

Climate Distress among Young People
An Overview

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Introduction

Awareness of climate change is growing. Along with the increasingly definitive and detailed visible evidence that the climate is changing, there is increased recognition of negative impacts on human well-being. The sixth assessment report from the Intergovernmental Panel on Climate Change (IPCC) described the threats, from impacts on physical health through exposure to disasters, heat, poor air quality, and disease vectors; to impacts on food systems and the economy; and to negative effects on social inequity and individual mental health (IPCC, 2022).

This increased awareness brings increasing worry. A 2022 international survey, for example, found that more than nine out of ten respondents in seven countries (among 192 countries and territories surveyed) were worried about climate change. Majorities in most countries expected climate change to harm future generations and to threaten their own country or territory in the next twenty years, although a smaller number expected to be personally harmed (Leiserowitz et al., 2022). In a 2021 survey of 10,000 young people around the world (Hickman et al., 2021), more than half said that they were “extremely” or “very” worried about climate change, and only 5 percent said they were not worried.

In the face of these challenges, worry and anxiety in response to climate change are not surprising. Worry and anxiety can be adaptive when people are faced with a threat. Where worry is the usual reaction to negative news, anxiety is a future-oriented emotional response that tends to focus attention on the need to respond to a problem. In this way it can be associated with appropriate preparations for the imminent threat, such as behavioral modifications that will decrease the threat and/or increase the ability to cope with it. However, extreme levels of anxiety can become overwhelming, associated with the maintenance of unresolved worry and continued focus on a problem. When anxiety is difficult to control or manage, causes

difficulty functioning in important domains (e.g., work, family, life), and is accompanied by physical symptoms and severe distress (Barlow, 2000), it could be considered a disorder.

Climate change is beyond the ability of any individual to fully resolve. Indeed, as a “wicked” problem (i.e., an issue that is complex, challenging, or impossible to solve), it is unlikely to be fully resolved in any manner. Instead, it describes an evolving state of affairs whose full impacts cannot be clearly predicted but which is likely to reduce quality of life for almost everyone. Thus, it is reasonable that thinking about climate change would evoke some degree of anxiety. One way for people to respond is through emotion-focused coping, which involves managing their negative emotions, for example by avoiding the issue or by cognitively reframing the issue as not important. This is a maladaptive response as it fails to address the problem, which becomes even larger as we ignore it. But facing the issue may also be problematic if the negative emotions become overwhelming, leaving the anxious individual paralyzed with fear (Lazarus & Folkman, 1984).

As children, adolescents, and young adults face the reality of an altered climate that threatens human well-being, many will experience anxiety and other distressing emotions. This is not a pathological response or de facto evidence of mental illness, but for some the anxiety will reach levels that impair mental health. In order to help those who experience these powerful impacts, it is important to understand the nature, predictors, and consequences of climate change-related distress and anxiety.

Describing Climate Anxiety

In recent years, media and anecdotal reports about “climate anxiety,” “climate change anxiety,” or “eco-anxiety” have grown substantially. In order to know what climate anxiety is and whether climate anxiety itself is growing, however, there needs to be a consistent definition and a reliable way of assessing it. One key question concerns its intensity and the extent to which it is “practical” or “paralyzing.” Many surveys have simply asked about climate worry or concern, which does not necessarily imply a reaction that is intense enough to motivate behavior or to threaten mental health. Based on her experiences talking with children, often in therapeutic settings, Hickman (2020) distinguished multiple levels of eco-anxiety. The “significant” and “severe” levels were associated with emotional distress, with impacts on cognition and behavior. Similarly, in discussing climate anxiety, Pihkala (2022) distinguished between “practical” or “constructive”

anxiety, and “paralyzing” anxiety, to acknowledge the different behavioral responses, or lack of response, that may accompany individuals’ experiences of anxiety.

