PERSPECTIVE ARTICLE

STRESS AND COPING IN THE TIME OF COVID-19: PATHWAYS TO RESILIENCE AND RECOVERY

Craig Polizzi, Steven Jay Lynn, Andrew Perry

Abstract

Coronavirus Disease 2019 (COVID-19) has disrupted virtually every aspect of daily living, engendering forced isolation and social distance, economic hardship, fears of contracting a potentially lethal illness and feelings of helplessness and hopelessness. Unfortunately, there is no formula or operating manual for how to cope with the current global pandemic. Previous research has documented an array of responses to mass crises or disasters, including chronic anxiety and posttraumatic stress as well as resilience and recovery. Much can be learned from this research about how people have coped in the past in order to identify strategies that may be particularly effective in managing distress and cultivating resilience during these perilous times. We delineate multiple coping strategies (e.g., behavioral activation, acceptance-based coping, mindfulness practice, loving-kindness practices) geared to decrease stress and promote resilience and recovery. These strategies may be especially effective because they help individuals make meaning, build distress tolerance, increase social support, foster a view of our deep human interconnectedness, and take goal-directed value-driven actions in midst of the COVID-19 pandemic.

Craig Polizzi[a], Steven Jay Lynn[a], Andrew Perry[b]
a. Psychology Department, Binghamton University, Binghamton, NY 13902, United States. Emails: cpolizz1@binghamton.edu (CP); stevenlynn100@gmail.com (SJL)
b. Andrew Perry, Binghamton NY, 13905, United States. Email: andrew.h.perry@gmail.com

Corresponding author
Steven Jay Lynn, Ph.D.,
Psychology Department,
Binghamton University,
Binghamton, NY 13902
Email: stevenlynn100@gmail.com

Coronavirus Disease 2019 (COVID-19) has been heralded as the invisible enemy, the angel of death, a relentless and soulless invader that has infected the global psyche with fear and the bodies of our most vulnerable citizens and the broader populace with a potentially lethal illness. In many communities, virtually every aspect of daily life has been turned topsy-turvy, from how people earn their livelihood, socialize, and recreate to worries about financial ruin. COVID-19 strikes indiscriminately, with no preference for borders, sex, gender, race, ethnicity, or social class and poses never-before seen challenges. People keep their distance from one another, shelter in place, and live in fear, not knowing what challenges and perils the day or next days will bring, and if they or a loved one will survive the viral onslaught. What to many once seemed a "million miles away," COVID-19 now competes with us for survival in our neighborhoods. We have faced pandemics before. But few are alive who recall the Spanish Flu of 1918, and more recent epidemics, from AIDS, SARS, Ebola, to Swine Flu, have not created such pervasive or prolonged disruptions to the ebb and flow of life on a worldwide basis as COVID-19. Thus, there is no formula or operating manual for how to negotiate the crisis we presently find ourselves in, as we rightly wonder if we will soon be "knockin' on heaven's door," to quote Bob Dylan. To compound matters, this havoc comes at a time when we face existential threats of climate change, global famines, terrorism, economic dislocations, and wars. Is this the beginning of the apocalypse, some people muse?

We will weather this crisis, as we have others that have punctuated our collective history. Yet if past research is a harbinger of future outcomes, then, like hurricanes, floods, and other infectious disease epidemics, adverse psychological reactions that encompass anxiety, acute stress, addictive behaviors, and posttraumatic stress symptoms, alongside increased suicidality, self-blame, and major depression, will surely follow in the wake of COVID-19 (Norris, 2005). At the core of all these conditions lies elements of one of the most basic and primal human emotions--fear. In the case of the COVID-19 epidemic, it is inextricably tied to feelings of helplessness and the loss of a fundamental sense of safety, security, financial stability, and the ability to envision a brighter future. Fear of infection in the presence of others, of contact with contaminated surfaces, and of passing too close to another human being evokes an increasingly familiar shudder of mistrust of others, avoidance, and withdrawal from everyday activities, thereby shrinking our worlds and constraining opportunities for essential human contact and social support, which are vitally necessary for adaptive functioning (e.g., Bonanno, Galea, Bucciarelli, & Vlahov, 2007). Mistrust can extend to contacts with friends and family members, to our leaders, who can appear clueless or confused about what actions to take in defense of the virus, and to mistrust in what we do or fail to do to avoid infection.

