

Can Researchers Agree on Levels of Resilience?

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Abstract

Resilience has been challenging to define, though it is intuitively apparent in many ways as the capacity to recover from adversity. We set out to determine if we could agree on resilience ratings based on our assessments of collected life story interviews. After reviewing our life stories, we settled on five resilience ratings based on a water/swimming metaphor. At pattern 1, the person sinks to the bottom and remains there. At pattern 2, the person is not sitting at the bottom but has yet to reach the surface. At pattern 3, the person is treading water. They are working hard to stay afloat but not making significant progress in altering their overall situation. At pattern 4, they're swimming toward shore, toward a more favorable environment where they can thrive. At pattern 5, they've managed to climb out of the water and change their circumstances. Their resilience allows them to overcome challenges and seek better surroundings. We reviewed the life story interviews of thirty-five participants with an eye to these categories. We also used ChatGPT to determine if it could perform better than us. For 35 participants with five ratings and three raters, we had a percent overall agreement of 84.00% with a free-marginal kappa of 0.80 (95% CI for free-marginal kappa; 0.66 to 0.94). The fixed-marginal kappa was 0.78, with a 95% CI of 0.62 to 0.93. ChatGPT had a percent overall agreement of 71.33% with a free-marginal kappa of 0.65 (95% CI for free-marginal kappa was 0.50 to 0.79); fixed-marginal kappa of 0.61 (95% CI for fixed-marginal kappa of 0.51 to 0.71). Cohen suggested the Kappa result be interpreted as follows: values ≤ 0 as indicating no agreement and 0.01–0.20 as none to slight, 0.21–0.40 as fair, 0.41–0.60 as moderate, 0.61–0.80 as substantial, and 0.81–1.00 as almost perfect agreement (Cohen, 1960). All results were statistically significant at $p < 0.01$. The self-administered Ohio State Resilience Scale, reflecting the participants own assessment of their level of resilience, did not correlate with our ratings, suggesting that people's assessments of their level of resilience do not match those of clinically trained observers.

Warning: This paper includes discussion of categories of adverse childhood experience, including child sexual assault, as well as accounts of adult violence, domestic violence, abuse, sexual assault, neglect, and household dysfunction.

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Introduction

The American Psychological Association (APA) dictionary of Psychology defines resilience as the “process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and the adjustment to external and internal demands (VandenBos, 2007).” Masten defines it as the capacity to respond adaptively (e.g., maintain/recover mental health) in the face of high levels of stress (Masten, 2018). This capacity is typically scaffolded by protective factors such as biological or psychological strengths, families and communities, and local or national government systems (Theron & Ungar, 2023). The ability to resist adverse outcomes after exposure to trauma (resilience) is a thriving field of study. “Yet ongoing debate persists regarding definitions of resilience (Denckla et al., 2020) (p.1).”

“Exposure to adversity (e.g., poverty, bereavement) is a robust predictor of disruptions in psychological functioning. However, people vary in their responses to adversity; some experience severe long-term disruptions, while others experience minimal disruptions or even improvements. We refer to the latter outcomes—faring better than expected given adversity—as psychological resilience ... [P]sychology’s understanding of resilience is incomplete for two reasons: (a) We lack conceptual clarity, and (b) two approaches to resilience—the stress and coping approach and the emotion and emotion-regulation approach—have limitations and are relatively isolated from one another.

Understanding resilience becomes essential, given that adversity is an unavoidable fact of human life. Over 70% of respondents in a sample of 68,894 people reported at least one traumatic event in their lifetime, with nearly a third reporting exposure to four or more traumatic events (Kessler et al., 2017). This high rate of exposure is even more profound when other adverse experiences are considered, including chronic childhood maltreatment (Kessler et al., 2010), economic marginalization (Patel et al., 2018), racism (Williams, 1999), and climate change (Doherty & Clayton, 2011). The neurotoxic effects of these experiences range from compromised neuro-competence (Teicher et al., 2016), psychopathology including PTSD (McLaughlin et al., 2013), and depression (Mandelli et al., 2015), to adverse physical effects (Esteves et al., 2020).

Not all individuals exposed to trauma and adversity experience adverse outcomes. The remarkable ability of some individuals to resist adverse outcomes or to demonstrate resilience after highly adverse exposures has become a major field of study (Bonanno, 2004). Impediments to the success of this research include (1) a lack of consensus on the definition and significant variation in operationalization of the construct of resilience, (2) discrepancies and confusion around trait vs. dynamic conceptualization, and (3) methodological limitations that limit inferences of causality and generalizability (Denckla et al., 2020).

Troy et al. pose six key questions in the study of resilience, the first centering on the level of analysis for resilience (Troy et al., 2023). Troy et al. provide a model for how to consider resilience that we will endeavor to follow in our Methods section.