A systematic approach to assessing the potential clinical implications was developed by Clayton and Karazsia (2020), who focused on the question of whether climate change anxiety (CCA) might indicate the kind of functional impairment that would make it clinically relevant. Their paper presented a Climate Change Anxiety Scale (CCAS) that was based on established measures of rumination and functional impairment. In two studies based on US samples, the CCAS showed a reliable structure with two components: cognitive/emotional impairment, associated with difficulty concentrating or regulating emotions; and functional impairment, associated with difficulty working, socializing, or having fun. Notably, both components were significantly correlated with having experience of climate change (e.g., experienced a natural weather disaster) and with a short measure of depression and anxiety. Levels of climate anxiety were generally low, with about 3–10 percent of respondents saying they “often or almost always” experienced these symptoms, and as many as 20–25 percent saying they “sometimes” experienced them (Clayton & Karazsia, 2020). A later US study (Schwartz et al., 2022), using separate measures of depression – the Patient Health Questionnaire-8 (PHQ-8) – and anxiety – the General Anxiety Disorder-7 (GAD-7), found that CCAS scores were significantly correlated with both variables. There was no correlation with age in this study, but the range was limited because the sample consisted mostly of undergraduate students.

In the past few years, multiple studies have used the CCAS in other countries. Wullenkord et al. (2021) found that the CCAS was reliable in Germany, though they did not replicate the factor structure of the original study. Levels of climate anxiety were low and did not differ according to age, education, or income, though women reported higher levels of climate anxiety. CCAS scores were positively correlated with anxiety and depression, support for pro-environmental policies, and pro-environmental behavior intentions. In a Polish study (Larionow et al., 2022), women, again, showed higher levels of climate anxiety; age and education were both slightly negatively correlated with CCAS. Subscale scores were related to depression but not anxiety using the PHQ-4. A similar factor structure was reported in Belgium (Mouguiama-Daouda et al., 2022). In a large sample from multiple French-speaking countries, almost 12 percent of the sample reported experiencing anxiety frequently (Heeren et al., 2022). Women and younger adults showed higher climate anxiety, but there were no differences associated with education. In a sample of adolescents

from the Philippines (Simon et al., 2022), higher scores on the CCAS again related positively to both experience of climate change and behavioral engagement. Although the samples cannot be directly compared, it is worth noting that scores were higher in the Philippines than in the US studies. In another study from the Philippines, CCAS was negatively correlated with mental health, and positively correlated with psychological distress (Reyes et al., 2021). In samples from India, China, and Japan, as well as the United States, Tam et al. (2023) found that a two-factor structure was reliable across countries, but demographic predictors varied. In sum, these studies suggest the CCAS is a reliable instrument that can discriminate climate anxiety from clinical anxiety and depression across a variety of populations, although further work should explore differences in levels and discrepancies in the factor structures.

Climate change anxiety by no means represents the only emotional response to climate change, or even the only negative emotion. Several researchers have emphasized grief or depression as a response to climate change (Cunsolo & Ellis, 2018; Ojala et al., 2021); this grief or sadness is based on the perceived loss of something valued, such as a healthy environment or specific natural places, and is thus likely to be stronger among people who place a higher value on the natural environment and/or have greater experience with the loss or change of places that hold importance to them (Wang et al., 2018). Many people also experience emotions with a moral judgment component: personal guilt or shame; anger at those who are contributing the most to climate change; or a feeling of betrayal because those who are supposed to be responsible for assuring people's well-being (e.g., parents, governments) are failing to act. Based on a review of the literature, Pihkala (2022) describes a taxonomy of climate emotions, with the most commonly discussed including anxiety, grief, guilt or shame, hope, and anger or frustration. The term "climate distress" may be used to recognize this range of emotions that one may feel in relation to climate change.

Emotional responses are complex, and most people may feel more than one of these emotional responses to climate change, either sequentially or simultaneously. Indeed, Galway and Beery (2022) found that hope was positively correlated with most of the negative emotions (e.g., worry, fear, sadness, anxiety). One implication is that allowing people the opportunity to describe and discuss their own negative emotions will not prohibit their ability to also feel positive emotions. Several studies have suggested the importance of acknowledging the negative emotional response to help people cope with those reactions (Doherty et al., 2022; Ojala, 2015). For young people, it may therefore be important for educational contexts, in which information

about climate change is presented, to also allow discussion and validation of emotional responses (Baker et al., 2021; Ojala, 2015).

In studying and describing these emotions, we are concerned about their implications for well-being and for behavior. Is climate anxiety a threat to mental health? Alternatively, if climate anxiety motivates sustainable behavior, could it actually increase well-being? Research shows that emotional responses to climate change, and negative emotions in particular, are important predictors of behavior (Brosch, 2021). However, negative emotions about climate change are also related to insomnia and poorer (self-reported) mental health (Ogunbode et al., 2021; Schwartz et al., 2022).

