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The Anxiety Epidemic Among Children and Adolescents During the COVID-19 Pandemic: Review, Conceptualization, and Recommendations for Prevention and Intervention

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Abstract. The COVID-19 pandemic is a global health crisis and a prolonged stress sequence that is especially challenging for children and adolescents. In the current article, contemporary research evidence is summarized which indicates that the COVID-19 pandemic and associated experiences have contributed to an epidemic of anxiety among children and adolescents. This article summarizes contemporary evidence of the widespread mental health problems being currently experienced by young people. It focuses on how the unique challenges and experiences associated with the global health crisis are exacerbating the already high levels of stress and distress found among young people and contribute to the development of heightened anxiety and complex psychological problems. The anxiety of children and adolescents is interpreted uniquely through the lens of the interactional model of trait and state anxiety and its emphasis on multiple facets of trait-based vulnerabilities. This conceptual analysis underscores the need for additional theory-driven approaches that move beyond description and seek to explain anxiety and associated mental health concerns. The article concludes with a discussion of key themes to address in broad prevention and intervention efforts designed to help young people adapt to life during and after the pandemic. Key themes include developing a sense of perceived controllability, promoting a growth mindset, heightening mindfulness, fostering hope, increasing protective psychosocial resources such as mattering to others, and emphasizing adaptability as a distinct form of resilience.

Keywords: COVID-19 pandemic, children, adolescents, adaptability, resilience, anxiety, depression

Introduction

The COVID-19 pandemic is an unprecedented challenge in our lifetimes. At present, it is estimated that there have been almost 220 million cases of COVID-19 and over 4.5 million recorded deaths worldwide. This pandemic involves an exceptional degree of risk to health and well-being, not only for individual people but also for their family members, friends, and communities. The current pandemic and its impact have been characterized in a report prepared by UNICEF's Office of Research-Innocenti as "a crisis like no other in modern times. Its global ubiquity is unprecedented, leaving no population or community untouched" (Sherr et al., 2021, p. 1).

One way to describe the current human experience is to evoke the concept of biographical disruption. People around the world are undergoing, on a massive scale, the biographical disruption that sociologist Michael Bury (1983) described when referring to individual people. Bury examined the biographical disruption concept within the context of the sudden onset of a health condition. His focus was on how something that happens suddenly can abruptly change anything and everything for an individual person. Most notably, the person with a biographical disruption must forge a new identity, because their old identity is gone. In many respects, the pandemic represents a sustained biographical disruption, and for many people, things will never be the same as before. Previous opportunities have suddenly dissipated at a time when many people must contend with multiple adverse experiences, and most people have also experienced some significant disruption of their daily routines. This has greatly impacted people's lives and their understanding of who they are as a person in this day and age. These changes for many people continue to be fueled by an acute sense of uncertainty and feelings of uncontrollability and helplessness. Given these changes, the pandemic has taken a psychological toll on people of all ages. The overarching goal addressed in this current article is to try to understand what it is like through the eyes of the child or adolescent, while recognizing the great heterogeneity that exists among children and adolescents in myriad ways.

A strong case can be made for the current situation being the most worrisome at a global level since the outbreak of World War II. People are experiencing widespread anxiety that is *realistic*, because they now have many valid reasons to worry. Perhaps the key questions should be focused on those people who are not anxious right now, or who are anxious to a lesser degree, to see what we can learn about why they are exceptions.

The current article focuses on the mental health challenges being faced by children and adolescents as the pandemic continues to exert its influence with no apparent end in sight. The pandemic has brought disruption, uncertainty, and far too much time and opportunity to engage in the excessive rumination and overthinking that is known to perpetuate and exacerbate psychological distress. Moreover, because young people who are feeling anxious and lonely tend to turn to social media as a distraction

and for social connection (see Cauberghe et al., 2021; Ellis et al., 2020), they may expose themselves to negative social comparisons with peers who are projecting a false sense of well-being online through curated images and posts, even when this is far from the truth. This may partly account for why more time connected virtually to peers during the pandemic has been associated with greater distress (see Ellis et al., 2020).

One way to understand vulnerability to psychological distress is to consider the pandemic's impact from the perspective of satisfying core psychological needs. It is widely established among people of varying ages, including young people, that well-being is diminished when they are unable to satisfy their needs for autonomy, competence, and connection (see Ryan & Deci, 2017). A young person who is not doing well at present will almost certainly have unmet needs for connection and competence, and difficulties in functioning should exacerbate feelings of incompetence. A diminished sense of relatedness to others may reflect lack of contact with friends and peers, but many children will also have been unable to spend time with grandparents. Most notably, the global and uncontrollable nature of the pandemic is antithetical to a need for autonomy and self-determination. How important is it to establish a sense of autonomy and self-determination? Reports have confirmed that parental autonomy-supportive practices can facilitate the ability of children to adapt to the pandemic (see Neubauer et al., 2021). Of course, it must also be recognized that children and adolescents with unmet core needs are also trying to work through issues involving self and personal identity, and they are doing so during a time in life that typically elicits heightened self-consciousness and self-focus.

Another reason to examine current mental health challenges for children and adolescents is that there was already substantial evidence prior to the pandemic that “the kids are not alright,” with far too many young people coping with mental health difficulties. The two decades prior have provided us with numerous indications that there was a mental health crisis among young people. For instance, in Canada it was estimated that about 1 in 7 children aged 4 to 17 years (more than 800,000 children in Canada) have clinically important disorders that cause significant distress and impairment at home, at school, and in the community, with anxiety disorders being most prevalent (see Waddell et al., 2005, Waddell, 2007). Meanwhile, in the United States, Merikangas et al. (2009) reviewed available evidence and concluded that from a global perspective, about 1 in 4 children and adolescents had a diagnosable disorder at any particular point in time, and 1 in 3 had a disorder at some point during their lifetime. Lower estimates emerge when assessment methods reflecting more stringent diagnostic criteria are used across studies, but even in these analyses, anxiety disorders are usually determined to be the most prevalent types of disorder (e.g., Polanczyk et al., 2015).

