

# Childhood Adversity as a Predictor for the Occupational Stress that Leads to Burnout

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## **Introduction**

Childhood adversities have been linked to increased adulthood health issues, both physical and mental, as well as increased health risk behaviors such as smoking and being involved in violence. Additionally, there is a dose-response relationship between childhood adversities and later incidence of stroke and coronary artery disease as well as a significant relationship between adverse childhood experiences and difficulty finding life fulfilling or meaningful (Chang et al., 2019; Wang et al., 2022). Examples of adversities that one might experience in childhood include: physical abuse, witnessing violence, physical and emotional neglect, a household member with a substance abuse disorder, caregivers with mental health problems and more (Centers for Disease Control and Prevention, 2022).

Childhood adversities are most often measured using a valid and reliable test that yields Adverse Childhood Experiences (ACEs) scores (Centers for Disease Control and Prevention, 2022; Mei et al., 2022). ACEs scores have additionally been linked to occupational challenges, difficulties creating positive relationships in the workplace, interrupted executive function, lack of likelihood to trust others, and the tendency to interpret various scenarios as a threat to personal wellbeing without reason (Donaldson, 2022). A direct link between ACEs and occupational stress has only been discussed minimally throughout the literature. Long term occupational stress is a risk factor for burnout (Maslach et al, 2000).

Burnout is a current pandemic with the average burnout rate globally being 38.1% of the working population, and some observational studies reporting numbers as high as 89% (Chan et al., 2023; McLean & Company, 2023). Burnout is a result of long term, mismanaged or

unmanaged chronic occupational stress that leads to a triad of symptoms which include low efficacy, cynicism, and fatigue both at the physical and mental levels (Maslach et al., 2000). In the organizational psychology and consulting worlds, the solution to this problem lies in making changes at an organizational level such as reducing workloads, increasing empathy within the workplace, and aligning employee and employer values (Chan et al., 2023; McLean & Company, 2023). An earlier study on burnout also focused primarily on workplace factors, naming six main factors that contribute to burnout in the workplace, namely, workload, lack of fairness, lack of praise and recognition, values mismatches, lack of community, and lack of autonomy. Within this study researchers also noted some personal factors including high levels of neuroticism, low sense of control, maladaptive coping styles, low self-worth, and lack of resilience to change (Maslach et al., 2000).

The question that this paper will address is the following: Do childhood adversities lead to higher levels of occupational stress? To make this determination, literature will be reviewed that links ACEs to the stress response, perceived resilience, and perceived stress. Included studies will have a focus on measuring ACEs and correlating those scores with health outcomes, both perceived and measured.

While reviewing the literature, several themes presented themselves. The first is a list of mechanisms that might possibly explain how childhood adversities lead to dysfunctions in the stress response system which could in turn lead to higher levels of perceived occupational stress. The second theme considers the idea of buffers, or mediators, that might protect one from the long-term effects of childhood adversities. These buffers could be considered as eventual treatments or preventative measures in health promotion efforts. The third theme

surrounds the possibility that those with higher levels of childhood adversities may more frequently choose helping professions and those professions (nursing, teaching, law enforcement) may lend toward higher levels of stress.

### **Mechanisms connecting Childhood Stress and Reduced Stress Capacity**

The literature revealed a myriad of mechanisms that link ACEs and later stress responses which include: changes in cortisol response, changes in glucocorticoid levels, brain development changes, changes in one's ability to emotionally regulate, epigenetic shifts that impede the stress response, and high levels of shame (Bernard et al, 2017; Cloitre et al., 2019; Donaldson, 2022; Edwards, 2019; Evans et al., 2021; Tyrka et al, 2016). Each of these mechanisms has been looked at individually, yet no studies were found that looked at these factors as covariates.

Bernard et al (2017), looked at the relationship between childhood adversities and cortisol levels. Cortisol is often touted to be the 'stress hormone', has a natural circadian rhythm and begins to rise just before one wakes, continues to rise after waking, and then gradually falls throughout the day. When a threat is experienced, cortisol is released to engage the fight or flight mechanisms of the stress response. Cortisol functions on a negative feedback loop, therefore when levels of circulating cortisol reach a high enough level, the stress response shuts down.