There is no threshold score on the CCAS above which people are considered to have problematic “climate anxiety,” and it is important to acknowledge that climate-related distress is not a diagnosable disorder according to diagnostic classification systems. The significance of a particular emotional response depends on the individual’s social context, both because the acceptability of expressing specific emotions will vary across cultures, and because the social support received will help to determine the impact of feeling a specific emotional reaction. Iniguez-Gallardo et al. (2021) remind us that the emotional response to climate change will be affected by cultural factors. In their Ecuadorian sample, powerlessness was a stronger emotional theme than it has been found to be in US samples, presumably because Ecuador has less impact on global policies and global carbon emissions. Powerlessness may also be a particularly significant emotion for some younger people, since most of them are not yet in positions of financial, social, or political influence.

The media frequently comment on declining mental health among young people. Yet media outlets also often describe young people as representing hope for the future because of their willingness to engage in climate change activism. It is important to attend to the levels and correlates of climate anxiety and distress among youth, both for their own health and for them to have, in turn, the resilience to attend to the health of the planet.

Climate Distress in Young People

As climate change disrupts the environment, children are being forced to grow up in an increasingly dangerous world.

(UNICEF 2021)

Young people face a future burdened by climate change, and the negative implications are increasingly coming into focus (Sanson et al., 2019). Physically, young people are more susceptible to health risks related to air pollution, heat, infectious diseases, as well as water and food shortages

(Akachi et al., 2009; Helldén et al., 2021). As extreme weather-related disasters increase in severity and frequency, young people are most at risk of injury and death (Bartlett, 2008). Climate change may even pose risks during prenatal development; exposure to increased humidity and natural disasters *in utero* are associated with preterm birth, prenatal complications, and adverse long-term mental health outcomes (Davenport et al., 2017; Rothschild & Haase, 2022; Subramaniam, 2007). As climate change evolves, young people may progressively experience climate-related stressors that can have a profound impact on mental health (e.g., disrupted education, forced displacement, trauma).

Young people are vulnerable not just because of physiological differences but because of their social position in society: less independence means they can experience more indirect and vicarious impacts, for example based on the ways in which parents, caregivers, or teachers are affected by climate change. Their stage of psychological development is also relevant as they may experience a strong emotional reaction to perceived betrayal or neglect of responsibility by those in charge, including governmental authorities, or to the intergenerational inequities that climate change presents (Thiery et al., 2021). For some young people, climate change may disrupt important connections to culture and place.

Youth is a critical life phase spanning from late childhood through to young adulthood, which is typically understood as between the ages of 12 and 25 years. The United Nations defines “youth” as the “transition from the dependence of childhood to adulthood’s independence.” This phase is marked by rapid changes and maturation across social, emotional, psychological, and physical development; it is a time of growing independence, identity, and responsibility. These transitions can be difficult for young people and the presence of adverse events can greatly impact a young person’s long-term well-being (Hardgrove et al., 2014). For current and future younger generations, this period in life is when most may come to learn about climate change and realize the gravity of the situation. When we use terms such as “young people” we are referring to studies that investigate people between the ages of 12 and 25 years. However, even children as young as 8 years old are reporting worries about climate change, with some describing associated bad dreams or impacts on sleeping and eating habits (Atherton, 2020).

I guess for me it [climate change] became real during the Black Summer bushfires. It was like an apocalypse. I remember seeing all these pictures where the sky was red – the air was thick and smoky. There were all these posts on my feed about how many animals were lost in the fires and how

much vegetation was being destroyed. I remember my friends saying, “this is climate change”. Sometimes it feels like we’re trying to beat something that feels impossible. It’s suffocating. (20-year-old young person, anonymous personal communication, 2022)

Prevalence

There is a plethora of ways in which young people encounter climate change. Some may be spatially and temporally exposed to climate-induced stressors such as extreme weather disasters, erosion, drought, and extreme heat; others may learn of climate change through the media, at school, and through their parents or friends. Irrespective of how a young person is connected to climate change, evidence suggests that a high proportion of young people are concerned about the climate crisis. In their global study, Hickman and colleagues (2021) found that the majority of respondents in each and every country studied reported being moderately to extremely worried.

