe acute respiratory syndrome (SARS) epidemic outbreak in 2003, the Ebola outbreak in Sierra Leone, and the H1N1 influenza virus outbreak in 2009 all showed an increase in depression, anxiety, somatoform disorders, and suicidality (Chong et al. 2004; Wu et al. 2009; Yip et al. 2010; Page, Seetharaman, and Wessely 2011; and Kamara et al. 2017).

Brooks et al. (2020) reviewed 24 studies covering 10 countries to document the psychological impact of quarantine during SARS, Ebola, the 2009 and 2010 H1N1 influenza, Middle East respiratory syndrome, and equine influenza. Most of the reviewed studies reported negative psychological effects, including post-traumatic stress symptoms, confusion, and anger, with some individuals suffering long-lasting effects. Identified stressors include longer quarantine duration, infection fears, frustration, boredom, inadequate supplies, inadequate information, financial loss, and stigma. The potential fallout of an economic downturn on mental health is pronounced on those directly affected and their caregivers. For example, the SARS epidemic in 2003 was associated with a 30% increase in suicide in those aged 65 years and older, about 50% of recovered patients remained anxious, and 29% of health care workers experienced emotional distress.

Lack of accurate information and the abundance of misinformation, often aided by sensationalist popular media headlines and articles, have been shown to fuel health-related fears and phobias (Taylor and Asmundson 2004). The explosive growth of social media in recent years is further fueling misinformation, popularly known as fake news, which can spread and intensify fear and anxiety.

### **The COVID-19 Pandemic and Mental Health**

The previous sections make it abundantly clear that both economic crisis and outbreaks of diseases have significant, adverse effects on mental health. Therefore, the fact that COVID-19 is a once-in-a-century economic crisis as well as a once-in-a-century health crisis is likely to amplify its negative impact on mental health. Although the COVID-19 pandemic is still evolving and far from over, its effects are already being felt. Emerging evidence shows that the deterioration in mental health can be deep and long-lasting. The pronounced and persistent effect on mental health, in turn, may further deepen the economic consequences of the twin crises.

Data from various public opinion polls show that novel coronavirus (2019-nCoV) is having a significant psychological impact. According to an Angus Reid poll of 1,354 Canadian adults conducted in early February 2020, one third of the respondents were worried about the virus and 7% were “very concerned” about becoming infected (Angus Reid Institute 2020). At the time of the poll, only 4 Canadians were infected, indicating a very low objective risk for a country of about 37 million. Yet 7% of the population—that is, 2.6 million people—were subjectively very concerned. There was also an increase in hygienic and avoidance behaviors. After hearing about the outbreak, 3% of the respondents in the Angus Reid poll purchased a face mask, 41% washed their hands more often, 4% avoided taking public transit, and 12% avoided public places.

Broadly similar findings were reported in surveys in the United States. According to a poll of 808 United States adults conducted on 31 January–1 February 2020 (National Public Radio 2020), 66% of the respondents viewed COVID-19 as a real threat and 56% were very concerned about the spread of the coronavirus in the United States. About a quarter (26%) of the respondents thought the Government of the United States was not doing enough to contain the pandemic. More recently, a Kaiser Family Foundation poll conducted last April 2020 showed that 45% of the adults in the United States reported

that their mental health was negatively impacted because of worry and stress over the virus. The poll found that 54% of respondents who lost income or employment reported negative mental health impacts from worry or stress over coronavirus, compared with 40% of respondents who did not. Further, 26% of respondents who suffered economically reported major negative impacts on their mental health, compared with 15% of respondents who did not.

The Morning Consult company conducted a poll of American adults since January 2020. In its 9 March poll survey, a third of the respondents (33%) said they were very concerned about the coronavirus outbreak. Two months after, in its 10 May survey, this increased to more than half (56%) of the respondents. In March, almost a quarter (24%) of the respondents were concerned about the local economy. This share increased to 52% in May.

