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Mental Health in the Time of Coronavirus Disease 2019

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A B S T R A C T

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Certain life experiences can have a profound effect on human emotions. During the coronavirus disease 2019 pandemic, patients are reporting mood disturbances at much higher levels. Multiple encounters with real and imagined threat, prolonged isolation, and loss of control have adversely impacted the country's behavioral health. However, most people will not pursue psychological care when needed, and some who pursue it will be unable to access it. Nurse practitioners and other health care professionals are in an optimal position to help. Psychological research explains some of what is driving this phenomenon and offers suggestions of benefit to patients, families, and colleagues.

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The United States (US) is experiencing a 3- and 4-fold increase of anxiety and depression, overdose deaths are at an all-time high, a quarter of our youth are reporting suicidal ideation, and a greater prevalence of these disorders is being seen among people of color.¹⁻³ The coronavirus disease 2019 (COVID-19) pandemic has exposed the world to a variety of constant stressors and created mitigating strategies that have isolated people from significant others and diminished control over events and outcomes. In addition, a variety of co-occurring traumatic social events have exacerbated the fear and helplessness that many, especially our more vulnerable citizens, commonly experience. Most people do not seek psychological care from mental health specialists, instead they bring their concerns to their primary care providers.⁴ Yet, even these professionals are experiencing health risks to self and family, increased workloads, extraordinary exposure to patient deaths, inadequate support, and helplessness over infection and hospitalization rates, with nursing staff feeling the greatest distress.^{5,6} These are very difficult times.

The holistic perspective on patient care, specialty training in psychophysiology and neuroscience, and the accessibility of nurse practitioners (NPs) in health care place them in an optimal position to help patients manage mood in these extraordinary times. This brief review of selected models of depression and anxiety illuminates the role that this pandemic and accompanying social events seem to be playing in the inordinate rise of psychological distress and offers information for NPs to incorporate in their care of patients and each other.

Stress

NPs and other clinicians are well aware that chronic stress can adversely affect the brain and other organ systems and lead to

lifestyle changes (eg, overnutrition, sleep disturbance, smoking, and substance misuse) that can exacerbate underlying medical conditions such as cardiovascular disease, asthma, diabetes, gastrointestinal disorders, and accelerated aging.⁷⁻⁹ When threatened, humans and animals experience an immediate psychophysiological response that recruits the cardiovascular, immune, respiratory, endocrine, and digestive systems. Neuroendocrine changes mediated by the amygdala and the hippocampus trigger the sympathetic-adrenal-medulla axis, the hypothalamic-pituitary-adrenal (HPA) axis, and the brain's prefrontal cortex to influence the decision to fight, freeze, or flee a dangerous situation.^{10,11}

Among the events that can trigger a stress response are the death of a loved one, economic insecurity, accidents, or a dysfunctional marriage. Persistent exposure to a stressful situation may impair attention, concentration, memory, and organizational abilities, and can lead to hypervigilance, irritability, nightmares, intrusive thoughts, guilt, numbing, and aggressive behavior.^{12,13}

Stress is not always adverse or traumatic; the most common response to life's burdens is resilience. For example, individuals preparing for an examination or performance are helped by the increased vigilance, focused concentration, hyperarousal, and motivation that stress triggers. A continuum exists where an *arousal experience* produces an emotional and behavioral response with a quick return to baseline when the stimulus diminishes or the individual copes successfully. A *stress response* follows a more intense or enduring stimulus and prompts a greater emotional and behavioral response with longer-term psychophysiological distress. Finally, *trauma* is the consequence of a significant and prolonged stimulus that produces an immediate and vigorous emotional response with limited behavioral choices and neuropsychological changes that interfere with future functioning.¹⁴

The body reacts automatically to aversive stimuli such as an extreme change in temperature, but psychological processes play an integral role in responding to most stressful stimuli. Individuals undertake a complex process of evaluating the dangerousness of a stimulus and their capacity to manage it.¹⁵ This subjective appraisal mediates the psychophysiological response in that a seemingly dangerous situation for one individual may not present the same threat to another. When an innocuous stimulus is imagined to be lethal, a response is triggered as if it were real. Length of time and the perception of available resources, such as social supports, finances, and health, influence whether the situation is judged to be harmless, challenging, or dangerous and determines the type of response.¹⁶

During this COVID-19 pandemic, the combination of social isolation and a strong desire for information has invited individuals to spend more time with news stories and social media, resulting in elevated stress levels among some.¹⁷ Unfamiliarity about the nature, danger, and spread of this coronavirus has prompted some individuals to wash groceries, avoid public gatherings, and to meet strangers with apprehension.¹⁸ Most organizations successfully negotiated the move to remote work, but difficulties with child care, technology, and sharing space at home made the execution a challenge for others. Then came the stories of the lack of masks, the scarcity of ventilators, the shortage of hospital beds (especially in the intensive care unit), and images of refrigerated trailers serving as morgues. In addition to our public health emergency, the country experienced a racial reckoning with the murder of George Floyd, multiple episodes of anti-Asian hate, an attack on the Capitol as the votes for president were being recorded, a war in Ukraine, and a series of mass shootings.^{19–21}