Research has generally shown that young people report greater concern about and belief in climate change, compared to adults (Clayton & Karazsia, 2020; Lewis et al., 2019). Young people are also more likely to report worry, anger, and guilt, as well as less hope about climate change, than older generations (Swim et al., 2022). This appears to be especially prominent in countries from the Global South, where concern, belief, and willingness to act are generally found to be greater than in countries such as Australia, the United States, and the United Kingdom (Hickman et al., 2021; Lee et al., 2020).

What Does Climate Distress Look Like in Children and Youth?

As with adults, climate distress in young people comprises emotional, cognitive, and behavioral elements. Emotions towards climate change can range in salience, severity, and valence (i.e., pleasant to unpleasant). Young people may respond to or manage these emotions through active (behavior) or intrapersonal (cognitive) means. Some young people may think and act in positive, constructive, and helpful ways; others may be unable to act or think in helpful ways or may use maladaptive coping mechanisms. How these aspects of climate distress manifest will likely differ according to a young person’s internal (e.g., one’s sense of connection to the environment) and external (e.g., experience of climate change) circumstances (Crandon et al., 2022), as well as personal resilience and psychological

style. While experiences of climate distress are unique for each young person, it is useful to consider patterns or themes in the range of emotions, cognitions, and behaviors of young people.

Emotions

I feel angry that we have to deal with this. I also feel a lot of fear – I don't know how much time we have left to do something and that really scares me. Sometimes I feel hypocritical too, because I haven't always thrown the right thing in the right bin, but I'm also really worried.

(13-year-old young person, anonymous, personal communication, 2022)

Climate distress may involve an array of complex, distressing, and unpleasant emotional experiences, including fear, anger, shame, guilt, and helplessness. In the global survey conducted by Hickman and colleagues (2021), young people reported many negative emotions, but rarely indifference (29 percent). Perhaps the aspect most investigated in young people is the experience of anxiety and concern about climate change, often described with the term climate anxiety. As described above, anxiety can serve an adaptive biological and evolutionary function, prompting one to prepare for anticipated threats, or it can be paralyzing. For young people, a future laden with the uncertainty and threat of climate change is likely to evoke anxiety and fear.

Studies have shown that young people also express confusion, betrayal, and a sense of abandonment in response to adult inaction. Young people, who are most likely to be affected by climate change, generally have less agency and power to create meaningful change compared to adults. For some young people, as they develop increasing independence, choice and responsibility, this may highlight inaction by their peers, family, or community members. Perceiving older generations as failing to protect younger generations or to prepare them for impending harm may evoke generational anger and resentment (Hickman et al., 2021). This distress may be furthered when young people feel silenced, which may be the case when young people are excluded from decision making (e.g., voting) or are criticized by others for demanding action (Crandon et al., 2022). For example, some young people may feel dismissed when characterized by government officials or the media as experiencing “needless anxiety” (Crowe, 2019).

Climate change, and the way one responds to it, can also evoke pleasant emotions such as hope, optimism, connection to others, motivation, a

“warm glow” (a feeling one gets when acting in an environmentally friendly way), and “soliphilia” (a feeling of protectiveness, love, and responsibility towards the planet) (Schneider et al., 2021). For young people, these feelings may be evoked when involved in environmental projects (e.g., at home, at school, or in the community), when connecting with their peers on climate change issues (e.g., school projects or climate action marches), or when spending time in nature. To date, there is little evidence on the extent to which young people experience pleasant climate emotions, although some young people have reported feeling optimistic and hopeful (Hickman et al., 2021; Ojala, 2012). Emotions of a pleasant nature may be more likely to motivate people to engage in pro-environmental behavior. Young people who are more hopeful about climate change, for example, may be more likely to report a willingness or greater engagement with pro-environmental action (Ojala, 2011; Stevenson & Peterson, 2016). Another study found that eliciting anticipated pride (e.g., imagining the feelings of pride that may follow engaging in pro-environmental behavior) may lead to higher motivation to act compared to guilt (Schneider et al., 2017).

Cognitions

Every time I see something about climate change, I just think we're too late to fix it. I think about the ice caps melting. I think that it's gonna keep getting hotter. I think resources will keep getting smaller and everyone will be fighting for one thing. Things will become more in-demand – things that we need on a daily basis.