In this research, it was found that those who had a history of adverse childhood experiences showed decreased levels of cortisol upon waking (Bernard et al., 2017). The possibility here exists that those who display low levels of cortisol upon waking have an overall diminished stress response which is not strong enough to engage the negative feedback loop

and therefore, the fight or flight activity of the nervous system remains functioning at a low level for longer periods of time post interaction with a stressor. This could, long term, deplete the immune system, metabolism, and even interrupt normal brain development as cortisol is a supportive molecule for these functions (Bernard et al, 2017).

If childhood adverse experiences lead to an interruption in brain development, later adulthood skills such as interpersonal skills, and decision-making skills could be interrupted. It has previously been shown that chronic stress diminishes the volume of the prefrontal cortices which is involved in these functions (Evans et al., 2021; McEwen and Gianaros, 2010). Due to brain imaging being expensive and inefficient to use as consistent measures for individuals, one cannot know if the prefrontal cortices were shrinking due to current chronic stress or if their development was stunted due to earlier maltreatment and earlier adverse experiences.

An additional study also presented a connection between adversity in childhood and changes in brain function in adulthood. Researcher Evans et al (2021), found that adversity in childhood, specifically the adversities of poverty and lack of a quality response to children's needs from the mother figure were related to later lack of full formation in the prefrontal cortices which led to diminished executive functioning especially as it relates to one's ability to choose their behavior and response to a situation, rather than having it be an automatic reaction. Additionally, it was shown that those with high levels of adverse experience had poorer memory function in adulthood (Evans et al, 2021).

This study looked at 233 participants who were part of a larger longitudinal study. Researchers looked to the time spent in poverty over the life span, in 6-month intervals, as it related to ability to control automatic responses, typically, 'inhibitory control'. At age 13, the

participants were asked to rate their mother's responsiveness to their needs. Inhibitory control was measured in participants of at least 24 years old, when executive functioning is deemed to be fully developed. Memory was measured as a composite of three tests (Evans et al., 2021).

Memory was shown to be diminished in relationship to the chronic stress of poverty. Inhibitory control was shown to be diminished in relationship to lack of responsive mothering. Lack of responsive mothering and poverty are two items that are adverse childhood experiences. This study helps to show how these two elements can present in adult life. While there was no direct relationship with the workplace, the inability to control oneself and a lack of access to a high functioning memory could make it more difficult for one to succeed in the workplace, therefore increasing levels of stress felt in the workplace.

A third possible biological mechanism that was found in the literature was that of an epigenetic change (Tyrka et al., 2016). Researchers found associations between childhood adversities and epigenetic changes, specifically an abundance of methyl groups on genes that regulate the stress response. These methyl groups interfere with the glucocorticoid receptors in the brain and that in turn interferes with cortisol's negative feedback loop. The current thinking due to this research is that without the ability to naturally shut off the stress response with cortisol's negative feedback loop, the body remains in fight or flight sympathetic mode long term (Tyrka et al., 2016).

This mechanism was supported by a meta-analysis of 100 articles related to epigenetic changes due to childhood adversity. In addition to discovering methylation changes on one of the genes associated with moderating the stress response, additional methylations were seen

on genes related to both serotonin production and reception, and genes related to overall inflammation levels in the body (Parade et al., 2021).

A fourth concept that is a possible explanatory mechanism for linking adverse childhood experiences with later occupational stress is the development of shame. In a doctoral dissertation, Edwards (2019) relates shame to feeling unworthy, unlovable, alone, and not seeing options out of difficult situations. Noting this as a maladaptive coping mechanism for interpreting unsafe situations that children are a part of Edwards (2019) explains that shame helps children make sense of the situation. This shame later in life has been shown to be connected to lack of resilience, and poor mental health outcomes such as depression, anxiety, eating disorders, and addiction (Edwards, 2019).

Edwards (2019) researched a group of 221 participants, largely from the University where the research took place, using an anonymous online survey which included the Adverse Childhood Experience survey. The Internalized Shame Scale was used as the measurement apparatus for levels of shame. Participants additionally took part in a survey called the Psychological Well-Being Scale which measures emotional regulation, feelings of purpose and belonging, and self-acceptance. After a summation of all surveys, correlations were run. High ACEs scores were positively correlated with high levels of shame, negative relationships with other people, and severity of reactions to stressful situations. Additionally, ACEs scores were negatively correlated to self-acceptance, feelings of control over one's life, resilience, and managing daily tasks (Edwards, 2019).