Exposure to adverse events through stories and media accounts alone can produce symptoms called *secondary trauma*.²² Surveys of individuals who were not immediately present at a tragic event (eg, World Trade Center on 9/11) found evidence of stress among those with only a media experience of the catastrophe.^{13,23} Symptoms of posttraumatic stress syndrome have been found among 20% of individuals with no prior history of trauma who have simply been shown disturbing videos of violent events.²⁴ Even 5 minutes per day of exposure to video accounts of terrorism produced anxiety and behavioral problems in school children.²⁵ Among health care workers, listening to patients' reports of trauma and providing care to victims of violence, accident survivors, and those with medical illness can create secondary trauma that leads to burnout.^{26–28}

The chronic need for vigilance in response to a variety of health, emotional, and social dangers added to the frustration of disruptions of work and daily life. This, along with the dramatic cultural and political events of the past 2 years, has left many people short-tempered, exhausted, impatient, hyperreactive, and bordering on burnout.²⁹ Creating awareness of these issues among patients and colleagues, identifying contributing factors, and encouraging some rethinking and self-care can increase the sense of control and lessen the adverse impact of these important factors.

Isolation

Humans are social animals who create relationships with others for mutual aid, protection, procreation, health, and happiness.³⁰ Social interactions teach us about ourselves and others and contribute to a mental template about what to expect of both.³¹ A child's physical, emotional, and cognitive development is highly dependent on caregivers who continuously monitor and favorably adjust the external environment.³² Adults with meaningful attachments to others enjoy better mental health, longer life, and greater economic security than those without.^{33,34} As with stress, periods of social disconnection can be adaptive and refreshing, but

the beneficial effects of isolation weaken when social relationships are unusually diminished or constrained.

The cognitive and affective experience of social isolation is loneliness. Even before the pandemic, loneliness was a common experience among older people,³⁵ youth,³⁶ and those with chronic illness independent of education, wealth, or social network.^{37,38} Perception, again, plays a prominent role in that one can feel lonely in a group of acquaintances and quite happy when alone, depending on the subjective assessment of each condition. Loneliness results when people view their social relationships as less than desirable, with relief possible only through reunion with a particular person.³⁹ Psychologists describe this emotion as a nonconscious signal, like physical pain, that motivates a person to act when the social network seems unable to provide what is needed.⁴⁰ This feedback increases efforts at socialization, or for those who fear further rejection, it can prompt greater withdrawal.⁴¹

Prolonged periods of loneliness are associated with the development of depression, anxiety, anger, insomnia, and cognitive decline.^{42,43} Social isolation and loneliness are powerful predictors of suicide, especially with co-occurring insomnia.^{44–46} Investigations into the disturbing prevalence suicide among US military and veterans confirmed this connection.^{47–49} Loneliness is found to be twice the contributor to premature death and cardiovascular illness as obesity and 4 times that of environmental factors, due to complex neurophysiological consequences (eg, altered inflammatory and immune responses, and elevated cholesterol, heart rate, vascular resistance, and blood pressure) and an adverse impact on self-care or social support.^{32,34,50,51}

After a review of 2 decades of human and animal research, the authors of the *Evolutionary Theory of Loneliness* posit 8 neurophysiological pathways between loneliness and medical illness that include poor sleep quality, heightened activation of the HPA axis, selectively activated sympathetic tonus, altered transcriptome dynamics, decreased viral immunity, increased inflammatory response, increased prepotent responding, and depressive symptomatology.³⁰ Vigilance to threats of loss and negative social stimuli are evident on neuropsychological testing and functional magnetic resonance imaging studies of lonely people and not just in their illness behaviors.⁵² These mind-body relationships are seen across species and are purposeful in that they protect the organism from predatory attack, but prolonged activation puts the body at risk.

The COVID-19 pandemic brought lockdowns of entire cities, travel restrictions, quarantines of the medically ill (eg, university students, nursing home residents), and informal decisions to separate loved ones, neighbors, and friends. For example, in as few as 9 to 13 days, quarantined health care workers, students, and patients in a variety of studies reported symptoms of anxiety, depression, insomnia, irritability, suspiciousness, and exhaustion.⁵³ Interventions to reduce the loneliness, irritability, anxiety, and depression of social isolation include skill training, interpersonal support, social events, and cognitive-behavioral techniques for managing maladaptive thinking.^{36,54} The most successful strategies train people to analyze their thought process to correct negative and dysfunctional perceptions, assumptions, and attributions and to replace these with more adaptive and optimistic ideas.^{55,56}

Learned Helplessness

Helping people to break free from the consequences of prolonged exposure to stress and isolation is challenging. More than 5 decades of research finds that many animals and humans can be conditioned to experience helplessness in as few as 90 minutes.^{57,58}