Isolation, a signature of the COVID-19 epidemic, places unique and severe strains on the ability to maintain a resilient posture, in contrast with natural

disasters in which community members join together, physically and socially, with common purpose and energy to help others as the crisis unfolds and later rebuild what was destroyed. In the COVID-19 epidemic, people enforce "apartness" as an imperative to survival and to not themselves be destroyed. Of course when people "shelter in place," they are deprived of much that they once took for granted, the simple pleasures and routines that form the contours of a full life and lend predictability and a comforting sameness to what we do: eating in restaurants, attending social gatherings and parties, hanging out with friends, the stimulation and rigors of work, going to the gym, and countless other pastimes that structure our days.

So far, we have drawn a stark and bleak picture of what the present and future holds for much of the world as it grapples with COVID-19. But scientists who study resilience and coping have provided grounds for optimism that many people will struggle through this challenging time yet emerge even stronger than before. Many in the New York metropolitan area exhibited resilience (35%) or recovered (23%) from posttraumatic stress symptoms and depression in the months following the deadly 9/11 terrorist attacks on the World Trade Center in the United States, implying that multiple routes to resilience and recovery exist, even in encounters with mass trauma (Bonanno, Rennicke, & Dekel, 2005). Moreover, people's character virtues (e.g., gratitude, hope, kindness, leadership, love, spirituality, teamwork) actually increased pre-to-post the 9/11 tragedy (e.g., Peterson, & Seligman, 2003).

Research on how people coped in the aftermath of 9/11 contain nuggets of useful information that provide guidance regarding how to contend with the psychological stressors wrought by COVID-19. Those people who found meaning in the attacks by aligning with their personal values (e.g., friendship, social bonds, spiritual/religious pursuits, kindness to others, compassion) and responsibilities, while acknowledging the emotional weight of the attack, fared particularly well in terms of low rates of psychological complications and increased resilience. Many experienced a sense of control, self-esteem, and belonging by providing emotional and practical support to family, friends, and the larger community and interpreted their actions in a positive manner. They refrained from excessive self-recrimination and rumination and were confident in their ability to carry out valued actions or calibrated their sense of the possible to the constraints of the situation (Eakman, Schelly, & Henry, 2016). In short, even after a world-shaking event like 9/11, many discovered a way to move forward with the rhythm of life and some thrived.

Likely, much of the same will hold true for COVID-19. Although the need for social distance stands the current pandemic apart from other disasters such as 9/11, the rupture in social bonds can be partly compensated for with value-driven behaviors shared with fewer people or by expanding social contacts in ways not dependent on face-to-face engagement. This can be accomplished by reaching out to others via modern technology and social media, more intensive contacts with a more limited circle of individuals, and supporting others via expressing empathy, active listening, sharing resources, and demonstrating consideration by hewing to the "rules" of social distancing. In these ways, and others we describe below, it is possible to find meaning and cope effectively with fear and the vexing challenges presented by the pandemic.

Yet even isolated individuals, with a small circle of social contacts, can engage in rewarding albeit mundane tasks and self-care under the cloud of a dire situation while focusing on living their best possible life. They can, for example, carry on with a variety of activities including hobbies and mentally challenging tasks such as solving puzzles; reading; listening to music; singing; playing an instrument; watching television; learning a language; playing Internet games; and preparing for how life will change for the better following the pandemic. Finding ways to engage with and appreciate life during mass traumas is a robust predictor of increased psychological well-being and reduced posttraumatic stress symptoms (Dekel, Hankin, Pratt, Hackler & Lanman, 2015).

These sorts of coping-activities, called behavioral activation, are diverting and spark positive emotions that researchers found to be critical to resilient outcomes and recovery after 9/11. They facilitate the ability to bounce back from negative experiences (Fredrickson, Tugade, Waugh, & Larkin, 2003), reduce the psychological burden imposed by prolonged distress, and free-up cognitive resources to contend with everyday stressors and adjust to fluctuating situational demands (Bonanno, Brewin, Kaniasty, & La Greca, 2010).

Not surprisingly, similar patterns of coping and resilience also come into play in managing emotional responses to natural disasters such as earthquakes, hurricanes, and floods. Stress researchers (e.g., Reich, 2006) have developed the "3 *C*s" model to account for resilience in these situations: control, coherence, and connectedness.