I think about having kids and I'm worried about their future, what it's gonna be like for them.

(21-year-old young person, Aquino, J., personal communication, 2022)

Evidence suggests that young people may have both positive (e.g., trusting scientists to come up with solutions) and negative (e.g., perceiving humanity as doomed) thoughts about climate change. Whether a young person's thoughts are positive or negative is likely to be driven by their understanding of the situation. Hickman and colleagues (2021), for example, showed that young people reported having more negative thoughts if they also reported feeling betrayed by their governmental response to climate change.

Young people's thoughts can also take the form of cognitive strategies to cope with or influence their feelings about climate change. For example, meaning-based coping involves positively reappraising a threat or finding benefits within adverse events, such as about how others are actively

working together to address climate change. Meaning-focused coping has been linked to positive affect (e.g., life satisfaction, optimism) and less negative affect in young people (Ojala, 2012). Other young people may use problem-solving coping, which involves identifying and planning to implement actionable solutions. Both meaning-focused coping and problem-solving coping have been associated with greater environmental engagement in young people (Ojala, 2012).

Another cognitive strategy identified in youth is rumination, a passive and repetitive negative focus on one's distress, its causes, and consequences. For example, an individual may have repetitive negative thoughts about their own emotional distress, or how their behavior might contribute to climate change (Clayton & Karazsia, 2020; Hogg et al., 2021). It has been suggested that rumination may be used when attempting to counterintuitively control or avoid the threat (Ojala, 2012; Stroebe et al., 2007).

Positive or negative thoughts and cognitive strategies do not inherently indicate how adaptive a young person's response to climate change may be. Rather, it could be argued that a young person's adaptation is better reflected by whether their emotions or thoughts lead to meaningful behavioral coping.

Behaviors

In every choice I make, I see the reaction. Energy consumption, food consumption, transport emissions, waste. I see how I contribute to a growing climate crisis. Though, in these everyday actions I also see how awareness has changed my behaviour. Reducing my plastic waste, composting scraps, eating less meat, catching public transport.

I think for previous generations the threat of "climate change" was easy to ignore, something that's "too far off". For me, it is tangible and too real to ignore.

(24-year-old young person, Lindsay, A.,
personal communication, 2022)

Climate distress may lead to changes in behavior, which may be considered helpful or unhelpful for the individual as well as for climate mitigation efforts. Studies have shown that young people who are distressed, anxious, or concerned about climate change may be more engaged or willing to engage in pro-environmental behavior. One longitudinal study also found that sustained climate worry over time was linked to greater engagement with news and politics (Sciberras & Fernando, 2021). Yet climate change can also lead to functional impairment in young people.

More specifically, climate distress in youth has been associated with difficulties engaging in school or work, as well as spending time with family and friends (Clayton & Karazsia, 2020; Hickman et al., 2021). Climate distress can also impact the life choices and long-term behaviors of young people; some young people have reported hesitancy to have children or to travel due to their feelings about climate change. A survey of Americans aged 13–29 in 2021 found that they expected climate change to affect decisions about where to live, what to buy, what to eat, and whether to have children, and only 15 percent said it would not influence their future decisions (Isaacs-Thomas, 2021).

Moving from Climate Distress to Posttraumatic Growth and Resilience

Young people have the capacity to be leaders in sustainability, influence policy decision-making, communicate about climate change to the public, as well as direct and contribute to efforts that mitigate climate change (Haynes & Tanner, 2015). However, there is a risk of assigning young people an unfair proportion of responsibility for addressing the crisis. There is the potential for young people to become overwhelmed by continuous climate-related triggers over time (e.g., weather disasters, conflict between nations, governmental inaction) (Crandon et al., 2022). Given the ongoing risks that climate change poses for young people, there is an urgent need to support youth to cope with climate change in ways that are protective of their mental health. One way to do this may be in strengthening individual and community psychological resilience.