Many such subjects exhibit pessimism, sadness, irritability, weight loss, anhedonia, and poor concentration like those with depression.⁵⁹ The interactive effect of an outcome beyond control and an individual's negative perception of that event can promote pessimistic attitudes and helpless behavior. Pessimists who perceive their failure to manage adversity as permanent, pervasive, and personal are more vulnerable to depression than optimists who perceive adversity as temporary, specific, and external.⁶⁰

In a series of laboratory experiments, dogs that were shown a light before receiving an electric shock quickly avoided it by jumping to a neutral side. However, when escape was prevented, the animals escalated their effort to flee before surrendering. Even after the barrier was eliminated, the animals continued to respond passively to shocks, and evidenced a diminished capacity to master subsequent challenges, as if they expected to fail. Psychologists call this inability to control outcomes *learned helplessness*.⁶¹ Helpless dogs could recover their capacity to escape, but only after they were dragged by the leash to safety multiple times.⁵⁷

Pessimistic individuals are prone to develop physical illnesses from persistent failures to take care of themselves or due to psychophysiological change. College students with negative attitudes, for example, had more frequent illnesses than their optimistic peers and demonstrated poor nutrition, sleep, and self-care when they became ill.⁶² In a 35-year study of adults, health assessments at 5-year intervals revealed pessimistic individuals had worse health than their optimistic peers.⁶³ In other studies, optimistic patients had reduced risk of cardiac events and death from all causes.^{64,65}

Neuroscientists have proposed several underlying mechanisms for learned helplessness and the increased risk for medical illness. The medial prefrontal cortex that detects the experience of not being in control regulates the activity of the dorsal raphe nucleus. In adverse situations that appear to be inescapable, 5-hydroxytryptamine receptors are activated in the dorsal raphe to produce passivity. The amygdala's role in assessing dangerousness is an important influence on the fight/flight/freeze response to stressors. As is the case with exposure to stress and isolation, learned helplessness activates the HPA response which releases adrenocorticotrophic hormone and reduced activity in a variety of monoaminergic systems.^{58,66}

Lockdowns and quarantines initially increase anxiety and then give way to a sense of learned helplessness as people feel powerless to control their environment.⁶⁷⁻⁶⁹ The lack of control over exposure to the virus and the unavailability of personal protective equipment, masks, testing, ventilators, and work schedules have left many health care professionals feeling burned out.^{5,6} Most businesses made a successful transition to remote work, but many did not, while unemployment reached historic highs.⁷⁰ Entering a third year, parents have become teachers, and teachers have become frustrated with the demands of online education as have their students.⁷¹

The murder of George Floyd brought national attention to the pervasive danger and uncertainty that people of color feel about their relationship with law enforcement.¹⁹ Episodes of violence against Asian American and Pacific Islanders have stirred vigilance and vulnerability among people of East and Southeast Asian origin.²⁰ Even the confidence that the country had the agency to elect a president was challenged. This perfect storm of uncontrollable events will be very likely to leave those who perceived them as permanent, pervasive, and personal in great distress.⁶⁰

A Way Forward

If one wanted to test the influence of the combined effect of psychological stress, social isolation, and learned helplessness on

humans, this extraordinary experience with COVID-19 would certainly qualify. History reveals that abnormal levels of mental illness persist for as many as 3 years after the biological resolution of a pandemic.⁷² The US Surgeon General warns that COVID-19 will continue to interfere with young people achieving developmental milestones, learning social skills, solving problems, forming relationships, and mastering schoolwork for quite some time.⁷³ Adult survivors of COVID-19 evidenced significant mental illness, insomnia, and neurocognitive decline at 1 year, especially among those hospitalized.⁷⁴

Before this pandemic, the workforce shortage in the US limited the access to behavioral health care.⁷⁵ Fortunately, most problems do not require medication or an appointment with a mental health specialist; there are many ways to bring psychological care to people in need.⁷⁶ New models are integrating behavioral health care into medical settings to improve screening, medication access, patient education, and care coordination.⁷⁷ Psychiatric mental health nurse NPs are providing leadership in this work in primary care practices.^{68,78,79} These professionals provide medication and psychotherapy to patients and supervision and consultation for their NP colleagues and other professionals.⁸⁰ By partnering with primary care NPs, even during the pandemic, substance use disorders, depression, anxiety, and comorbid conditions with chronic medical illness have been reduced.⁷⁷

There are many traditional psychological interventions such as Cognitive Behavioral Therapy,⁸¹ social skills and relationship training for loneliness,^{36,54-56,82} and a variety of evidence-based strategies for traumatic stress⁸³ that benefit patients. However, for many individuals, just feeling connected to and understood by a compassionate NP or other health care professional is comforting, empowering, and efficacious.^{84,85} Conveying the simple idea that one's thoughts can influence feelings and behaviors and that perceiving adverse events as temporary, specific, and external vs permanent, pervasive, and personal can provide some patients with hope.⁸³ As the world struggles to rebuild in a postpandemic period, NPs can play an important role in improving mental health and healing to those in need.

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