Addressing psychological resilience during the coronavirus disease 2019 pandemic: a rapid review

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Purpose of review
The mental health toll on populations exposed to COVID-19 is alarming, and there is a need to address this with urgency. This current review provides insights on how individuals, communities, and specific populations, such as healthcare workers and patients are leveraging pre-COVID-19 and peri-COVID-19 factors to reinforce their psychological resilience during the global public health crisis.

Recent findings
Examination of the extant literature indicated that populations around the world rely often on support from their loved-ones, closed significant others, outdoor and physical activities, and spirituality to cope with the COVID-19-related distress. Increased sense of meaning/purpose since the COVID-19 pandemic was also reported.

Summary
A portion of publications provided intervention models to reinforce resilience among specific populations during the COVID-19 pandemic. Nevertheless, it is not convincing that some of these models can be applied universally. Additionally, it is important to note that in this category, translational data was scarce.

Keywords
coronavirus disease 2019, infectious disease, mental health, outbreak, pandemic, resilience

INTRODUCTION

Mental health consequences of coronavirus disease 2019

On 11 March, the WHO declared the novel coronavirus [coronavirus disease 2019 (COVID-19)] outbreak as a global pandemic. According to early October 2020 WHO's updates, a new surge of COVID-19 that has now spread to over 235 areas, countries, and territories, with over 35 million individuals contracting the virus. This has resulted in over 1 million deaths across the globe [1] and many more suffering from the economic, physical, and mental health consequences of its aftermath [1]. It is important to note that this COVID-19 translates to a broad range of somatic conditions ranging from fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, the loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, diarrhea [2▪▪,3▪▪,6].

Studies reviewed by Vindegaard and Benros in 2020 revealed that the vast majority of participants infected with COVID-19 are at high risk for post-traumatic stress (96.2%) and depressive symptoms. Individuals with preexisting psychiatric conditions reported a deterioration of psychiatric symptoms: 37.5% with an eating disorder and 56.2% reported additional anxiety symptoms [3▪▪]. In the general population, the situation was no different, as studies found that individuals without a mental health history exhibited lower psychological well-being and greater levels of anxiety and depression in comparison to the period that preceded the COVID-19 pandemic [3▪▪,4▪]. The burden of mental health was quite stark in the United States, as the prevalence of depression symptoms in the United States was more than three-fold higher during COVID-19 compared

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KEY POINTS

- Psychological resilience has emerged as a fundamental variable in reducing and preventing the negative psychological effects of the pandemic.
- Populations around the world rely often on support from their loved ones, closed significant others, outdoor and physical activities, and spirituality to cope with the COVID-19-related distress.
- Overall, resilience promoting factors related to the ongoing COVID-19 pandemic could be regrouped in a chronological perspective: pre-COVID-19 factors, peri-COVID-19 lockdown factors, post-COVID-19 lockdown factors.

with the period before the COVID-19 pandemic [5,6,7▪,8▪,9▪▪]. One group that appeared to be most affected was healthcare workers. According to Vindegaard and Benros (2020), frontline healthcare workers who treated COVID-19 patients were at increased risk of suffering from depression/depressive symptoms, anxiety, psychological distress, and poor sleep quality. During the peak of the pandemic in April 2020, 57% of New York healthcare workers surveyed suffered from acute stress, 48% and 33% endorsed depressive, and anxiety symptomatology, respectively. The vast majority (61%) reported an increased sense of meaning/purpose since the COVID-19 pandemic [4▪]. Furthermore, physical activity or exercise was the most frequent coping strategy (59%) in addition to access to an individual therapist with online self-guided counseling (33%) (Shechter *et al.* [9▪▪]). Moreover, US participants with lower socioeconomic status (SES), and greater exposure to stressors (e.g. loss of income) were more affected by depression symptoms [9▪▪].

Our main goal in this review on 'psychological resilience during COVID-19' is to summarize the main findings on the following aspects: mental health consequences of the current pandemic, factors that facilitate the relationship between COVID and mental health, resilience during infectious diseases outbreak. Lastly, we describe lessons learned that can be used in other conditions.