Merikangas and associates (2010) then provided a comprehensive picture of this growing problem by assessing a nationally representative

sample of 10,213 American adolescents between the ages of 13 and 18, and concluded that the overall prevalence of disorders meeting criteria for severe impairment or distress was 22.2% (i.e., 2 out of 9 adolescents). Additional analyses focused on these adolescents with severe impairment found that anxiety disorders were most common (31.9%), followed behavioral disorders (19.1%), and mood disorders (14.3%). Results indicated that girls were much more likely to have an anxiety disorder and the median age of onset among children was just six years old. The authors responded to these data by issuing an urgent call for early prevention and intervention.

Comparable results emerged from a more recent epidemiological study in Austria involving diagnostic interviews. This study with a sample of 3,615 adolescents confirmed that anxiety disorders were the most common disorders identified (see Wagner et al., 2017). The point prevalence of any disorder was 23.9%. The estimated lifetime prevalence of any disorder was 35.8%. The lifetime prevalence of anxiety disorders was 15.6%, with the three most common anxiety disorders being specific phobias, separation anxiety disorder, and social anxiety disorder. Overall, almost half of the adolescents (47%) with some disorder had two or more disorders diagnosed.

Loneliness is another growing problem among young people. Recently, evidence has been summarized indicating that adolescents have become increasingly lonely since 2012, coinciding with the increased use of social media (see Twenge, Haidt, et al., 2021). It was concluded from a series of analyses that levels of loneliness had increased over time among adolescents in 36 of the 37 countries evaluated, prior to the pandemic. Evidence of widespread and growing problems led Twenge et al. (2021) to underscore that it is not enough to focus on individual adolescents when seeking to reduce loneliness because broad steps focused on group solutions are clearly needed.

Flett et al. (2018) described unpublished data from a school climate survey conducted in 2015 by a school board in Ontario, Canada. With responses from over 20,000 high school students, this survey documented substantial distress, and there was some indication that anxiety was typical rather than atypical. Overall, 24% of the respondents indicated that they felt sad or depressed, while 43% indicated that they were nervous or anxious often or all of the time. The reported problems were greater among adolescent girls. Overall, 28% reported depression and 52% reported being nervous or anxious often or all of the time.

Any reasonable person would conclude that if there was a large and growing problem before the COVID-19 pandemic, it must now be the case that anxiety, depression, and other associated difficulties are even more prevalent now, and contemporary research evidence supports this hypothesis. The research evidence summarized below is in keeping with the conclusion that the pandemic is having “multiple deleterious effects on youth mental health” (see Sherr et al., 2021, p. i). New anecdotal evidence

also attests to this. One recent account from three emergency room physicians in Boston painted a stark picture: These physicians stated that beginning with the summer of 2020, five to ten children and adolescents have been presenting to their emergency department with new mental health crises every day (see Lee et al., 2021).

It seems undeniable that as schools in North America and in many jurisdictions around the globe are opening this fall, anxiety will be highly prevalent, if not ubiquitous, and this will be experienced and expressed in many forms. This article was written with the goal of trying to provide some unique insights into the complex nature of anxiety and worry among students who are returning to school and what can be done to assist these young people. The current article includes a focus on anxiety from a conceptual perspective and this emphasis reflects the need to go beyond description of the anxiety epidemic by also seeking to understand and explain the experience of anxiety. The personality-based model outlined below predicts when and why anxiety becomes elevated and who is most susceptible.

This article is divided into three segments. The first segment provides a summary of evidence that illustrates the magnitude of current mental health problems in terms of the prevalence of anxiety and associated forms of distress. This segment includes a discussion of which young people are especially likely to experience debilitating anxiety during and after the pandemic.

Second, a multi-faceted model of trait anxiety that has applied in many situational contexts is considered as a way of conceptually accounting for why anxiety has increased among young people during the pandemic. This analysis demonstrates the utility and broad applicability of this model, but it also offers some unique perspectives on the pathways to heightened anxiety for children and adolescents.

Finally, the article concludes by considering some key themes to address proactively in order to reduce anxiety and associated distress in terms of its frequency, intensity, and chronicity. This segment introduces themes that are relevant most of the time, but they are even more relevant today, such as the need for adaptability in such uncertain times.

The Covid-19 Pandemic and Anxiety in Children and Adolescents

There is now extensive evidence from research on children and adolescents that attests to the mental health challenges associated with the COVID-19 pandemic. An exceptional new investigation by Racine and associates (2021) is very timely in that it is a clear illustration at a broad level of the distress that exists currently among children and adolescents. This meta-analysis was based on 29 studies conducted during the pandemic with 80,879 participants. Racine et al. (2021) estimated that anxiety was present in 20.5% of the participants, while depression was evident among 25.2% of the participants. Thus, it can be concluded that about 1 in 5 young people have diagnosable anxiety and 1 in 4 have diagnosable depression. These results are in keeping with other conclusions reached about the

magnitude of mental health problems and challenges being faced by children and adolescents (e.g., Samji et al., 2021).

Three key points related to these findings should be underscored before other relevant evidence is considered. First, additional analyses reported by Racine et al. (2021) suggest that relative to previous prevalence rates, cases of anxiety and depression among young people have doubled in comparison to pre-pandemic levels. This has serious implications for our schools and mental health treatment systems that were already overwhelmed by the needs of young people.

Second, when considering these results, it should be underscored that many young people are characterized jointly by anxiety and depression, and perhaps other forms of distress. Many children and adolescents with extreme adjustment problems will have complex cases involving helplessness, hopelessness, and demoralization, and this may include stress-related physical health problems as well. Current stressors will further complicate the anxieties that existed prior to the pandemic, and new strains and stressors further add to the challenges of alleviating the distress of these young people.