In less than 3 months since the WHO declared COVID-19 a pandemic, a lot of studies already delved into its health effects. The results of a number of these studies are summarized in the Appendix. The most common symptom is anxiety. Anxiety was associated with impaired sleep (Xiao et al. 2020a and 2020b; Rossi, Soccì, Talevi, Mensi, et al. 2020; and Liu et al. 2020). In the population-based study, female gender, being a student, having symptoms suggestive of COVID-19, and poor perceived health were associated with higher rates of anxiety and depression. On the other hand, the availability of accurate information and the use of specific preventive measures, such as hand washing, seemed to mitigate negative thoughts (Wang et al. 2020). A number of studies have documented also the mental health issues facing health care workers, including frontline medical personnel (Tan, Chew, Lee, et al. 2020; Xiao et al. 2020; and Zhang, Yang, Liu, et al. 2020).

### **COVID-19 and the Urgent Case for Wellness**

Emerging evidence which looks directly at the effects of COVID-19, as well as evidence from the large existing literature on the effects of economic and health crisis on health, especially mental health, strongly suggests that the pandemic will have a significant negative impact on the happiness and well-being of mankind. Economic crisis inflicts substantial economic pain on individuals; for example, unemployment or loss of income. Likewise, disease outbreaks heighten individuals' health-related worries and anxiety; for example, fears and even paranoia of infection. Given the unprecedented nature of COVID-19, which has wrought havoc on global health systems and the world economy in a matter of weeks, it may leave a large, lasting footprint on the well-being of individuals in Asia and beyond. The pandemic strengthens the case for wellness, or the active pursuit of activities, choices, and lifestyles that promote well-being for a number of specific reasons.

First, COVID-19 underscores the importance of being physically fit and healthy, which boosts our immune systems that protect us from disease. Although the virus that causes COVID-19 infects people of all ages, evidence to date confirms that fitter and healthier individuals are less vulnerable. According to the WHO, older people (that is people over 60 years old) and those with underlying medical conditions (such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer) are more vulnerable (WHO

2020). These have been corroborated by clinical studies of COVID-19 patients (for example, Huang et al. 2020, Wang et al. 2020, Yang et al. 2020, Garg et al. 2020, and Liang et al. 2020). The Centers for Disease Control and Prevention (CDC) of the United States has identified obesity, or a body mass index of 40 kg/m<sup>2</sup> or higher, as another risk factor (CDC 2020). This is not surprising as obesity has been associated with greater risk of type 2 diabetes, cardiovascular disease, and hypertension. These conditions are classified in the medical profession as lifestyle diseases which can be prevented by physical activity.

Just as individuals with pre-existing physical illness are more likely to fall ill from COVID-19, people with existing mental issues are also at greater risk of experiencing more serious mental illness as a result of COVID-19. These people are at a greater risk of relapse, owing to fear, anxiety, and social rhythm disruption. For example, staying with family may harm a patient who suffers from post-traumatic stress disorder because of past family trauma. Another example is people who have a preexisting condition known as obsessive compulsive disorder (OCD). Patients suffering from one type of OCD known as contamination OCD frequently and repeatedly wash their hands. The COVID-19 pandemic can blur the boundary between health safety and compulsion.

Growing medical evidence points to the lingering effects of the virus in the patient's body even after he or she recovered. This was revealed in blood tests done by Chinese doctors on 34 COVID-19 patients. Results show that many biological markers of those who survived did not return to normal (Wu et al. 2020). Similar evidence was found in discharged COVID-19 patients in Hong Kong, China. They had difficulty doing the same activities they did in the past. In short, COVID-19 survivors would continue to engage in activities that improve their physical condition, such as regular exercise.

Second, although community lockdowns and quarantines are curtailing the spread of the disease, the restrictions are encouraging physical inactivity and greater reliance on processed food and canned goods, which may increase the risk of metabolic diseases in the population. Staying at home disrupts social rhythms and deprives people of their social-coping mechanism with stress, leading to loneliness, depression, and erosion of mental function. Leading theories of suicide emphasize the key role that social connections play in suicide prevention. Individuals having suicidal thoughts often lack connections to other people and often disconnect from others (Darvishi, Farhadi, Haghtalab, and Poorolajal 2015). Also, what if the individual is living in a toxic home environment? Then spending more time at home without access to usual support networks could be extremely stressful. Thus, the public health strategy which is central to stopping the spread of the disease may be triggering another kind of crisis centered on social isolation and loneliness.