Factors that facilitate the relationship between coronavirus disease 2019 and mental health

The COVID-19 pandemic is associated with mortality, contamination rate, and strict biosecurity restrictions that are affecting many segments of a functional society. At the peak of the pandemic, the main objective was to mitigate the devastating impacts of populations around the globe that were struggling to cope with: neighborhood quarantines, social distancing, nighttime curfews, and states of emergency that have been imposed worldwide [10▪▪,11▪]. The global economy receded to a precarious state with high levels of unemployment in major industries, and sectors coming to a screeching halt, geographic borders and markets closed for business, trade and agricultural production faltered, altogether creating a cascade of financial losses and psychological stress above and beyond the fear-provoking consequences of the virus itself [7▪,12▪,13▪▪,14]. Most importantly, not all countries, societies, and communities were impacted equally. Many countries have no increased unemployment percentages.

This is not the first time the world has witnessed a global pandemic and catastrophe of epic proportions. The death toll of the influenza pandemic of 1918–1919 surpassed that of World War I (WWI). An estimate of 20–40 million people lost their lives. Also known as the Spanish Flu, it has been cited as the most devastating epidemic in recorded world history [15].

Less than one decade ago, another deadly epidemic emerged in Western Africa with Ebola virus disease (EVD) in 2013. It was the most widespread outbreak of Ebola virus disease (EVD) in history [16▪].

Exposure to global epidemics, such as the 2014–2015 Ebola and the 2003 SARS outbreaks has been associated with a high rate of common mental disorders among survivors in the short to long-term. The prevalence of any psychiatric disorder at 30 months post-SARS was 33.3%. One-fourth of the patients had posttraumatic stress disorder (PTSD), and 15.6% had depressive disorders. Additionally, there is growing evidence on the adverse psychological outcomes including PTSD symptoms, confusion, and anger that are associated with the isolation or quarantine experience imposed on suspected cases during those outbreaks [11▪,17▪,18▪,19▪,20▪,21▪].

As of Mid October 2020, the devastation caused by COVID-19 goes beyond that caused by the SARS epidemic and Ebola. Preliminary studies published on the mental health consequences of the current COVID-19 reveal an alarming rate of stress-related disorders among populations exposed to the pandemic. Symptoms of anxiety and depression (16–28%) and self-reported stress (8%) are common psychological reactions to the COVID-19 pandemic, and may be associated with disturbed sleep and may vary by level of exposure [22▪].

In a nationwide survey of 52 730 individuals from 36 provinces, autonomous regions, and

municipalities, from Hong Kong, Macau, and Taiwan between January 31 and February 20, 2020, about 35% of the sample experienced psychological distress. Among this sample, in line with previous findings, the COVID-19 Peri-traumatic Distress Index (CPDI) score was linked to sex, age, education, occupation, and region [23].

Psychological resilience and infectious diseases outbreak

Over the past decade, the human's ability to adapt in the face of tragedy, trauma, adversity, hardship, and ongoing significant life stressors has been studied under the rubric of 'Psychological Resilience'. Psychological resilience has garnered tremendous interest in mental health and has seized the attention of public health practitioners. As such, psychological resilience has emerged as a fundamental variable in reducing and preventing the negative psychological effects of the pandemic. Currently, PubMed contains more than 50,000 entries related to COVID-19; among them, more than 150 scientific publications focus on 'Psychological resilience' and 'COVID-19'. Overall, publications studying psychological resilience during COVID-19 could be summarized in two categories psychiatric epidemiological research Report papers presenting models of interventions to reinforce psychological resilience.