Finally, when it comes to estimating the prevalence of disorder and dysfunction among young people, we have argued that the prevalence of mental health difficulties is underestimated among young people, including emerging adults (see Flett et al., 1997; Vredenburg et al., 1993). Two key factors are involved in this. First, many young people experience significant distress and impairment, despite not meeting clinical criteria for a diagnosable disorder. Sub-threshold expressions of anxiety and depression often involve extensive psychological pain for people experiencing them and this suffering cannot be discounted or denied simply because certain diagnostic criteria were not met. Second, we have conducted extensive analyses leading to the conclusion that many children and adolescents are “flying under the radar” — their distress is largely undetected because they are hiding it behind a façade of apparent adjustment rather than maladjustment (see Flett & Hewitt, 2013; Flett et al., 2018). Perfectionistic adolescents are especially adept at hiding their psychological pain. Flett and Hewitt (2022) have discussed this extensive self-concealment and the tendency to either minimize symptoms during assessment or avoid assessments and help-seeking altogether. A recent study conducted in Germany with 14-21 year old young people found that their lifetime prevalence of anxiety disorders was 23.3%, but also that two thirds of adolescents with an anxiety disorder did not seek help, and very few had contact with a psychotherapist (see Niermann et al., 2021).

This “flying under the radar” tendency has several implications. Most notably, the visible level of anxiety in school settings at all levels (i.e., elementary school, high school, and college and university) will be much less than actually exists. Of course, anxiety is easier to hide when learning occurs online rather than in person. Similarly, parents may be unaware of the extent to which their child or adolescent is suffering from anxiety

because so much of it will be hidden they are able to control outward displays of anxiety. Children who avoid interactions within the home and spend inordinate time alone may be trying to keep their anxiety to themselves.

This tendency is underscored by results obtained prior to the pandemic in a 2017 school survey conducted in the Greater Toronto Area by the York Region District School Board, administered to over 40,000 elementary and secondary school students. One question required respondents to indicate whether they hide their distress. It was found that 41% of elementary students and 53% of high school students indicated that they often or always hide their anxiety and sadness (see York Region District School Board, 2017). This tendency to hide behind a front fuels a false narrative that makes it much easier for other distressed children or adolescents to feel abnormal and believe that peers are much better than they are in terms of coping with anxiety, stress, and uncertainty.

This problem of undetected distress is perhaps best exemplified by a study conducted about a decade ago. Soor and colleagues (2012) analyzed data on 370 adolescent suicides from the Office of the Chief Coroner of Ontario over a seven-year period. The researchers concluded that the usual preponderance of suicides among male adolescents had diminished, with the male-to-female ratio now standing at 2:1 due to an increase in suicides among female adolescents. Most noteworthy for our purposes was the fact that only 66 of the 370 deceased adolescents had received psychological treatment of any kind. Flett and Hewitt (2013) noted that it is likely that a substantial proportion of those who did not receive treatment had suicides that occurred without any apparent warning.

Additional Mental Health and Well-Being Findings

Other studies attesting to the magnitude of mental health problems among children and adolescents are also quite revealing, but for markedly different reasons. For instance, Hawes et al. (2021) conducted a longitudinal study of 451 adolescents and adults that included a pre-pandemic assessment up to two years before the pandemic, and during the pandemic in March, 2020. Participants from Long Island in New York were assessed with self-report measures of anxiety and depression. Analyses indicated that independent of age, there were significant increases in levels of generalized anxiety, social anxiety, and depression during the onset of the pandemic. Female children and adolescents in particular were at risk for increased distress, with about 3 in 5 meeting clinical criteria for at least one disorder. Other analyses indicated that concerns about pandemic-related home confinement were associated with increases in generalized anxiety, but decreases in social anxiety. Increases in depression were associated with concerns related to the pandemic's impact on schools. Overall, the authors concluded that, "... the COVID-19 pandemic is having multifarious adverse effects on the mental health of youth" (p. 1).

Parental reports also indicate that the mental health of young people has suffered greatly as a result of the pandemic. Raviv et al. (2021) surveyed

32,217 parents and other caregivers who responded four months after the lockdown came into effect, with responses gathered until July, 2020. They reported on seven mental health concerns and five positive adjustment indicators in a retrospective pre-post design that required them to rate their child at present and prior to the pandemic. They also reported on degree of COVID-19 exposure and other family stressors. Analyses showed that every indicator, both positive and negative, revealed greater adjustment problems during the pandemic. For instance, levels of anxiety and loneliness were rated respectively as 12.6% and 3.6% prior to the pandemic, but post-pandemic they had risen to 23.3% and 31.9%. Among young people who were not perceived by their parents as experiencing mental health issues prior to the pandemic, between 5,236 (12.8%) and 12,351 (30.2%) were then described by their parental caregivers post-pandemic as angry, anxious, depressed, lonely, or stressed. Similarly, parent reports indicated that among those who had previously been characterised by positive descriptors of mental health, between 8,623 (21.1%) and 18,114 (44.3%) were no longer perceived to have the positive attributes. The five positive characteristics that had vanished were as follows: (a) being relaxed; (b) being hopeful or positive; (c) talking about plans for the future; (d), interacting positively with siblings or parents; and (e) having positive social or peer relationships. This finding in particular underscores the need to consider deficits in well-being in terms of the “paucity of the positive” rather than presence of negative indicators. Greater problems were reported for Black, Latinx, and youth living in poorer households. Other longitudinal research conducted in Canada further attests to the increases in mental health problems and this research shows, via parent and child reports, that this decline in well-being applies to children and adolescents of various ages, including very young children (see Cost et al., 2021).

Some rich findings have also emerged from qualitative research. O’Sullivan and associates (2021) sought to document the pandemic-related experiences of children and adolescents by interviewing 48 families (both parents and children) from Ireland. Overall, anxiety and/or depression were mentioned by 29% of the participants. Other themes that emerged were social isolation (80%) and stress over home schooling (69%). Parents tended to describe their children as stressed and “high strung” and this was exacerbated by lack of access to friends and other family members, and by the impact of pandemic-related media coverage. The mental health issues seemed greater for adolescents, relative to children, and several parents reported that they had sought mental health help for adolescents in their family.