Third, wellness activities play an important role in boosting the immune system to fight coronavirus. Proper hygiene, good nutrition, adequate sleep, meditation, regular exercise, and a positive attitude can reduce stress and build the body's resistance against infections and other illnesses. Health experts have also issued warnings against smoking, vaping, and alcohol consumption (NIDA 2020). Smoking cigars and cigarettes, using drugs, and vaping can damage the lungs and contribute to pneumonia—a big red flag for coronavirus. Similarly, drinking alcohol damages the liver and reduces the presence of

white blood cells and other helpful microorganisms in the body which help fight off infections.

Fourth, when the pandemic recedes, post-COVID-19 care will emerge as a top priority. People who survived the virus have to engage in wellness activities to help them fully recover and get their lives back. Not only do we have to think about the patients, but also the health care providers who may be physically as well as mentally and emotionally exhausted. Another social issue which must be tackled is the social stigma and discrimination toward infected people and their family members.

Lastly, we cannot rule out the danger of a pandemic-induced burnout. When people are forced to stay at home and do their work from home, then the lines between home and work and between the personal and the professional become blurred. Coupled with the pressure to be more productive since we now have more time, being busy now becomes part of our own coping mechanism. Since we are doing work remotely, in the comforts of our home, the tendency to overwork is stronger and the risk of burnout may increase. That is, people may overwork without knowing it since they are working in the comforts of their home.

### **Concluding Observations**

COVID-19 is a once-in-a-century global health and economic crisis. In this paper, we document the link between the twin crises and individual well-being, especially mental health, by looking at past and current evidence. Past studies of the nexus between economic crisis and mental health, as well as the nexus between disaster outbreaks and mental health, point to significant, negative relationship. Emerging studies, which analyze the effect of COVID-19, confirm a negative effect, which is likely to be large and persistent given the unprecedented nature of the health and economic crisis. Our review, thus, strengthens the case for wellness, or the active pursuit of activities, choices, and lifestyles that promote happiness and well-being. Wellness will empower and enable individuals to achieve and maintain their mental and physical well-being, which are invaluable assets for navigating the uncertain and stressful post-COVID-19 world.

Importantly, wellness is not the exclusive preserve of richer countries and richer individuals. In fact, during COVID-19, poor and vulnerable groups bore a disproportionate share of the health and economic pain; for example, African-Americans in the United States. And developing countries with weak health infrastructures have seen health disasters morph into humanitarian disasters, with their hospitals unable to cope with surging cases. But wellness can contribute to sustainable development as well as the mental and physical health of the poor. Wellness or the active pursuit of well-being is in line with the United Nations SDGs, in particular SDG 3: to ensure healthy lives and promote well-being for all at all ages. A focus on wellness would also provide a more balanced and holistic view on development progress than simply pursuing increases in income per capita. In principle, many wellness activities, such as physical exercise, are available to all. In practice, the poor are at a disadvantage since they have less money and time to devote to wellness, and have more limited access to, or knowledge about, health facilities or nutritious foods. Public investment in wellness infrastructure, such as community recreation centers and green parks in poor neighborhoods, as well as health education campaigns, can help level the playing field.

