Isolation and Mental Health: A Brief Discussion of Resilience as a Potential Response to COVID-19 Pandemic Stressors

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Abstract

The isolation and quarantine policies implemented to limit the spread of the COVID-19 pandemic are a new and challenging experience for many people and may negatively impact mental health. By promoting resilience in the population, some of the impact of these vital public policies may be mitigated. The purpose of this article is to discus s the role of isolation measures implemented during the COVID-19 pandemic as stressors, which mediate impacts on the mental health of the general population and how strategies to increase resilience may serve to mitigate these effects.

Stress and Mental Health

Stressors are stimuli in the external or internal environment that provoke a stress response and challenge the ability of an individual to respond in an adaptive, rather than maladaptive, manner [1]. Stressors challenge the capacity of an individual to respond to risks by placing pressure on homeostasis, forcing the system to correct itself [2]. An example of an external environmental stressor is extreme heat, which challenges the thermoregulatory capacity of the body, and if not successfully ameliorated, results in heat illness. Stressors may be physical, physiological, or psychological [1]. Physical stressors include things like weight loads or injury. An example of a physiological stressor is dehydration or hypoglycemia, where the body requires water or sugar to maintain homeostatic balance. A psychological stressor could be emotional abuse, for example. Stressors may fall into one or more of the above categories. For example, a natural disaster can be both a psychological stressor and a physical stressor due to the possibility of exposure to the elements and disruption of the social structure [3].

The response to stress is a complex process and involves activation of both autonomic nervous system and neuroendocrine systems [4]. The behavioural reaction to stress is commonly referred to as the "fight-flight-freeze" response [5]. The sympathetic nervous system, one branch of the autonomic nervous system, is responsible for some of the physiological mechanisms of this response, including the release of epinephrine and norepinephrine from the adrenal medulla, dilation of the pupils, and increased heart rate [6]. The behaviours often associated with the response include aggression (fight), running away (flee), or becoming still and quiet (freeze) [7]. The purpose of the stress response is to prime the body and permit an individual to respond in such a way so as to resolve the challenge [8]. Common symptoms as part of an acute stress reaction include sweating and the sensation of a pounding heart or palpitations, as well as the subjective experience of heightened anxiety and restlessness [5].

The stress response is most effective in the short-term, after which a return to baseline homeostasis is expected [8]. However, if the stressor remains present, the level of stress progresses to a chronic state [8]. In addition to the activation of the sympathetic branch of the autonomic nervous system, the hypothalamic-pituitary-adrenal (HPA) axis is also activated during a stress response and its main effector is the steroid hormone cortisol, released from the adrenal cortex [6]. In the context of chronic stress exposure, the long-term release of stress mediators and the prolonged exposure on the tissues of the body can result in damage and dysfunction [9]. The resulting imbalance between the parasympathetic nervous system, responsible for the

vegetative roles, and the sympathetic nervous system due to chronic activation results in excessive wear on physiological systems [6]. This autonomic imbalance has been associated with mental disorders [10]. Psychological changes associated with this dysregulation include a multitude of negative mental health outcomes such as depression, anxiety, and other illnesses [1].

COVID-19 Isolation as a Stressor

The novel coronavirus responsible for the COVID-19 pandemic has necessitated a variety of public health measures to slow the spread of the disease. Since the World Health Organization (WHO) announced the pandemic on March 11, 2020 [11], countries around the world have instituted policies and protocols involving an array of restrictions. Some of these restrictions include limiting or prohibiting social gatherings, implementing lockdowns and curfews, and enforcing isolation and quarantine [12]. These policies have resulted in the exposure of some people to social isolation for a prolonged duration. [13]

Both isolation and loneliness can be considered stressors as they challenge the social and emotional well-being of an individual [14]. Ongoing social isolation stress (SIS) has been associated with psychological morbidity, such as depression and anxiety [15]. Though its underlying physiological basis has yet to be fully elucidated, there is some evidence suggesting the neuroendocrine systems, specifically the hypothalamic-pituitary-adrenal (HPA) axis, are indicated in this process [16]. Chronic social isolation has been associated with increased HPA axis activity [16]. The HPA axis role in the stress response includes the coordinated release of the steroid hormone cortisol from the adrenal cortex, which helps prime the body to respond to stress [16]. Both increased and decreased levels of cortisol have been associated with negative health outcomes, including mental illness [6].

As schools and businesses have closed, many people are experiencing a disruption of their daily routines and socialization [17]. Additionally, with shelter-in-place orders and isolation requirements, seeing friends and extended family is also not permitted. Inadequate opportunities to connect with others face-to-face and a perceived lack of social support are associated with mental illness, such as depression, anxiety, or cognitive decline [14,18].

Moreover, a combination of the continuation of the restrictions and an uncertain end-point for the pandemic presents a unique challenge for a stress response evolved to function optimally with short-term adversity [8]. The extended duration of isolation and the subsequent chronic activation of the stress response can contribute to the development of mental illness [1].

While measures implemented to control the spread of COVID-19 are crucial to our collective recovery from this pandemic, the associated isolation due to disease containment methods can have negative psychological impacts [12]. Since these restrictions must remain in place until such time that the pandemic poses no threat, we must focus on steps to address and mitigate mental health morbidities.