A longitudinal study that focused on academic well-being deserves mention because of the intriguing pattern of findings that was detected. This study from Finland assessed and tracked levels of burnout and socio-emotional skills in the fall of 2019 and during the pandemic in the fall of 2020, among a large sample of children in grades 5 through 8 (see Salmela-Aro et al., 2021). This investigation yielded some results with potentially

troubling implications. Overall, analysis of the pandemic data revealed that more than 3 in 4 participants experienced a decline in academic well-being. However, even more noteworthy was an apparent polarization effect that occurred during the pandemic. The researchers noted that change profiles identified in person-focused analyses became much more similar over time, as if the pandemic created two discrete groups with: "... most students reported either well-being or ill-being at Time 2" (p. 803). One possible interpretation of this result is that the pandemic represents an extreme stressor in line with the notion of a biographical disruption, and children and adolescents find themselves either doing reasonably well or not at all well. This fits with the notion that mild to moderate maladjustment problems have become exacerbated due to the stress and uncertainty of the pandemic, while the more resilient children and adolescents who were better off to begin with are now collectively benefitting from their higher initial levels of adaptability.

Who is Most at Risk?

Several factors come into play in terms of which children and adolescents are most at risk. A new prospective study documented increases in distress and declines in life satisfaction during the pandemic, with poorer adjustment found among adolescent girls (see Magson et al., 2021). Greater increases in mental health problems were positively associated with online learning difficulties, greater COVID-19-related worries, and increased conflict with parents. Protective factors included feeling socially connected and greater adherence to stay-at-home orders.

A recent review by Rider and associates (2021) identified several key factors linked with poor mental health, including social determinants of health (e.g., poverty), as well as other stressors such as family loss, and prior trauma and disorder. Contextual factors are also highly pertinent: One investigation conducted in England found higher levels of anxiety and depression among children and adolescents whose parents were at risk due to being essential workers (see Mansfield et al., 2021). This link with anxiety and depression among children with parents deemed essential workers was still evident after controlling for several other predictive variables.

Pre-existing conditions including physical, intellectual, or learning disabilities are also relevant. Children with autism spectrum disorders face additional challenges during the pandemic (see Vasa et al., 2021), and in general, children and adolescents with special education needs have suffered from their usual routines being disrupted (see Gul & Demirci, 2021).

Parents of children and adolescents who have conditions that might heighten vulnerability to COVID-19 (e.g., Type 1 diabetes) will doubtlessly be faced with difficult choices about whether their kids can or should go to school and be exposed to health risks. A study conducted by Di Riso et al. (2021) documented the potential concerns of the children themselves, with a sample of 71 Italian children and adolescents with Type 1 diabetes.

Overall, one-third of the participants had scores in the clinical range for separation anxiety disorder. Higher levels of anxiety were predicted by being younger, being female, a more recent time to initial diabetes diagnosis, less time spent in the therapeutic range for diabetes control, and higher fears of infection.

Mental health difficulties may also be a function of temperament and personality factors. For instance, perfectionism has been identified as a significant problem in adjusting to the pandemic (see Flett & Hewitt, 2020). Children with high levels of perfectionism may not be able to adjust to new situations and learning conditions due to worries about possible mistakes and ruminating about the possibility of being evaluated negatively, either academically or in terms of their ability to adapt to the pandemic.

While perfectionism is maladaptive, conscientiousness seems to be adaptive (see Liu et al., 2022), even though perfectionism is characterized by high conscientiousness. It is thus important to distinguish between adaptive conscientiousness and the extreme over-conscientiousness associated with perfectionism. Other personality research highlights how the pandemic represents new challenges for many children and adolescents. For example, a longitudinal study of adolescents from Germany by Alt and colleagues (2021) that tracked participants before and during the pandemic found that highly extraverted adolescents had a larger rise in depression during the pandemic, which was attributed to increases in loneliness during the pandemic. These findings stand in stark contrast to the usually protective role of extraversion among adolescents, with extraverts, relative to introverts, usually being less depressed.

As is usually the case with most transitions and periods of uncertainty, it seems that having a secure attachment style is adaptive. An in-depth longitudinal study of 202 adolescents by Coulombe and Yates (2021) evaluated participants before and during the pandemic, and found that higher levels of attachment security were associated with smaller increases in mental health symptoms during the pandemic. Greater attachment security was also associated significantly with greater prosocial and health protective behaviors.

Understanding and Explaining Anxiety with the Interactionism Model

Unfortunately, the extensive efforts to document the anxiety, depression, and other mental health difficulties of children and adolescents during the pandemic has not been accompanied by a complementary focus on conceptual models. We need a much greater emphasis on factors that can explain how, why, and when distress will be elevated, and who will be most vulnerable.

Anxiety is the main focus in this segment of the article. Why focus on anxiety instead of depression or other indices (e.g., stress)? First, the model described below that seems most relevant is one that was formulated to account for how, when, and why heightened anxiety would be experienced. Second, there is now extensive evidence that attests to the presence of difficulties in regulating anxiety among very young children

(see Whalen et al., 2017). It is important to acknowledge that the pandemic will also be impacting preschoolers despite the tendency for contemporary research to focus on older children and adolescents. Parenthetically, prevention effort focused on the self-regulation of anxiety need to begin just as early. Finally, anecdotal evidence points to a great concern about anxiety for this population. Prior to the pandemic, the current author encountered many people (i.e., friends, acquaintances, and school board representatives) with countless stories to tell about children and adolescents suffering from debilitating forms of anxiety. One school administrator indicated that a typical day at school would involve addressing specific duties in the morning and then spending the afternoon attending to the needs of students in her office who had been brought there because they were displaying intense symptoms of anxiety. Other accounts relayed by educators supported the conclusion that mental health needs have supplanted the learning needs of students.

As alluded to above, one model in particular has been shown to be useful for understanding anxiety in many contexts, and it also seems appropriate as a way of accounting for anxiety during this global health pandemic. Norman Endler and colleagues developed a multi-faceted model of anxiety from an interactional perspective (see Endler, 1983, 1997). The essence of this model is that personality trait vulnerabilities interact with situational factors to produce behaviors. It is based on the concept of dynamic interaction; that is, all three components of personality, the situation, and behavior will often interact with each other in an ongoing process. The initial focus of this model was on how different facets of trait anxiety (i.e., the person's usual level of anxiety and associated vulnerabilities) combine with current situational factors to produce immediate levels of anxiety (i.e., state anxiety). This model predicts when people will become anxious as well as the specific circumstances that make people anxious. A key element is perceiving threat due to the presence of an actual situation or a situation about to be experienced that activates or triggers a corresponding trait facet of anxiety (e.g., the person who has physical danger anxiety anticipates an attack).