Resilience has been described as “bouncing back” from adversity; that is, one’s capacity to return to psychological equilibrium and functioning following stressful events. Much of the research regarding resilience and climate-related stressors focuses on natural disasters. Following disasters, young people may be more likely than adults to experience high levels of mental health problems such as stress, anxiety, and depression, and less likely to exhibit resilience, when compared to adults (Chen et al., 2020). Although many young people who experience post-disaster distress recover or develop resilience in the year following the disaster (Chen et al., 2020), it is possible that climate distress could become chronic as young people face gradual and long-term climate-related impacts (e.g., changing environments and biodiversity loss over time), as well as stressors that will become more frequent and intense as climate change evolves. Trajectories of resilience versus psychopathology following climate adversities will

also be influenced by contextual and systemic factors. For example, post-traumatic stress disorder (PTSD) symptoms in children and young people following bushfire/wildfire disasters may be greater when young people perceive their own life is under threat, or when they are experiencing ongoing loss and disruption (McDermott et al., 2005; Yelland et al., 2010). As another example, young people living in an underresourced or historically disinvested community may also experience different and more intense psychological consequences.

One of the ways in which climate anxiety and distress manifest among young people may be through their decisions about the future. Attempts to promote resilience among youth may need to focus on providing new skills for making decisions under conditions of increasing uncertainty.

Limited empirical evidence explores the effectiveness of interventions that aim to strengthen resilience in children and young people experiencing climate distress. Despite this, there is an established evidence base for programs and interventions that aim to foster potential drivers of resilience, such as the ability to manage emotional distress through meditation, mindfulness, and other techniques, increased engagement in climate advocacy and mitigation, as well as building feelings of hope, agency, and pro-environmental behavior in young people (Haynes & Tanner, 2015).

Importantly, resilience focuses on recovery and maintaining coping long term. This focus may neglect the critical need to challenge and change social-ecological, economic, and political systems to adequately address climate change (Adams et al., 2021; Bahadur & Tanner, 2014). Indeed, some research has shown that psychological resilience to extreme weather events may be associated with a diminished motivation for climate change mitigation (Ogunbode et al., 2019). Several authors have thus suggested a focus on transformational resilience (Doppelt, 2016). This strategy is based on the concept of posttraumatic growth, in which difficult events provide an opportunity for change and realignment of priorities towards greater social connection and spiritual growth. Within the posttraumatic growth model, climate stressors can be catalysts to improve outcomes for the environment, the climate, and human and social well-being (Doppelt, 2016). For young people, this would mean holding uncertainty and despair, whilst also looking to reimagining and building a different future.

A comprehensive view of resilience should acknowledge the interdependent links between human and ecosystem health, so that a shortsighted attempt to emphasize individual mental health does not take priority over working toward a mutually sustainable and healthy environment (Bingley et al., 2022) and instead is based on the recognition that a healthy

environment is fundamental to mental health. The goal should not be to eliminate negative emotions in response to climate change but to encourage a healthy understanding of and reaction to those emotions.

Future Directions

Research provides increasing evidence that young people are distressed about climate change; however, there remain wide and far-reaching gaps that research, community-based interventions and public health policy must promptly address to support the coping and mental health of different groups of young people (as discussed by Wortzel in Chapter 9). The various threats surrounding diverse groups of young people (e.g., from different geographical locations, cultures, socioeconomic backgrounds) lead to different threats to mental health as well. The subsequent chapters of this book will use a range of perspectives to bring these complex causal connections into deeper focus.

Vulnerability to climate change, including its emotional impacts, is not evenly distributed (Dooley et al., 2021). There are inequities in exposure to the effects of climate change, in the degree of impact, and in the sources of resilience that are available. Poorer people and countries, for example, are often situated in areas that are more strongly affected by climate change. Within these areas, young people often have fewer resources to protect themselves from those impacts and to recover from them (Hanna & Oliva, 2016; Sanson et al., 2019). Young people living in rural areas may also be more strongly affected by climatic changes that threaten their community's predominant source of food, water, and employment. Indigenous peoples may find that their entire culture and traditional practices continue to be threatened in a way that is less true for other individuals. Indeed, the spiritual and cultural significance of the land for some Indigenous young people is such that its decay may have a profound impact on their psychological health and identity.

Beyond the research community, it is especially important for the adults surrounding young people (e.g., families, educators, and mental health professionals) and particularly those in positions of power (e.g., those in government, policy, the fossil fuel industry) to consider the impacts of climate change on young people and the distress it may evoke. In recognizing and responding to these impacts, it is critical to work alongside and uplift young people as active agents of change and key stakeholders in planetary health, their own physical and mental well-being, as well as the future.

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