Resilience as a Solution

Resilience has many definitions and its understanding has changed as research has progressed over the years. Resilience can be understood as a positive and adaptive response to an adverse circumstance that allows an individual to maintain or re-obtain mental wellness, despite the experience of adversity [19]. Additionally, it can be understood as an outcome or process [20]. Though many may consider resilience as a trait inherent to an individual, there is evidence arguing against this [21,22]. A specific example of resilience can be illustrated by the actions of Jerry White who lost a leg to a landmine but went on to co-lead the International Campaign to Ban Landmines coalition that received the 1997 Nobel Peace Prize [23].

Resilience is one of the factors that allows an individual to cope with unanticipated life situations [24] and is a key factor in preventing mental illness by providing a buffer against stress [14]. Fostering resilience is a possible strategy to confront the stress of social isolation due to the COVID-19 pandemic [24]. Assessing the resilience of a population can be partly accomplished by screening for mental illness or negative signs of stress (proxies for reduced resilience) to detect variation in levels compared to non-crisis periods [25]. Three factors have been proposed as the basis of a model to account for the resilience observed

during other natural disasters and can be adapted to the current pandemic: control, coherence, and connectedness [26]. Engaging each of these components may contribute to overall improved resilience [26]. A sense of control over our lives is critical to our psychological well-being [26]. The elements of our lives we focus on can influence our moods and affect our mental health [27]. By redirecting attention away from the uncontrollable aspects of the pandemic towards the factors in our lives we do have control over, we can empower individuals and reduce the potential for anxiety and depression [26]. Uncontrollable factors in this pandemic could include the behaviour of others, the rate of infections, and the regulations enforced to control the pandemic. Controllable factors are those we have some influence over and could be how much social media we consume, who we spend our leisure time with, and how much exercise we get. By opting to shift our attention to the things within our influence, we can exert our intention on those factors and feel more in control. What people focus on will differ between individuals as everyone's goals and life circumstances are unique. Practice is required in order to maintain new habits of thought and attention and in order to maintain focus on controllable elements in our lives [28].

In addition to focusing on controllable aspects of our lives during this pandemic, promoting an understanding of the circumstances in which we find ourselves is important to enable individuals to withstand the disruption to familiar activities and pursuits [26]. This ability to instil a coherent sense of our surroundings and find meaning is protective for mental health [26]. One way in which this aspect of the model may be applied is by providing accurate, timely, and accessible information to members of the population. Regular dissemination of knowledge about the pandemic from governments and health authorities through all available channels of communication is an option [29]. The kinds of information that are important to disseminate include the probability of contracting the illness and how the government has prepared for uncertain risk [30]. A delayed communication and minimization of the impact of a pandemic can result in a breakdown of trust of the government on behalf of the public, as was seen during the SARS outbreak against the Hong Kong government [31]. Though the initial steps of the Canadian Government during the COVID-19 pandemic have been criticized, overall, the perception of the government's actions during the pandemic has been positive [32]. As well, effective and timely communication from the relevant authorities can dispel any misinformation arising from unofficial online resources that might cause undue fear [33]. Along with control and coherence, connectedness within the community is also critical to support resilience within the population [26]. Connection and social support has been identified as one of the most powerful contributors to resilience in the context of natural disasters [34]. One particular tool of interest is the "loving-kindness meditation (LKM)" which focuses on directing positive emotions like happiness and compassion towards oneself and others [34]. Practicing LKM has been associated with psychological benefits like improved well-being and increased social connection [34]. Additionally, LKM encourages social interactions and, through increased positive emotions and connection, fosters resilience [34]. While isolation policies prevent gathering in person, there remain plenty of ways to keep in contact with the important people in our lives including regular phone/video calls, socially-distanced outdoor meet-ups, and online social networks. It should be noted here that there is a subset of the population who experience ongoing loneliness and isolation even during non-pandemic times. These include older adults without family, refugees, and some individuals with mental health problems [35]. Particular attention should be paid to these groups because many social programs are currently unavailable due to government restrictions. For those with limited to no social network, social programs that focus on the provision of networking services could be considered, such as the Age-Friendly Student Senior Connection (AFSSC) initiated by the University of Southern California Keck School of Medicine in the early stages of the pandemic [36]. The focus of this program was to connect older adults with volunteer graduate students to have regular phone conversations, thereby increasing the amount of social contact available [36]. Benefits of this program include reduced social isolation of older adults during quarantine restrictions [36]. This or similar programs could continue to operate beyond the pandemic in order to alleviate some of the isolation faced by these people on a regular basis.

Future research in areas focusing on those individuals who are most vulnerable to isolation (e.g., older adults, those living in remote communities) and how to increase their access to social outlets during a pandemic could inform best practices for these populations.

Conclusion

The threat to psychological well-being due to isolation-focused disease containment methods has created an unprecedented psychological crisis [37]. With almost half of the world's population currently living in social isolation due to the pandemic [18], there is an unmet need for actions to address the associated negative mental health impacts. Programs addressing this need can focus on fostering resilience by supporting individuals to gain control in their lives, facilitating easy comprehension through effective and authoritative communication, and encouraging safe social connections so as to build robust protection against psychological challenges [26]. Resilience has been known to provide some protection against depression and PTSD, for example, after the Fukushima disaster [38]. By adopting social programs to support resilience in the general population, these efforts can contribute to improved mental health outcomes even while facing great challenges [38].

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