The original version of this model focuses on four components of trait anxiety: anxiety in ambiguous and uncertain situations, anxiety due to physical danger situations, anxiety in social evaluation situations, and anxiety related to daily routines (Endler et al., 1991). The fourth component (daily routines anxiety) was added to tap the tendency to feel anxious in potentially innocuous daily activities (Endler & Okada, 1975). For someone prone to anxiety, daily routines may now have become imbued with emotional arousal due to the disruption of usual daily activities and needing to engage in atypical activities that serve as reminders of what has been lost. Courtney and associates (2020) observed that, "At an individual level, children and youth have suddenly lost many of the activities that provide structure, meaning, and a daily rhythm, such as school, extracurricular activities, social interactions, and physical activity" (p. 688). Opportunities

to channel and reduce anxious arousal through sports participation have been diminished. Not surprisingly, research has confirmed that increased anxiety among adolescents assessed during the COVID-19 pandemic has been linked directly with changes in daily routines (see Tetreault et al., 2021).

Given this extensive disruption to usual activities, it should not be surprising to learn that the ability to maintain daily routines is associated with better adjustment to the pandemic among adolescents (see Rosen et al., 2021). In general, daily life may involve a family environment more rife with anxiety among family members, including the child's parents. Other surveys suggest that there has been a fourfold increase in anxiety and depression among adults (see Twenge, McAllister, & Joiner, 2021), so problems that individuals are having with anxiety and depression can also involve family systems.

The scope of this anxiety model was expanded when a broader interpersonal element was added. Specifically, a focus on trait separation anxiety was incorporated into the existing framework, as was trait self-disclosure anxiety (see Endler & Flett, 2004; Endler et al., 2002). People with trait separation anxiety are prone to elevated levels of state anxiety to the extent that they have encountered or are about to encounter a situation that involves separation from significant others and this situation is perceived as stressful. Self-disclosure anxiety reflects the tendency for many people to withhold feelings and things about themselves due to anxiety about how others will react to these revelations about the self.

As noted earlier, Endler (1983, 1997) hypothesized that people of various ages will experience state anxiety when they experience a situation that matches the aspect of trait anxiety that is central to their personal identity. This model has been evaluated based on research with high ecological validity, also known as external validity (see Campbell, 1957; Campbell & Stanley, 1967). Ecological validity is present when research can be generalized to tendencies expressed and experienced in actual life situations and contexts. Of course, the best way to ensure this type of validity is to conduct research with a focus on actual situations. Programmatic research has provided extensive support for predictions for the interaction model of anxiety, and this research is briefly summarized below.

One study investigated evaluative fears and confirmed that students who typically get anxious about the prospects of being evaluated negatively by other people (social evaluation anxiety) will become highly anxious when asked to give a speech (see Muller et al., 1990). Physical danger situations evoke state anxiety among people with trait physical danger anxiety. For instance, a study of trainees undergoing parachute training showed that those participants with high scores on physical danger trait anxiety experienced substantial increases in state anxiety when transitioning from a non-stress condition to the training that involved the possibility of real physical danger (see Endler et al., 1992).

Physical danger anxiety was also highly salient when Lobel and associates (1993) conducted an intriguing naturalistic test of this model. They studied state and trait anxiety among people under SCUD missile attack during the Gulf War. Participants lived within 30 kilometers of Tel Aviv. As expected, Lobel and colleagues (1993) found that people high in trait physical danger anxiety were particularly prone to state anxiety when under missile attack.

The novel and uncertainty trait component was evaluated when it was unclear whether the people in the province of Quebec in Canada would vote to separate from Canada and establish their independence via referendum. Indeed, the final results came close to supporting separation with just over 50% voting to remain part of Canada. Flett et al. (1999) found strong evidence in support of the interaction model. The high state anxiety found among certain participants was a joint reflection of their usual tendency to be anxious in uncertain, ambiguous situations and the great situational uncertainty about how the vote would turn out.

The applicability of this model to children and adolescents is beyond question. For instance, this model has been evaluated with orthopaedic pediatric patients about to undergo a surgical procedure in a hospital (see Clewes & Endler, 1994) as well as female adolescent equestrian riders in competition (see Trotter & Endler, 1999). The model does not have facets that relate to all possible anxiety-provoking situations for children and adolescents, but it does capture many salient situations. The range of anxiety-provoking situations for children and adolescents includes ego threats (e.g., giving a presentation at school), inanimate threats (e.g., being alone in the woods at night), threat of punishment (e.g., being summoned at school for doing something forbidden), and threat of pain (e.g., going to the dentist, getting an injection; see Ekehammar, Magnusson, & Ricklander, 1974). Anxiety about the threat of pain is a potential explanation for why some people are unwilling to get vaccinated. Vaccine hesitancy among other people may reflect anxiety arising from the conviction that the vaccine is not safe.

Consideration of the various components of trait anxiety helps to clarify why so many children and adolescents (as well as older people) are currently experiencing elevated and prolonged anxiety. The pandemic represents a life situation that is, of course, being experienced differently and uniquely by children and adolescents, but it has key situational elements known to evoke anxiety. Indeed, upon closer inspection, it should be evident that it has aspects that can activate most, if not all of the trait anxiety components. It is a highly uncertain and novel experience unlike any other that presents a clear risk to physical health and safety, and this can play on the minds of children and adolescents who crave safety and security. Indeed, concerns have been expressed about children experiencing anxiety during the pandemic due to basic health and safety concerns (Courtney et al., 2020). As discussed earlier, the pandemic has also had a dramatic impact on daily routines, and this should activate the trait facet that taps daily

activities anxiety. Social evaluation concerns are less relevant in this situation, but still must be considered for those children and adolescents who are highly self-conscious and preoccupied with the possibility of their adaptation to the pandemic being judged negatively by others. Social anxiety may also be dampened while staying at home more often, but magnified once a return to school and other social situations is imminent and unavoidable.