**Appendix: Studies and Opinion Surveys of Mental Health Concerns Related to COVID-19**

<b>Author</b>	<b>Country of Origin</b>	<b>Population(s) Studied</b>	<b>Methodology</b>	<b>Study Instruments</b>	<b>Results</b>
Wang et al. 2020	PRC	General public (n = 1210)	Online survey	Depression, Anxiety, and Stress Scale (DASS-21); Impact of Event Scale-Revised (IES-R)	16.5% moderate to severe depressive symptoms; 28.8% moderate to severe anxiety symptoms; 8.1% moderate to severe stress
Xiao et al. 2020a	PRC	Medical staff treating patients with COVID-19 (n = 180)	Cross-sectional, self-rated questionnaire	Self-Rating Anxiety Scale (SAS), General Self-Efficiency Scale (SES), Stanford Acute Stress Reaction Questionnaire (SASR), Pittsburgh Sleep Quality Index (PSQI), Social Support Rate Scale (SSRS)	Mean anxiety scores $55.3 \pm 14.2$ ; anxiety positively correlated with stress and negatively with sleep quality, social support, and self-efficiency ( $p < .05$ , all correlations)
Li et al. 2020	PRC	General public (n = 214); frontline nurses (n = 234); non-frontline nurse (n = 292)	Cross-sectional, self-rated survey using a mobile app	Chinese version of the Vicarious Traumatization Scale	Traumatization related to COVID-19 higher among non-frontline than frontline nurses ( $p < .001$ ); traumatization among the general public higher than for frontline nurses ( $p < .005$ ), but not non-frontline nurses

Author	Country of Origin	Population(s) Studied	Methodology	Study Instruments	Results
Xiao et al. 2020b	PRC	Individuals in self-isolation for 14 days (n = 170)	Cross-sectional, self-rated questionnaire	Self-Rating Anxiety Scale (SAS), Stanford Acute Stress Reaction Questionnaire (SASR), Pittsburgh Sleep Quality Index (PSQI), Personal Social Capital Scale (PSCI-16)	Mean anxiety score $55.4 \pm 14.3$ , anxiety positively correlated with stress and negatively with sleep quality and social capital, social capital positively correlated with sleep quality ( $p < .05$ , all correlations)
Gao, Zheng, Jia, et al. 2020	PRC	Chinese citizens aged 18 years old and above (n = 4872)	Online survey conducted during 31 January–2 February 2020	Depression was assessed by the Chinese version of WHO-Five Well-Being Index (WHO-5) and anxiety was assessed by Chinese version of generalized anxiety disorder scale (GAD-7). Multivariable logistic regressions were used to identify associations between social media exposure with mental health problems after controlling for covariates.	The prevalence of depression, anxiety, and combination of depression and anxiety (CDA) was 48.3% (95%CI: 46.9%–49.7%), 22.6% (95%CI: 21.4%–23.8%), and 19.4% (95%CI: 18.3%–20.6%) during COVID-19 outbreak in Wuhan, the PRC. More than 80% (95% CI: 80.9%–83.1%) of participants reported frequently exposed to social media. Findings show there are high prevalence of mental health problems, which positively associated with frequent social media exposure during the COVID-19 outbreak.
Lee, S. 2020	US	General public (adults with mean age of 32.72 years (SD = 9.35)	Online survey with participants recruited through Amazon MTurk (n	Participants were asked to report their age, gender, ethnicity, education, current residency, coronavirus diagnosis, and history of anxiety.	Asians had elevated CAS scores relative to Whites and Blacks possibly because of the fact that many of them retained constant communication with

Author	Country of Origin	Population(s) Studied	Methodology	Study Instruments	Results
			= 775) conducted during 11–13 March 2020	<p>5-point scale to rate the psychological effect and functional impairment experienced</p> <p>5-point time anchored scale to rate their maladaptive coping mechanisms</p> <p>20-item Coronavirus Anxiety Scale (CAS) to measure the cognitive (i.e., repetitive thinking, worrying, processing biases, dreaming, planning); behavioral (i.e., dysfunctional activities, avoidance, compulsive behaviors); emotional (i.e., fear; anxiety; anger); and physiological (i.e., sleep disturbances, somatic distress, tonic immobility) dimensions of anxiety</p>	<p>people in countries where the coronavirus had devastating effects.</p> <p>Younger age and higher education levels were associated with higher coronavirus anxiety.</p> <p>Coronavirus anxiety was also found to significantly influence social attitude (approval of conservative policies of President Trump, avoidance of Chinese food and products)</p>
Angus Reid Institute 2020	Canada	General public	Online survey (n = 1912)	COVID-19 Impact Index 4 categories: (i) hardest hit (struggling with mental and financial issues), (ii) struggling mentally, (iii) struggling financially, and (iv) managing well both financially and mentally	<p>34% Canadians are managing well, 16% are financially struggling, 24% are mentally struggling, and 26% fall into the hardest hit category.</p> <p>Of the 50% of Canadians who said that their mental health is being affected, 10% said that it has worsened “a lot.”</p>