Psychological research on resilience has often focused on individuals, but attention to groups and communities is growing (Masten & Motti-Stefanidi, 2020). Although these levels affect each other (Masten & Motti-Stefanidi, 2020), resilience at one level does not imply resilience at the other (cf. (Bonanno et al., 2015)). Thus, researchers have increasingly conceptualized resilience as a dynamic interplay among individual, family, and community levels (Reich et al., 2010).

Troy et al.'s second question concerns the role of adversity in resilience. Sometimes, resilience is modeled as a stable trait that can be measured despite adversity (Block & Kremen, 1996). For others, resilience occurs only in response to adversity; some adversity must be experienced to observe resilience (Cosco et al., 2017). Another dichotomy lies in whether we define adversity in objective terms (e.g., events such as poverty, disaster, and bereavement (Masten & Motti-Stefanidi, 2020) versus individuals' appraisals of how adverse an event was (Svoboda et al., 2022), p. 85). Depictions of adversity can also vary by intensity, timing, duration, controllability, globality, threat, and deprivation (Svoboda et al., 2022) and across types of events (e.g., grief, trauma; (Lucas, 2007)). We must be clear about these distinctions and whether they matter.

Troy et al.'s third question focuses on the nature of resilience (see (Hiebel et al., 2021)). Resilience can be considered a factor, or a relatively stable trait, that exists both in the presence and absence of adversity. For example, trait resilience is the stable predisposition to adapt to change (Block & Kremen, 1996; Waugh et al., 2008). Resilience can be considered a process, such as the capacity or resources deployed in response to adversity, allowing individuals to withstand ongoing demands and maintain functioning. Resilience processes can include social (e.g., social support) and psychological (e.g., cognitive and behavioral strategies, including coping and emotion regulation) aspects (Schetter & Dolbier, 2011). Finally, resilience can be considered an outcome, such as maintaining or high functioning following adversity (Kalisch et al., 2015; Masten, 2018). In turn, functioning can be indicated in a variety of ways. At the level of the individual, indices of resilience can include well-being, psychological health, levels of psychopathology, number of symptoms, presence of diagnoses, academic, occupational, or social achievements, or accomplishing developmental milestones.

Resilience established by one indicator (e.g., academic achievement) does not necessarily imply resilience established by another indicator (e.g., psychological health) (Infurna, 2020), and it is thus vital to be clear about the functioning gauge that is used.

Troy et al.'s questions four through six concern how we determine that an individual, group, or community is resilient. Question four asks what criterion for functioning is applied to assess resilience. At what point is an individual considered resilient? We could set a criterion as an absolute point such that scoring above it is resilient and below it is not (Waugh et al., 2008). Alternatively, resilience could be conceptualized as high functioning relative to others who experienced similar adversity (Korol, 2008) or relative to others who did not experience adversity (Jaffee et al., 2007), relative to oneself (e.g., returning to one's pre-adversity levels of functioning; (Infurna, 2020)), or relative to expectations given a particular cultural context and a particular adversity (Luthar et al., 2015). We can also conceptualize resilience as categorical (e.g., resilient versus not resilient) or continuous (see (Hiebel et al., 2021)).

Troy et al.'s questions five and six regard timing. At what time point relative to adversity onset does resilience emerge? Some believe resilience is observable at any point (Waugh et al., 2008). For those who see resilience varying in time, does it emerge during or immediately after encountering adversity (Kimhi et al., 2021)? Or could it appear years or decades after experiencing adversity (Infurna 2020). How long must resilience indicators be present for someone to be considered resilient? The range is from a brief moment (Waugh et al. 2008) to years or even decades (Jaffee et al. 2007).

Methods

Conceptual Approach to Resilience

All individuals are embedded within groups, communities, and cultural contexts that influence individual experiences and resilience. In keeping with Troy et al., we defined adversity as circumstances or events that many people in each cultural context would expect to tax or exceed their resources and that have the potential to disrupt functioning. We focused on circumstances and events expected to disrupt functioning to a moderate extent and at least for a moderate amount of time (i.e., lasting a minimum of weeks), which are all included in Selye's life stress inventory (Selye, 2013). This definition of adversity (a) excludes events and circumstances that are unlikely to affect functioning (e.g., a one-time, transient, mild event); (b) includes a wide range of circumstances and events (e.g., poverty, job loss, divorce, terrorist attacks, or global events such as the COVID-19 pandemic), including those that might not be considered adverse for all people and in all cultural contexts (e.g., a wedding, a move); (c) avoids concerns about circularity (i.e., adversity is what adversely affects a person) by using a consensus criterion rather than an individual-based subjective criterion; and (d) avoids the difficulty of establishing an entirely objective criterion by using people's appraisals

instead (i.e., what most people expect to disrupt functioning potentially). Our broad definition of adversity allows for examining resilience across various adverse contexts. We also believed that adversity features (e.g., intensity, timing, duration, controllability, and globality) shape resilience and thus need to be considered. We focused on resilience as a dynamic outcome that changed over time and were interested in factors that predict resilience outcomes. We concentrated on psychological health outcomes, which we characterize comprehensively along the dimensions of ill-being (e.g., depression) and well-being (e.g., life satisfaction; happiness). Thus, resilience can encompass a lack of ill-being and a presence of well-being. We assumed people fall along a continuum of resilience, which we can, for analysis, segregate into discrete levels.