Finally, while home confinement with loved ones will mean that separation anxiety is not a concern for many children, separation may still be a theme due to not being able to see members of the extended family (e.g., grandparents). Anxious arousal and other forms of distress can also be fuelled by social isolation from friends. Furthermore, a prolonged period of close proximity to family members may have fostered excessive dependency. But of course, many children and adolescents will have parents who must work outside the home, perhaps in unsafe settings, and fears about the safety of these family members may exacerbate worry and anxiety. Separation themes will likely be magnified for young people who have suffered the recent death of a family member.

The trait facets of anxiety that comprise the extended interaction model capture much of the vulnerability being experienced by children and adolescents, and when viewed within the context of this model, it would be surprising if researchers were unable to document a higher prevalence of anxiety during the pandemic. Some children and adolescents with trait anxiety across multiple themes may be experiencing and perceiving a situation that activates multiple facets of trait anxiety. These children may also have highly salient fears that further add to their anxiety and related forms of distress. Below, some of these fears are briefly considered.

First and foremost, worries and fears that are specific to COVID-19 will exist for many of these young people. A qualitative study of preschool children aged 3 to 5 documented their pandemic-related fears and worries, which included overestimating the probability that they could spread the virus to their family members (see Vasileva et al., 2021), and worries that pandemic-related changes in daily routines would become permanent. Parents were also interviewed and provided extensive evidence of how their children had become preoccupied with issues involving COVID-19. Another new study established that pandemic-related fears and worries (e.g., the health and safety of oneself and loved ones) interacted with pre-pandemic levels of ruminative brooding to predict elevated negative affect during the pandemic (see Deng et al., 2021). Contamination fears also represent a potential contributor to distress for those children and adolescents who have developed fear-driven obsessions and compulsions (see Nissen et al., 2020; Tanir et al., 2020).

Casale and Flett (2020) identified two other potential fears that are salient during the pandemic – the fear of missing out (FOMO) and the fear of not mattering to others. Research conducted during the pandemic supports their relevance. Natasha Parent and associates (2021) from the

University of British Columbia linked self-reported levels of FOMO among adolescents with feelings of being socially disconnected or socially indifferent, which is problematic given the extensive negative correlates of social disconnection. Parenthetically, it should be noted that open-ended responses in interviews resulted in 36% of the 682 adolescents in this study acknowledging that they either felt socially disconnected or socially indifferent. The corollary of this is that about two-thirds reported feeling socially connected, but it is possible that some were not accurately portraying their true feelings.

The fear of not mattering has not been evaluated during the pandemic among children or adolescents, but it stands to reason that the limited opportunities for social engagement experienced during the pandemic, especially during lockdown periods, will have heightened the concerns of young people who either feel like they don't matter to others or they are uncertain about whether they do indeed matter. Survey data obtained before the COVID-19 pandemic indicated that among almost 24,000 students from the Greater Toronto Area, about 35% felt like they didn't matter to others or were not sure if they did (see Flett, 2018b). While research on the fear of not mattering has not been done with children or adolescents since the pandemic, it has been examined among university students. These studies found that a new self-report measure of fear of not mattering to others was associated with greater state and trait loneliness (McComb et al., 2020) and with less positive moods and self-esteem, greater psychological distress, and poorer self-reported adaptability to the pandemic (Besser et al., 2020).

Children and adolescents may also be experiencing fears related to specific domains of self-worth. For instance, regarding academic self-worth, adolescents have expressed significant fears related to an inability to stay motivated and find ways to focus on and complete their schoolwork (Lessard & Puhl, 2021). These fears were exacerbated among students who perceived less support from teachers. Fears were also elevated among students who were victims of cyber-bullying during the pandemic.

Suggestions for Intervention and Proactive Prevention

The high prevalence of anxiety among children and adolescents during the pandemic and the complex nature of this anxiety and associated vulnerabilities points to the need for a multi-faceted and nuanced approach to intervention. Ideally, if we could go back in time, preventive efforts would have been implemented to protect children well in advance of this protracted stressful situation. It is important to take a proactive approach going forward to facilitate coping with future threats and challenges.

The arguments advanced by Twenge et al. (2021) based on their loneliness findings seem appropriate and timely when applied to the current mental health problems of children and adolescents. Recall that they concluded that efforts must go beyond a focus on individual adolescents because broad interventions and school-wide and community-wide solutions are urgently needed. Existing programs and exercises can be

adapted from preventive interventions already in use to address types of anxiety such as social anxiety (see Fox et al., 2018).

A new meta-analysis showed that broad school-based prevention programs yield small effect sizes in reducing anxiety and depression among children and adolescents; the investigators concluded that perhaps a universal approach should be replaced by a targeted approach (see Werner-Seidler et al., 2021). However, it is quite plausible that if interventions are built around the themes outlined below, universal prevention programs will be substantially more effective, especially if trait anxiety vulnerabilities and related cognitive appraisal tendencies are also emphasized.

Below, five specific constructs are considered as representing a viable focus for intervention. These five constructs were selected due to their relevance to distress levels during the pandemic and for their suitability to be put into action as specific strategies to facilitate coping—during the pandemic and beyond. Because anxiety typically involves a sense of oneself being weak and ineffective, interventions that boost the sense of personal agency and address needs that are unmet are preferred, including having a greater sense of positive relatedness to other people.