Control is reflected in the belief that personal resources can be accessed to achieve valued goals. Goals can be short or long term. Even in the short term, in the throes of the epidemic, people can exert a measure of control by many means. As just a few examples, they can take medicines as prescribed; get adequate sleep; find time for laughter; arm themselves with factual information regarding the virus and take needed precautions and steps to adapt to a fluid situation; limit or increase exposure to news, depending on preference; ensue the availability of food; plan activities each day and anticipate potential short-term stressors; and check-in on friends and loved ones. Keeping a diary of daily events, goals, and life lessons learned from adversity can also prove helpful, as studies have shown that expressive writing and disclosure of emotional experiences confer psychological and physical benefits (e.g., Pennebaker & Seagal, 1999).

Long-term goals act as a counterweight to fear and anxiety by substituting rumination with reflection and preparation for potential futures--what life will be like after the pandemic. Survivors will undoubtedly grapple with problems and challenges related to re-entry to the workplace, physical problems and complications from the virus, resuming educational plans, re-engaging with the stream of ordinary life (e.g., planning vacations or other activities), attending landmark events (e.g., graduations), and interacting with friends and colleagues facing their own challenges. Planning and anticipation in each of these domains can provide a connection of the present with the future and with specific ideas regarding how that future will unfurl.

The second "*C*," coherence, is founded in the deeply human desire to make sense and meaning of the world. Developing a coherent narrative of what has happened and what can be done to live each day safely and fully, is a challenging yet rewarding endeavor. A fruitful starting point in doing so is engaging in what is called acceptance-based coping. Acceptance-based coping (ABC) entails changing how one *relates* to responses (e.g., fear, worry) to stressors or to uncontrollable events by becoming nonjudgmentally aware of the flux

of internal states that arise in response to them (e.g., fears, doubts, self-blame) in an accepting and planful manner (e.g., Linehan et al., 2006). The idea is not to strive to change, distract from, or otherwise divert from spontaneous physical or emotional responses; indeed, there is good reason to fear the virus, as it is a potential death sentence, but fear need not dominate one's existence. Rather, we suggest that it is possible to coexist with realistic fears, to observe our reactions to them, stand apart from them, and weave a compelling narrative around what constitutes an adaptive response.

To be clear, the task at hand has to do with crafting a workable narrative regarding how to contend with the repercussions of COVID-19, while fully accepting emotions that come to mind in the process of doing so. A good way to facilitate acceptance-based coping is to clarify personal values by posing such questions as: What is important to you? What makes you feel good, even when confronted with a situation you can't fully control? What do you want other people to say about you and how you responded at this time? How do you want to remember what you did or didn't do? What do you want to be known for? The answers to these questions often reveal to the person deeper motivations and what matters to them so they can pursue meaningful goals and activities under the darkest of circumstances (Hayes, Strosahl, & Wilson, 2012) and achieve a resilient outcome in the long-term.

The practice of mindfulness (MP) encompasses the acceptance-based practice of observing and engaging with the present in the nonjudgmental and nonreactive manner that we described. MP can range from simply eating in mindful way (i.e., eating slowly, savoring each morsel) to multi-hour meditation exercises where the focus is on breathing or an emotional state. MP garners many psychological benefits, including decreased anxiety and symptoms of posttraumatic stress disorder (Khoury et al., 2013). MP facilitates awareness of thoughts, emotions, and sensations, allowing for their differentiation, so coping strategies can be more targeted and flexible, revealing problems and issues to be addressed, such as anger that masks fear and anxiety. Because MP mitigates the impact of negative emotions, it frees up cognitive-affective resources to appreciate, reflect on and make meaning of difficult circumstances, and develop value-based goals (Coffey & Hartman, 2008).

Mindfulness can supplant a fear-driven, pessimistic perspective on the future by focusing bare-awareness on the present moment, as attention is attuned mindfully to the melody of a song, the feel of the wind on one's face, clouds shifting shape, hues of flowers, or the aroma of a scented candle. Learning that a "thought is just a thought" or that worries are evanescent and morph transparently into another thought or feeling increases stress tolerance and permits a reinterpretation of negative emotions as temporary visitors that will inevitably be replaced by other more welcome guests, thereby fortifying resilience. The "mindfulness muscle" can be strengthened by exercises such as occasionally setting a timer on the phone and practicing mindful observations of emotions as they come and go, and as a reminder of the transience of all things, including the pandemic.