Psychiatric epidemiological research on resilience and mental health during coronavirus disease 2019

Typically, those studies provide evidence on psychological resilience factors, such as protective factors for anxiety, depression, posttraumatic stress, and other mental health disorders are included in this category. For instance, during the peak of the pandemic in China, Ran *et al.* [12▪] in 2020 found that psychological resilience (CD-RISC scores) was negatively associated with symptoms of depression, anxiety, and somatization. The authors concluded that participants with greater psychological resilience were less likely to exhibit emotional problems, whereas those with lower resilience factors were more likely to report negative emotional symptoms. A similar finding was observed in Germany in an online survey, which found that strategies, such as maintaining a healthy lifestyle and social contacts, acceptance of anxiety and negative emotions, fostering self-efficacy, and information on where to get medical treatment when necessary was helpful. Nevertheless, the psychological burden was mostly linked to substance abuse and suppression of anxiety and negative emotions [11▪].

Key psychological resilience promoting factors during coronavirus disease 2019 lockdown

At present, there is preliminary data on important key behaviors and other factors that may contribute to psychological resilience during the pandemic that originated from China in December 2019. For instance, among Chinese adolescents, a study explored the emotional resilience of middle school students learning at home between February and March 2020 as well as its effect on students' learning management ability. The results of that study indicated that emotional resilience, measured by the Chinese version of the 'adolescent emotional resilience scale' (AERS), was lower among eighth graders, compared with seventh graders. Furthermore, negative emotional recovery worsened during that period, and emotional resilience was positively related to learning management skills; positive emotional ability was a predictor of learning management skills.

In an online Turkish survey conducted among social media users using the 'Short Psychological Resilience Scale' and the 'Beck Depression Scale' (BDI), men, educators, university graduates, and those without mental health problems presented stronger psychological resilience. Conversely, women, university students, high school and lower graduates, and individuals with mental health issues were at higher risk for depression [25▪,37▪▪,38▪▪].

One American study that focused on resilience (defined as the self-perceived trait-like ability to face threatening situations according to the Connor-Davidson Risk Scale-CD-RISC; Connor and Davidson [5]) among 18–35 years old Americans in early April 2020 found that greater resilience was predicted by a set of multiple modifiable factors including the number of days per week spent outdoor in the sunshine, daily exercise, perceived support from closed and loved-ones, sleep quality, perceived care and support from a significant close ones, and frequency of prayer. In summary, those who obtained higher scores on this combination of variables were more likely to exhibit stronger psychological resilience during the lockdown [26▪,27▪,28▪,29▪].

Bueanas *et al.* in 2020 explored coping strategies using the 'Temperament and character inventory-revised' (TCI-R) [24▪] associated with symptomatic deterioration among people with eating disorders. Accordingly, a worsening in eating disorder symptomatology and other psychiatric symptoms (anxiety and depression) during the COVID-19 lockdown were linked to low self-directedness. Greater eating disorder symptoms during confinement were associated with less adaptive coping strategies to adjust to recommended confinement leading to weight

gain. This aligns well with other work in confinement as reported by Moccia *et al.* [8▪]. Additional variables, such as age and eating disorder severity were also associated with COVID-19 concerns.

Overall, resilience-promoting factors related to the ongoing COVID-19 pandemic could be regrouped in a chronological perspective: pre-COVID-19 factors, peri-COVID-19 and lockdown factors, and post-COVID-19 lockdown factors (Fig. 1).

Lessons learned that can be used in other conditions

These publications provide interventions models to reinforce resilience among specific populations during the COVID-19 pandemic. However, it is important to note that in this category, translational data was scarce.

Individual level

As shown in Fig. 1, modifiable peri-COVID-19 factors were leveraged frequently by individuals in their effort to cope with the pandemic. Accordingly, researchers have made many recommendations from the conceptual and methodological gap of psychological resilience perspective and programming standpoint, such as learning stress management, social awareness and minimizing media consumption, increased knowledge on mental health education, continue to build support and bonding, finding ways to increase self-preservation through – physical fitness, reading, yoga, proper nutrition, laughter – finding creative outlets to social and interpersonal communication with individuals through small groups and online communication [3▪▪,5,30,31▪]. Virtual reality therapy to acclimatize individuals pretravel or the growing interest in mental well-being health applications