The Role of Perceived Controllability

Some potential contributors to anxiety will always exert an influence (e.g., an anxious temperament and an anxiety sensitivity rooted in physiology) but there are many other elements that can be addressed. It is generally the case that anxiety is rooted in a sense of helplessness and the notion that there is nothing that a person can do to avoid feeling anxious and worried. Experimental work emphasizes how anxiety arises from perceptions of uncontrollability (see Endler et al., 2000). In this particular instance, the COVID-19 pandemic is real and unavoidable and there is little that can be done beyond basic measures such as getting vaccinated. It is natural for many children and adolescents to feel overwhelmed by a sense that things are beyond their control. Here it is important to emphasize to children and adolescents that extensive research has established that anxiety is typical when exposed to uncontrollable circumstances (see Kendall & Suveg, 2006), but what can be controlled—even when feeling helpless—is the reactions to the pandemic in general and to specific situations that arise. All children and adolescents should benefit from learning emotional self-regulation techniques, as they can help them get their feelings of anxiety and worry under control, but learning these techniques should also result in a stronger sense of self-efficacy, and this heightened self-efficacy should reduce anxiety and the sense of not having control (see Endler et al., 2001). This training should be extended to address the cognitive threat appraisals and mechanisms that potentiate anxiety and contribute to its persistence.

Fortunately, there is an extensive literature on the treatment of anxiety in children and adolescents from a cognitive-behavioral perspective, and there is a range of proven effective techniques that can be developed to work with the individual child or adolescent. Kendall and Suveg (2006) have documented therapeutic elements that have been

employed effectively, including techniques for enhancing perceived control that involve the therapist transferring control to the child who learns to cope while parents act as mediators. This approach recognizes that anxiety among children often develops as a result of having overcontrolling parents, and children must learn to negotiate with such parents and learn to exert control in psychosocial contexts.

Mental health professionals have responded to the unique needs of children and adolescents who are suffering from anxiety during the pandemic. One initiative by Rodriguez-Quintana and associates (2001) that is part of TRAILS (*Transforming Research into Action to Improve the Lives of Students*) is a group-based cognitive-behavioral intervention. A key element in this program is a group manual named Coping With Covid-19 (CC-19). This manual was created from existing resources. This manual can be used as part of virtual delivery of an intervention for students to develop coping skills to assist them in alleviating pandemic-related anxiety. This modified intervention incorporates cognitive-behavior therapy and mindfulness in a format that is feasible for schools to implement. One explicit purpose of TRAILS is to provide more timely access to mental health services while also addressing inequities in access.

One potential benefit of cognitive-behavioral interventions for children is that they involve learning specific skills and strategies (see Davis et al., 2019), and this fits well with the conceptualization of hope outlined below that includes a problem-focused element. The cognitive-behavioral approach also involves promoting a more positive worldview and this element may be especially timely given how the pandemic is almost certainly impacting how children and adolescents are seeing the world at present.

The Growth Mindset Approach to Anxiety

The development of a growth mindset should be a key element of any intervention. Work on the experience of anxiety and other forms of distress among children has highlighted the distinction between having a helpless orientation versus a mastery orientation (Diener & Dweck, 1978, 1980). Experimental work on mastery versus helplessness set the stage for Carol Dweck's work on mindsets and the vital distinction between a growth orientation versus a fixed entity orientation. People with a growth mindset view experiences as learning opportunities and ways to grow as a person. In contrast, a fixed mindset is less adaptive and it tends to promote a personal focus on fixed personal defects, and a tendency to respond with helplessness and hopelessness in the face of stressors and threats (see Dweck, 2012; Yeager & Dweck, 2012). Initial work emphasized the benefits of growth mindset in terms of beliefs about intellectual ability, but more recent work has shown that it is also possible to develop a growth mindset in terms of beliefs about emotion-regulation capabilities (Romero et al., 2014). Importantly, research has confirmed the existence of individual differences in mindsets about anxiety (Schroder et al., 2017) and fixed mindsets about anxiety are predictive of future susceptibility to anxiety (see

Schroder et al., 2019). Children and adolescents can be trained to develop a view of lifelong learning and the basic premise that change is possible in terms of controlling anxious arousal and worrisome thoughts.

Mindfulness

A study of approximately six thousand Chinese adolescents by Liu and associates (2022) established the presence of strong negative correlations between mindfulness and both anxiety ($r = -.49$) and depression ($r = -.50$). Given the well-established associations between greater mindfulness and lower distress in young people, it seems obvious that children and adolescents prone to anxiety during the pandemic should benefit immensely from mindfulness training that shows them how to work through episodes of anxious arousal and worry. Mindfulness practices and relaxation practices including calming breathing practices can address anxiety in general, as well as anxiety specific to COVID-19-related concerns and issues.

A key element of this approach is that young people must become aware of how anxiety can impact the self in various ways and learn to not add to it through ill-advised, distress-perpetuating activities. Most notably, excessive information seeking and exposure to pandemic-related news coverage can be counter-productive and worsen negative mood states (see Giri & Maurya, 2021). Not surprisingly, a recent study found that greater news exposure was associated with poorer mental health among children and adolescents (see Rosen et al., 2021).

There is strong evidence attesting to the benefits of mindfulness training overall, and the effectiveness of past mindfulness interventions for children and adolescent is well-documented (see Rawana et al., 2018). For instance, Schonert-Reichl and Lawlor (2010) evaluated the Mindfulness Education (ME) program, a preventive intervention that involves mindful attention training, among 246 students in Ontario. The program emphasizes the development of social and emotional competence and positive affect in students. It has four elements: (1) quieting the mind; (2) mindful attention; (3) managing negative emotions and thoughts; and (4) acknowledgement of the self and others. Research conducted with 139 students from six ME program classrooms and 107 students from six comparison classrooms found that those students who received mindfulness training had significantly higher levels of optimism and received comparatively higher ratings from their teachers in terms of social and emotional competence. Presumably, an intervention with a more explicit focus on anxiety would yield even greater benefits.

Interpersonal Resources – Mattering

The investigation by Salmela-Ari and associates (2021) that was described earlier is also noteworthy because it provided strong evidence that a cluster of social-emotional competencies and resources were highly protective by facilitating better adjustment to the pandemic. Key factors here included social belongingness and social engagement.