## **Mediators between Adverse Childhood Experiences and Poor Adult Health Outcomes**

Most studies agree that there is a dose-response relationship between ACEs scores and the myriad of later poor health outcomes (Cloitre et al., 2019). The research revealed that there also exist protective factors which help to moderate the effects of adverse childhood experiences. Those protective factors included learning emotional regulation, having perceived high levels of social support, and positive childhood experiences (PCE) that allow for the development of secure attachment (Bethell et al, 2019; Cheong et al, 2017, Cloitre et al, 2019). The PCEs that allow for the development of secure attachment included feeling safe within the family home, feeling protected by adults, having a sense of community wider than one's immediate family, experiencing nurturing responses from caregivers, and more (Bethell et al., 2019). This premise was supported by Farrell et al (2017) who performed a longitudinal study that demonstrated positive maternal figures as a buffer for teenage and adult stress and health outcomes.

Using previously obtained cross-sectional data, researchers looked for relationships between ACEs scores, PCE scores, how participants rated their perceived level of support in adulthood, and depression. The findings of this study noted a similar dose-response relationship between PCE scores and later mental health resiliency as was seen previously in ACEs and poorer mental health. PCE scores were also noted to maintain their positive effect even when there were several childhood adversities. This suggests that promoting healthy family dynamics and stronger communities could help to protect people from the deleterious effects of adverse experiences (Bethell et al., 2019).



An additional study looked toward one's ability to regulate one's emotions as a buffer between ACEs and both the physical and emotional related health outcomes in adulthood. The ability to regulate emotions is considered to be a learnable skill that allows one to respond appropriately and adaptively to stressful stimuli (Cloitre et al., 2019). To assess this relationship, researchers used survey data that was obtained during a study on post-traumatic stress disorder (PTSD) in women. The scales used during this research were depression and PTSD scales, as well as the Difficulties in Emotional Regulation (DERS) scale, as well as a short questionnaire related to current physical health. The findings showed that as emotional regulation increased, symptoms of depression and PTSD decreased. Additionally, there were fewer physical health complaints as emotional regulation increased (Cloitre et al., 2019).

A third study looked more closely at community and social support as a possible buffer. Social support, whether perceived or real, has been previously shown to have a relationship to more positive health outcomes following major illness and surgery (Cheong et al, 2017). In this 2010-11 cohort study in adults over the age of 50, ACEs data was collected as well as data on depression, and data on how one viewed their level of social support. The social support data was gathered using the Oslo Social Support Scale which is a valid and reliable measure for perceived social support (PSS). After running correlations, researchers confirmed previous studies findings that ACEs scores are related to depression, and that this relationship was worse with those participants who had low levels of PSS and improved with those participants who had high levels of PSS. This remained true after testing for confounders such as age, marital status, and education level (Cheong et al., 2017).

## Helping professions

A third theme that arose in the literature was the “helping professions” theme. While reviewing appropriate literature, there were multiple sources and options for a select group of professions such as law enforcement, including police officers and correctional officers, kindergarten through grade 12 teachers, and nurses (Benner et al., 2023, Hedrick et al, 2021; McDonald et al., 2022). Burnout specific literature has also focused heavily on the healthcare populations (Maslach et al, 2000; Rapp et al., 2021).

In a recent 2023 study, researchers looked at the teacher population and rates of teacher burnout as they relate to ACEs and individual teachers’ assessment of their own resilience. Self-assessment surveys were sent to teachers to obtain information in each of these spheres (Benner et al, 2023). Resilience, in the world of teachers, is a must. Teachers must balance meeting testing expectations on state levels, meeting parent expectations, meeting administration expectations, as well as maintain energy for creating engaging learning for students. Workplace burnout factors such as workload, lack of fairness, role ambiguity, and lack of recognition are rife in the teacher profession (Maslach et al., 2000; Donovan, 2023).

Recruiting participants from both rural and urban settings lead to a diverse group of 146 respondents. Researchers used tests of correlation with the survey data and their finding revealed that self-perceived resilience reduced the experience of burnout by nearly 50%. Additionally, it was noted that 45.3% of teachers surveyed experienced adversities in childhood (Benner et al, 2023). The United States population average for the experience of at least one adversity in childhood is 16.7% (Centers for Disease Control and Prevention, 2022). This

provides information about both the power of resilience as a skill and the prevalence of burnout within this helping profession.

Law enforcement is another helping profession that displayed high levels of both job stress and ACEs scores. A 2021 study revealed that in a sample of 247 law enforcement professionals, 95% reported at least one ACE. There was a direct correlation between these scores and later occupational stress. When the additional covariate of post-traumatic stress from the job was added as a variable, the correlation between ACEs and occupational stress was diminished. Researchers noted that those with ACEs scores are more likely to experience post-traumatic stress and questionnaires might be an unreliable way to ascertain this information (McDonald et al., 2021).