Connectedness, the third "*C*," refers to the need for human contact and support, which is consistent with empirical evidence documenting social support as one of the most impactful and consistent resilience factors following natural disasters (e.g., Rodriguez-Llanes, Vos, & Guha-Sapir, 2013). Establishing new bonds and reviving or reinvigorating existing bonds through direct human contact or via telephone, Skype or social media not only alleviates anxiety, stress, and sadness but also sets the stage for prosocial behavior and empathy (Alloway, Runac, Qureshi, & Kemp, 2014). This one-two punch of decreased negative emotionality and enhanced positive emotions facilitates coping and recovery.

In times of stress, like we are enduring today, it can be comforting to appreciate that we are all in this together and to direct compassion and loving feelings toward ourselves and others. The practice of loving-kindness meditation (LKM) consists of turning positive emotions (e.g., happiness, tenderness, warmth, compassion) towards oneself, loved ones, other humans, and ultimately all sentient beings. During LKM, people focus on their heart region and think about a person for whom they have powerful positive emotions and then extend those positive feelings toward themselves and other people in their life and finally to people in the world more generally, as all beings suffer and deserve compassion. Fredrickson, Cohn, Coffey, Pek, and Finkel (2008) put it quite nicely: Whereas MP involves attending to the present "in an open-minded (nonjudgmental) way," LKM involves cultivating positive emotions "in an open-hearted way" (p. 1046). LKM is linked with many psychological benefits, especially reduced depression, improved well-being, and increased social interaction (Galante, Galante, Bekkers, & Gallacher, 2014). Even LKM practices as short as seven minutes have bolstered feelings of social connection and positivity towards other people (Hutcherson, Seppala, & Gross, 2008).

LKM is a useful tool during the COVID-19 pandemic because it promotes social interactions and builds resilience by cultivating positive emotions and social connection, increasing motivation to access and provide social support, and engendering prosocial behaviors (Leiberg, Klimecki & Singer, 2011). Reminding oneself to experience compassion at different times during the day can relieve self-recrimination, salve feelings of inadequacy and guilt, enhance empathy for the plight of others, and negate feelings of isolation and aloneness in coping with adversity.

Although research on adaptation to stress fomented by disease outbreaks is limited, the coping processes we have discussed in relation to other mass traumas are generally relevant to the current scourge (e.g., Bonanno et al., 2008). However, fear and worry appear to be particularly strong contributors to maladaptive responses during disease outbreaks (e.g., Bonanno et al., 2008; Xu et al, 2011), which is especially concerning given that fear-driven behaviors (e.g., fleeing home, stockpiling goods, using unsafe cleaning practices, blaming others) can accelerate the spread of disease, disrupt medical treatment, decrease availability of food and medical supplies, and ignite fear and panic (Shultz et al., 2016). Fortunately, the coping strategies that we described are likely to be effective at reducing fear and worry as well as enhancing resilience and recovery during the COVID-19 pandemic. They may also set the stage for posttraumatic growth after the pandemic by helping people acquire wisdom from adversity, strengthen relationships with loved ones, foster acceptance of life's uncertainties, and facilitate openness to new experiences (Calhoun & Tedeschi, 1999).

Humankind has faced down numerous mass traumas and tragedies throughout history, and though mental health challenges invariably accompany these events, we can learn much from how people have coped in the past. We have identified numerous strategies that may be particularly effective in managing distress and

cultivating resilience during these perilous times. These strategies are geared to help individuals make meaning, build distress tolerance, increase social support, embrace a view of our deep human interconnectedness, and take goal-directed value-driven actions in midst of the stealthy and terrifying threat of COVID-19.

Acknowledgements

References

Alloway, T., Runac, R., Qureshi, M. and Kemp, G. (2014) Is Facebook Linked to Selfishness? Investigating the Relationships among Social Media Use, Empathy, and Narcissism. *Social Networking*, *3*(3), 150-158.

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & Greca, A. M. L. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest*, *11*(1), 1-49.

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology*, *75*(5), 671-682.