Author	Country of Origin	Population(s) Studied	Methodology	Study Instruments	Results
Office for National Statistics 2020	UK	General public (Individuals aged 16 years and over)	Online and telephone survey (Opinions and Lifestyle Survey, 17–27 April 2020) (n = 1030)	Questions were asked to all responding adults unless specified otherwise	<p>About 3 in 4 (75%) of those who said their well-being was being affected said they were feeling worried about the future, with over 6 in 10 (63%) feeling stressed or anxious and over half (53%) feeling bored. Over 4 in 10 (43%) also said not being able to exercise as normal was impacting their well-being.</p> <p>Although it is not known how many people who said their well-being was affected had mental health issues prior to the coronavirus pandemic, over 3 in 10 (31%) of those whose well-being has been affected said it was making their mental health worse, an increase from 21% last week.</p>
Rossi, Soggi, Talevi, Mensi, et al. 2020	Italy	General public (18 years old and over)	Online survey from 27 March to 6 April 2020) (n = 18147)	Participants were asked to answer a questionnaire. Selected outcomes were post-traumatic stress symptoms (PTSS), depression, anxiety, insomnia, perceived stress and adjustment disorder symptoms (ADS). Seemingly unrelated logistic regression analysis was performed to identify COVID-19-related risk factors.	Respondents endorsing PTSS, depression, anxiety, insomnia, high perceived stress, and adjustment disorder were 6,604 (37%), 3,084 (17.3%), 3,700 (20.8%), 1,301 (7.3%), 3,895 (21.8%), and 4,092 (22.9%), respectively. Being woman and younger age were associated with all of the selected outcomes. Quarantine was associated with PTSS, anxiety, and ADS. Any recent COVID-related

Author	Country of Origin	Population(s) Studied	Methodology	Study Instruments	Results
					<p>stressful life event was associated with all the selected outcomes. Discontinued working activity due to the COVID-19 was associated with all the selected outcomes, except for ADS; working more than usual was associated with PTSS, perceived stress, and ADS. Having a loved one deceased by COVID-19 was associated with PTSS, depression, perceived stress, and insomnia</p>
Sciensano	Belgium	General public (16 years old and over)	Online survey during 2–9 April 2020 (n = 44000)	<p>Questionnaire focusing on lifestyle and well-being in COVID-19 times.</p> <p>Through their expertise, our researchers can assess whether our health, our health-related behaviors, and our use of health services have changed during this crisis period, compared with the figures of the national interview health survey of 2018. In order to make this comparison, we used as much as possible the same sets of questions in both studies.</p>	<p>Depressive disorders have sharply increased from 10% in 2018 to a current rate of 16%. Additionally, the survey found that people between the ages of 16 and 24 would be among those most affected. The prevalence of depression has tripled in young women (30%) and quadrupled in young men (29%).</p>