Feelings of mattering to others in general, but also in specific contexts (e.g., at home, at school, and in the community), have been identified as a vital resource in adjustment to the pandemic for people of various ages (see Flett & Heisel, 2020; Flett & Zangeneh, 2020). Rosenberg and McCullough (1981) introduced the mattering concept, and it was then further elaborated by Rosenberg (1985). Mattering was couched primarily in positive terms and described by Rosenberg both as a feeling and a motive in terms of the need to feel a sense of mattering. Rosenberg and McCullough (1981) identified three components: (1) the sense that other people depend on us; (2) the perception that other people regard us as important; and (3) the realization that other people are actively paying attention to us. A fourth element identified later is the feeling that other people would miss us if we were no longer around (see Rosenberg, 1985).

It has been proposed that promoting mattering is essential in building and strengthening the foundation of mentally healthy schools (Flett, 2018a) because children and adolescents who feel like they matter have a foundational element of self-worth that is built around their sense of being cared about and valued by others. Similarly, the psychological distress of college and university students has been interpreted in terms of mattering, and recommendations related to mattering have been proposed (see Flett et al., 2019).

A recent analysis by Flett (2019) emphasized the role of mattering in protecting children and adolescents from the experience of anxiety and the related fears of failure and negative evaluation from others. A link between heightened levels of anxiety and feelings of not mattering and fears of not mattering seems quite plausible in light of evidence linking feelings of not mattering with insecure attachment in high school students (see Flett et al., 2022).

Recent evidence attests to the protective role of mattering to other people. Studies conducted during the COVID-19 pandemic have shown that mattering is a protective buffer for feelings of distress and loneliness (Besser et al., 2020; McComb et al., 2020), and it is associated with greater adaptability to the pandemic and to sudden transitions to online learning (Besser et al., 2020). Flett (2018a) had argued that mattering is related to but distinct from associated constructs (e.g., belongingness and social support), and that the absence of a feeling of mattering to others constitutes a specific vulnerability factor that needs to be targeted in interventions.

Given that so many young people are feeling socially disconnected right now, there is perhaps no better time for interventions designed to boost a sense of mattering to others. Mattering can be developed in various ways. One approach to fostering a sense of mattering to others is to provide students with leadership and mentoring opportunities that capitalize on the positive sense of self that emerges when young people come to realize that others are depending on them.

Hope

The current situation must be especially upsetting for young people who have transformed their sense of helplessness into hopelessness. Unfortunately, children and adolescents who feel a sense of hopelessness may engage in a variety of risky and self-destructive behaviors fuelled by the conviction they might as well do what they want because there is no positive future in store for them (see Carvajal, 2012; Carvajal et al., 1998). Accordingly, it is vital to address their demoralization by restoring a sense of hope and finding ways for this hope to be sustained.

Ideally, efforts to promote hope will be informed by key conceptualizations and related research. In this instance, there should be a primary focus on specific strategies and problem-solving approaches according to the conceptualization of hope proposed by Snyder and associates (1991). Hope is a vital resource based in a personal sense of "successful determination in meeting goals in the past, present, and future" (p. 570), and "a sense of being able to generate successful plans to meet goals" (p. 570). Snyder and colleagues have a joint emphasis on hope via "the will" that generates a personal sense of agency and "the ways" that represent timely and effective solutions to life problems. Hope is best distinguished from optimism and wishful thinking by the sense that specific things can be done to ensure that hopes are realized. Extensive research has confirmed the presence of individual differences among children and adolescents in terms of their levels of hope, and it has been shown that hope is associated uniquely with a variety of positive outcomes (see Finch et al., 2020; Snyder et al. 1997).

Hopes and ambitions can be promoted through a possible selves approach (see Markus & Nurius, 1986). There is extensive evidence attesting to the benefits of making positive possible selves more salient, including academic benefits (see Oyserman et al., 2002). Possible selves are also important from a health perspective. A recent review of 14 studies with adolescents established that being focused on the possible self was associated with taking fewer health risks and engaging in more positive health behaviors (see Corte et al., 2020).

While the main emphasis should be on specific things that can be done to foster a sense of hope, there is also much to be said for adult figures (parents, teachers, and community members) being positive models who reflect and embrace the concepts discussed above (e.g., hope, mindfulness) so that significant social learning can take place. It is important to reiterate key messages such as to focus on what is controllable, and take active steps when it comes to engaging in self-care and advocating for the self. Another key theme here involves the normalization of distress and the notion that everyone is struggling with some anxiety and distress, even if they are projecting a false image of adjusting perfectly to the pandemic. Parents should be encouraged to openly discuss how the pandemic has impacted them and how it is natural to experience anxiety and worry. They can model

effective ways of coping with anxiety while also providing a model for expressing emotion rather than suppressing it.

Summary

The current article focused on the mental health challenges for children and adolescents as a result of living through the COVID-19 global pandemic. Evidence was summarized that attests to increased levels of mental health problems among children and adolescents, with a particular focus on the prevalence of anxiety. Explanations for increases in anxiety and associated forms of distress were considered through an analysis guided by the tenets and themes in the interaction model of anxiety. Multiple vulnerabilities were considered and it was concluded that many children and adolescents will have developed complex forms of anxiety that are underscored by multiple factors and multiple sources of worry, including some very realistic concerns. This article concluded with a discussion of several key themes to focus on for developing interventions to reduce levels of anxiety.

One important insight with respect to the pandemic and challenges for children and adolescents is that it represents an opportunity for growth and positive change (see Vaillancourt et al., 2021). Perhaps the ultimate lesson of the pandemic when it comes to the well-being of children and adolescents is that research knowledge must be mobilized and put into action in widespread prevention programs. Resilience and adaptability can be learned, and the best education is one that prepares children and adolescents for the life challenges ahead of them. The pandemic continues to evolve, and represents a major challenge in adaptability. Unfortunately, while there has been extensive research in applied settings on promoting resilience, there has been relatively little focus on what can be done to promote adaptability to new and evolving circumstances and situations. Accommodation and assimilation to emerging life problems and unfamiliar settings are central to adjusting to mental health challenges across the lifespan, and children who learn to be adaptable will have a vital resource that will facilitate coping with normative transitions, novel stressors, and unforeseen circumstances. Hopefully, the experience of living through the pandemic will promote more urgency in seeking to understand adaptability and finding ways to promote it in children and adolescents.

Conflict of Interest

There is no conflict of interest.

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