Nursing students are another population that was studied. In a survey of 211 nursing students, 72% reported at least one ACE. Those with higher ACEs scores were correlated with more experiences of burnout and depression in a similar dose-response relationship seen in previous studies (McKee-Lopez et al., 2019). An additional study on nurses showed an ACEs prevalence of at least 4 ACEs or more of 17%. Percentages for those with at least one ACE were not provided (Hedrick et al., 2021).

## **Synthesis**

There is a wide band of research that explores the relationship between ACEs and biological changes that lead to dysfunction of the stress system. Whether this dysfunction arise from an epigenetic shift that interrupts the body's natural ability to respond to stress, or from underdevelopment of the brain in areas that are linked to managing daily life successfully, or

from a dysregulated emotional function that interrupts one's ability to respond appropriately to stressors, or a combination of the above – the message is still clear. The more ACEs one experiences, the higher the likelihood of an adulthood that will be made difficult through mental and physical health challenges, stress response challenges, and core life skills challenges.

Any one or combination of these challenges can lead to difficulties in the workplace and subsequently an assessment of a workplace as higher stress than one might interpret without those challenges. It is simply more difficult to do well when your body, brain, and emotional system have not been properly prepared for high level function. Problems with memory, inability to manage emotional responses, difficulty creating safe and trusting relationships, and having low self-worth will inevitably interact with the workplace factors that lead to burnout such as a perceived lack of fairness, lack of recognition, lack of autonomy and heavy workload. This relationship, this interaction between external difficulties and internal lack of resources leads to burnout when unaddressed over the long term (Maslach et al., 2000).

These same life and workplace difficulties could be compounded by a tendency of those who experience high levels of ACEs scores being the same people who choose helping professions that are often wrought with stress, hold massive responsibility, and are chronically under resourced. These choices could be bolstered by the desire for moral repair which is described as a need to fix situations for others that one had no control over when they were victims of a particular circumstance (Walker, 2006). Classic stories of being saved from domestic abuse from a police officer leading to entering the Police Academy or having a sick relative that was comforted by nurses who seem ethereal in their abilities leading to nursing school are

common in media, both fiction and non-fiction. The human desire to give back could be a core issue when it comes to ACEs, workplace stress, and burnout.

Unquestionably, there are social and intrapersonal factors that can help to mitigate the effects of ACEs, both in childhood and later in life. Social programs that support healthy families are a critical piece of unwinding the culture of stress that surrounds the workplace. Choosing to treat children well now, will pay off in the future. For adults already in the workplace, counseling, therapy, and/or coaching that increases self-awareness, helps to improve executive function, and aids the creation of safe and trusting relationships could prove to be beneficial. Reaching those working adults and encouraging them to participate in wellbeing activities might be the most difficult part.

With a lifetime of internal shame, a tendency to believe in one's own lack of worth, and an external locus of control – people who experience high levels of occupational stress related to high levels of ACEs may have a difficult time understanding that the possibility to shift this internal state exists and will improve both daily life and long-term health outcomes. Mass health communication in this area is critical to reach as many people as possible and create a culture shift in awareness and understanding of the effect of ACEs on the adult lived experience.

## **Conclusion**

There is a clear relationship between ACEs scores and a number of physical and emotional health outcomes including low resilience and dysregulated stress response. Possible mechanisms for this relationship continue to be explored and thus far include epigenetic changes, emotional dysregulation, interrupted brain development and more. This literature

review was able to find two papers that found direct correlations between ACEs and occupational stress that were not directly related to a specific profession (Halonen et al., 2017; Pulkki-Raback et al., 2015). Further studies could focus more directly on the relationship between ACEs and occupational stress, or possibly burnout specifically. Creating an overlap between current ACEs research and current burnout research could help to create a more biopsychosocial view in addition to the already prominent organizational psychological view of burnout.

Additionally, deeper inquiries into the epigenetic changes and why they vary from person to person could prove to be useful in deciphering what later symptoms might arise. Correlating epigenetic changes with perceived and reported symptoms could help to create the link to further explain mechanisms at play. Researchers could investigate the differences in symptoms that arise from hypo and hyper methylation of certain genes. This could be used later as a predictive factor for disease onset and in turn create more possibilities for prevention and treatment.

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