Author	Country of Origin	Population(s) Studied	Methodology	Study Instruments	Results
Ipsos	15 countries: Australia, Canada, France, Germany, Italy, Japan, the Russian Federation, the United Kingdom, the United States, Viet Nam, PRC, India, the ROK, Brazil, and Mexico	General public (16–74 years old)	Online survey conducted during 26–30 March 2020. (n = 28000). The sample consists of about 2,000 individuals in each country with the exception of the ROK and Viet Nam each at 1,000. The samples in Australia, Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. can be taken as representative of these countries' general adult population over age 16 or 18 (as above) and under the age of 75	The sample in Brazil, the PRC, India, Mexico, the Russian Federation, the ROK, and Viet Nam is more urban, more educated, and/or more affluent than the general population and should be viewed as reflecting the views of the more “connected” segment of the population. The data is weighted so that each market’s sample composition best reflects the demographic profile of the adult population according to the most recent census data.	Nearly 14,000 people across 15 major countries, more than two in five (43%) of the respondents, said they are impatient to get back to normal life. Another third (34%) are anxious about their health, while 15% are lonely, and 12% are angry about restrictions to their freedom. At the same time though, more than half (55%) are concerned for those who are vulnerable or weak, while just under a third (31%) are happy to spend time with family. Another one in five (22%) are inspired by how people are adapting.
Tan, Chew, Lee, et al. 2020	Singapore	Health care workers from two major tertiary institutions in Singapore who were caring for patients with COVID-19 (n = 470)	Self-administered questionnaire done from 19 February to 13 March 2020	In addition to information on demographic characteristics and medical history, the questionnaire included the validated Depression, Anxiety, and Stress Scales (DASS-21), and the Impact of Events Scale–Revised (IES-R) instrument	14.5%) of participants screened positive for anxiety, 8.9% for depression, 6.6%) for stress, and 7.7% for clinical concern of posttraumatic stress disorder. The prevalence of anxiety was higher among nonmedical health care workers than medical personnel (20.7% versus 10.8%)

Author	Country of Origin	Population(s) Studied	Methodology	Study Instruments	Results
Academy of Social Sciences	UK	Online survey A nationally representative general population survey. Carried out on the Ipsos online Omnibus between Thursday 26th and Monday 30th March 2020.		A stakeholder survey of people with lived experience of mental health problems and their supporters, health care professionals, researchers, and the general public with an interest in the topic. Carried out between 25-27 March 2020 and was promoted via email and through social media channels.	In total, 2,198 people took part in the stakeholder survey. They submitted a total of 4,350 concerns about the mental health impacts of the COVID-19 pandemic. The majority (70%) of the respondents were people with lived experience of a mental illness. A total of 1,099 interviews were completed in the Ipsos online Omnibus. Quotas were set and data were weighted to the offline population to be representative by age, gender, and region.
Nicomedes and Abila, 2020	Philippines	General public (n = 538)	Online survey	Quantitative and qualitative data were both analyzed and interpreted interactively. Health Anxiety Inventory (HAI) Short Week was adapted to test the Illness Anxiety on COVID-19 among Filipinos. The HAI is composed of 4 categories: symptoms of health anxiety (hypochondriasis), symptoms of health anxiety (hypochondriasis), avoidance, and reassurance seeking. Qualitative data were derived from answers to open-ended questions.	The level of Symptoms of Hypochondriasis, Attitude on Acquiring COVID-19, Avoidance, and Reassurance Seeking of the Filipinos is moderate

Author	Country of Origin	Population(s) Studied	Methodology	Study Instruments	Results
Academy of Medical Sciences	US	General public (adults) (n = 1004)	Online survey during 18–19 March 2020	These findings are from an American Psychiatric Association-sponsored poll conducted online via a Porter Novelli PN View: 360 survey using Engine's online CARAVAN® Omnibus survey.	Results showed 36% of Americans reported that the novel coronavirus is having a serious impact on their mental health, and most (59%) felt the coronavirus is having a serious impact on their day-to-day lives. Almost half were worried about running out of food, medicine and/or supplies, 57% were concerned that the coronavirus will have a serious negative impact on their finances, and 68% feared that the coronavirus will have a long-lasting impact on the economy.
Zhang, Yang, Liu, et al. 2020	PRC	Medical staff (n = 1563)	Self-administered online questionnaire through WeChat program	The Insomnia Severity Index (ISI) was used to measure the severity of insomnia. The Patient Health Questionnaire 9-item depression module (PHQ-9) is used to measure depressive symptoms. The Generalized Anxiety Disorder (GAD) scale is used to screen anxiety symptoms. The Impact of Events Scale-Revised (IES-R) was used to evaluate the psychological response associated with trauma.	More than one-third of the medical staff suffered insomnia symptoms during the COVID-19 outbreak. The related factors included education level, an isolation environment, psychological worries about the COVID-19 outbreak, and being a doctor.

PRC = People's Republic of China, ROK = Republic of Korea, UK = United Kingdom, US = United States, WHO = World Health Organization.  
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