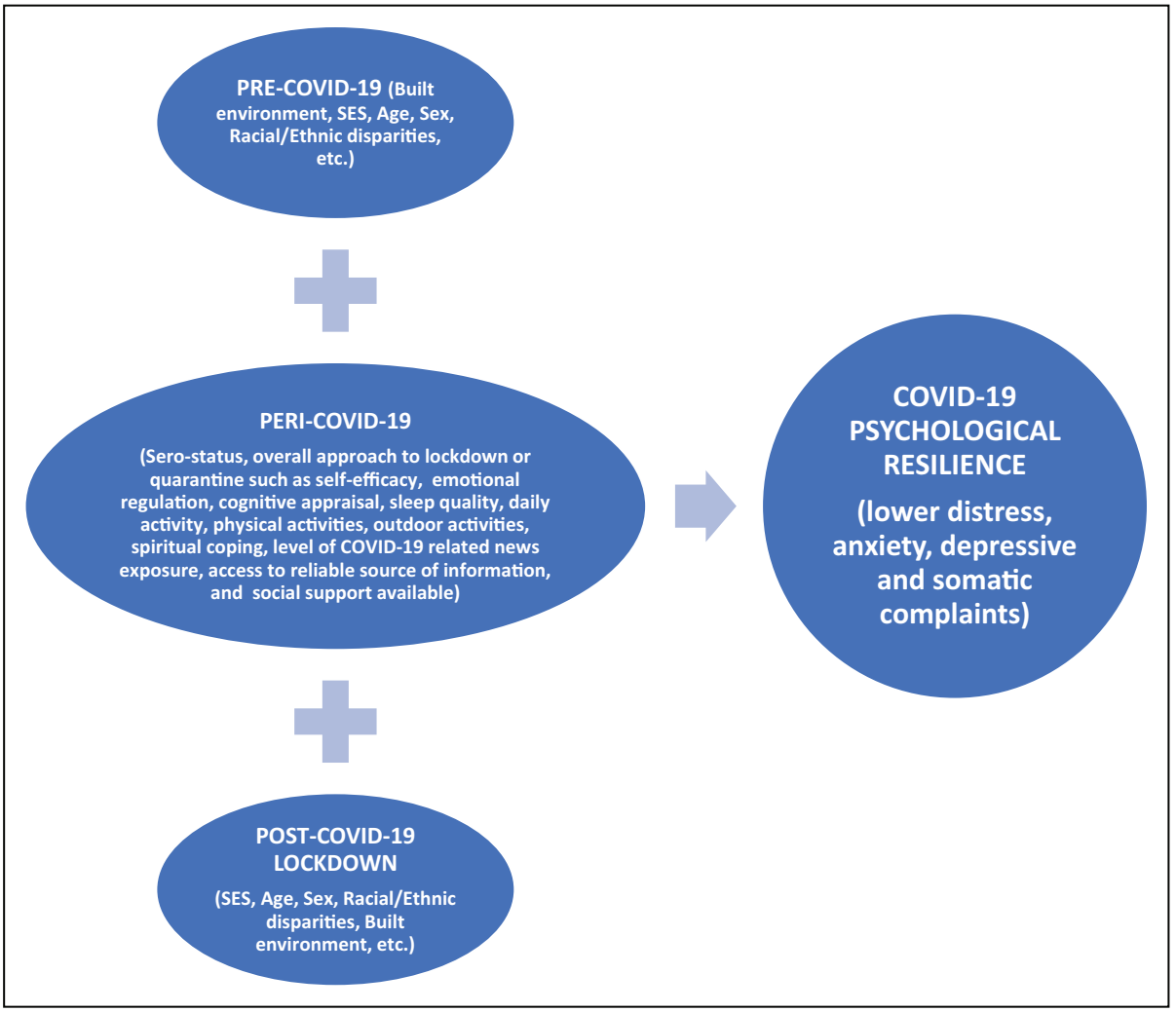

FIGURE 1. Summary of key psychological resilience promoting factors during coronavirus disease 2019 lockdown.

to be used as an informative tool for persons (i.e. healthcare workers) dealing with PTSD – whether it is working long hours in high-intensity environments [12▪,23,30] or individuals recovering from COVID-19- [25▪,32▪]. It could also be the invention of technologically innovative solutions (i.e. mental well-being apps) as a mechanism to promote psychological resilience to foster a digitized community and reduce fear, stress, anxiety, and depression [20▪,21▪,22▪,29▪,33▪▪,34▪,35▪▪].