Bonanno, G. A., Ho, S. M., Chan, J. C., Kwong, R. S., Cheung, C. K., Wong, C. P., & Wong, V. C. (2008). Psychological resilience and dysfunction among hospitalized survivors of the SARS epidemic in Hong Kong: a latent class approach. *Health Psychology*, *27*(5), 659-667.

Bonanno, G. A., Rennicke, C., & Dekel, S. (2005). Self-enhancement among high-exposure survivors of the September 11th terrorist attack: Resilience or social maladjustment?. *Journal of Personality and Social Psychology*, *88*(6), 984-998.

Calhoun, L. G., & Tedeschi, R. G. (1999). *Facilitating posttraumatic growth: A clinician's guide*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Coffey, K. A., & Hartman, M. (2008). Mechanisms of action in the inverse relationship between mindfulness and psychological distress. *Complementary Health Practice Review*, *13*(2), 79–91.

Dekel, S., Hankin, I. T., Pratt, J. A., Hackler, D. R., & Lanman, O. N. (2016). Posttraumatic growth in trauma recollections of 9/11 survivors: A narrative approach. *Journal of Loss and Trauma*, *21*(4), 315-324.

Eakman, A. M., Schelly, C., & Henry, K. L. (2016). Protective and vulnerability factors contributing to resilience in post-9/11 veterans with service-related injuries in postsecondary education. *American Journal of Occupational Therapy*, *70*(1),7001260010.

Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology*, *95*(5), 1045-1062.

Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crisis? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology*, *84*(2), 365.

Galante, J., Galante, I., Bekkers, M. J., & Gallacher, J. (2014). Effect of kindness-based meditation on health and well-being: A systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology*, *82*(6), 1101-1114.

Hayes, S.C, Strosahl, K.D., & Wilson, K.G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd edition). New York, NY: The Guilford Press.

Hutcherson, C.A., Seppala, E. M., & Gross, J. J. (2008). Loving-kindness meditation increases social connectedness. *Emotion*, *8*(5), 720-724.

Khoury, B., Lecomte, T., Fortin, G., Masse, M., Therien, P., Bouchard, V., ... Hofmann, S. G. (2013). Mindfulness-based therapy: A comprehensive meta-analysis. *Clinical Psychology Review*, *33*(6), 763–771.

Leiberg, S., Klimecki, O., & Singer, T. (2011). Short-term compassion training increasesprosocial behavior in a newly developed prosocial game. *PloS One*, *6*(3), e17798.

Linehan, M. M., Comtois, K. A., Murray, A. M., Brown, M. Z., Gallop, R. J., Heard, H. L., ... & Lindenboim, N. (2006). Two-year randomized controlled trial and follow-up of dialectical behavior therapy vs therapy by experts for suicidal behaviors and borderline personality disorder. *Archives of General Psychiatry*, *63*(7), 757-766.

Norris, F.H. (2005). Range, magnitude and duration of the effects of disasters on mental health: Review update. *Research Education Disaster Mental Health. Disaster Effects*, 1-23.

Pennebaker, J. W., & Seagal, J. D. (1999). Forming a story: The health benefits of narrative. *Journal of Clinical Psychology*, *55*(10), 1243-1254.

Peterson, C., & Seligman, M. E. (2003). Character strengths before and after September 11. *Psychological Science*, *14*(4), 381-384.

Reich, J. W. (2006). Three psychological principles of resilience in natural disasters. *Disaster Prevention and Management: An International Journal*, *15*(5), 793-798.

Rodriguez-Llanes, J. M., Vos, F., & Guha-Sapir, D. (2013). Measuring psychological resilience to disasters: are evidence-based indicators an achievable goal?. *Environmental Health*, *12*(1), 115.

Shultz, J. M., Cooper, J. L., Baingana, F., Oquendo, M. A., Espinel, Z., Althouse, B. M., ... & Mazurik, L. (2016). The role of fear-related behaviors in the 2013–2016 West Africa Ebola virus disease outbreak. *Current Psychiatry Reports*, *18*(11), 104.

Xu, J., Zheng, Y., Wang, M., Zhao, J., Zhan, Q., Fu, M., ... & Cheng, Y. (2011). Predictors of symptoms of posttraumatic stress in Chinese university students during the 2009 H1N1 influenza pandemic. *Medical Science Monitor: International Medical Journal of Experimental and Clinical Research*, *17*(7), PH60.