Institutional and community levels

Leveraging social and economic resources available from their individuals' immediate environment, emerged often in our rapid literature review on resilience-promoting factors during COVID-19. Blanc *et al.* in 2020 in a qualitative study about coping lessons that high-income countries could learn from the Haitian resilience, revealed three main psychological resilient characteristics that may have helped Haitians to cope with the alarming predictions from international and national health authorities. These are: hardiness, the ability to cope, move forward through traumatic events and large-scale disasters; with also the ability to make, imagine, and hope for new future possibilities through creative art. Finally, traditional, natural, and culturally specific interventions (alignment with spiritual beliefs and complementary healing practices) as a mechanism to restore harmony and balance [36▪▪,39▪]. These characteristics do not exist in social isolation but are reinforced through community and togetherness; these are acts that other western countries could leverage in their efforts to buster community resilience during this pandemic.

In the United States, at the institutional level, for instance, Mount Sinai Health System (MSHS) has created an Employee, Faculty, and Trainee Crisis Support Taskforce (in Early March 2020) in New York City. The task force implemented a rapid needs assessment model guided by three priority areas that focus on addressing many challenges of the workforce and maintaining the well-being of the entire MSHS workforce concerning the COVID-19 pandemic [12▪]. The priority areas are meeting the basic needs of the workforce throughout the crisis – this is executed through the Office of well-being and Resilience (OBWR) human resources, recreation office, housing office, infection prevention, nursing – entails serving five categories – food (discounted or free), housing (onsite call room, on-campus option, local hotel at discounted rates), transportation (free parking, discounted or free car rentals); enhancing communications – consolidating system-wide messaging into a daily communication with links to a comprehensive website has helped streamline messaging and direct the workforce situated within multiple hospitals and numerous practice sites, to a single regularly updated resource; developing psychosocial and mental health supportive options – includes several options – self-care resource (i.e. mindfulness activities) to virtual support groups facilitated by social workers and psychologist and to one-on-one counseling sessions and 24/7 immediate crisis management, training mental health staff with exercising the flexibility to shift their responsibilities whenever needed, and creating new initiatives [13▪▪].

CONCLUSION

The mental health toll on populations exposed to COVID-19 is alarming. The current review provides insights on how individuals, communities, and specific populations, such as healthcare workers and patients are leveraging pre-COVID-19 and peri-COVID-19 factors to reinforce their psychological resilience during the ongoing global public health crisis. Throughout the review, we noted that populations around the world rely often on support from their loved-ones, closed significant others, outdoor and physical activities, and spirituality to cope with the COVID-19-related distress. Increased sense of meaning/purpose since the COVID-19 pandemic was also reported. Concerning interventions, many scholars have recommended community and individual evidence-based models that could potentially reinforce psychological resilience during COVID-19. Nevertheless, we are skeptical about the universal character of such models and what is deemed legitimate hard evidence with the proper use of methods. Despite the weakness in their health infrastructures, some low-income countries seem to have been successful in coping with the pandemic, whereas in high-income countries, historically disadvantaged populations bear the greatest toll of the pandemic. Consequently, there is an emergency to fill the gap of scientifically sounded and culturally responsive data supporting the effectiveness of the aforementioned interventions, programs, or policies on psychological resilience during the pandemic.

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Conflicts of interest

The authors have read the journal's policy and have the following potential conflicts: S.R.P. is a stockholder and the President and Chief Executive Officer of Somnogen Canada Inc., a Canadian Corporation. He declares that he has no competing interests that might be perceived to influence the content of this article. This does not alter the authors' adherence to all the journal policies.

All remaining authors declare that they have no proprietary, financial, professional, nor any other personal interest of any nature or kind in any product or services and/or company that could be construed or considered to be a potential conflict of interest that might have influenced the views expressed in this manuscript.

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