Researcher reflexivity

We consisted of a senior researcher who identifies as Indigenous and has worked with and within Indigenous communities for 50 years, a non-Indigenous social worker-researcher who has worked with and within Indigenous communities for 20 years, and two non-Indigenous medical students. We were well aware of the tremendous impact on Indigenous people of inter-generational trauma, residential schools, adoption, and loss of land.

Participants

The University of Maine Institutional Review Board granted ethics approval. We circulated approved flyers to recruit participants at the places where we worked. We sent flyers to colleagues to circulate as they saw fit. To avoid the appearance of coercion, we did not actively recruit any of our own patients. Interested people contacted us via telephone, text message, or email. We spoke to them, explained the study, and invited them to participate. Informed consent was then obtained. Given the proximity to the Covid-19 epidemic and the tremendous distances between clinics and their patients in Maine, many interviews were conducted via a HIPAA-compliant Zoom platform. Transcripts were generated by an Artificial Intelligence platform (Trint, Toronto, Canada) and provided to participants to edit and approve. The Ohio State Resilience Scale was administered via email or interview. Participants were given a \$15 Starbucks Gift Card on completion of the interview and a copy of the interview to use as they wished.

The average age of participants was 37 (range 25 – 80). Ten were women, and twenty-five were men. Five participants lived in the Hudson River Valley area of New York State, and the remainder lived in the State of Maine. Twenty-seven participants identified as Indigenous, while eight were of European descent.

Methodology

We conducted life story interviews using the Maine Life Story Interview format, adapted from the Northwestern University Life Story Interview, and following methods described elsewhere (McAdams, D. 2021; Mehl-Madrona et al., 2021). The Maine Interview consisted of 1 to 3 guided narrative interviews with questions about the chapters of a person's life, high points, turning points, low points, proud moments, moments of regret, and more. Interviews lasted 1 to 3 hours and were conducted in person or held over multiple Zoom sessions that were recorded by the interviewer and transcribed using an artificial intelligence platform called Trint (Toronto, Ontario).

We reviewed transcripts of interviews using an inductive and team-based thematic analysis approach that involved searching for patterns and themes within the interviews (Braun & Clarke, 2006).

Our process began with bracketing; we discussed how our pre-existing biases and identities could influence coding (Braun & Clarke, 2024; Carpenter, 2018). The three coders independently reviewed the transcripts of each interview. Each coder generated a summary memo for each interview with in-vivo codes, partial transcriptions (e.g., salient quotes), and memos. We used these memos as a springboard for discussing how to conceptualize and rate resilience across the lifespan. We arrived at five levels of resilience upon which we could all agree. We developed a five-point scale, with one being the least and five being the most resilient pattern. We found a water metaphor helpful in conceptualizing these five levels of resilience. Resilience in an ever-changing world can be likened to navigating in water. Adversity tosses us into the water. On a scale from 1 to 5, we can understand resilience as our ability to thrive in the water where we find ourselves and even swim to shore. Here are our levels:

Pattern 1: At this level, the person sinks to the bottom and remains there. They are making no effort to change their circumstances and stay stagnant.

Pattern 2: At this level, the person is not sitting at the bottom but has yet to reach the surface. They are in a place of struggle and resistance where change is elusive.

Pattern 3: The person is treading water at this stage. They are working hard to stay afloat but not making significant progress in altering their overall situation.

Pattern 4: They are swimming toward shore, toward a more favorable environment where they can thrive. They are actively seeking change and adjustment to a post-adversity reality.

Pattern 5: At this point, they have managed to climb out of the water and change their circumstances. Their resilience allows them to overcome challenges and seek better surroundings.

Continuing with the metaphor, we all stand on the shores of life's ocean, waiting for the next wave to come crashing upon us. The wave is akin to life adversity, and the size of the wave is dependent on the severity of the adversity. Resilience may be present in people as a coping reserve but is only activated in response to adversity. People with an elevated level of childhood trauma (Adverse Childhood Experience (ACE) scores of 6 or more) start at a very different reserve level than people without childhood trauma.

We then generated prototypical stories to represent each of the levels. The three of us coded each interview using our prototypical examples to assign levels of resilience for all thirty-five interviews and to determine how close we were to agreement. During the interview process, in interaction with the interviewer, participants rated their overall health, levels of life stress, self-esteem, levels of depression, levels of unhappiness, levels of physical fitness, levels of social support, level of spiritual practice, presence and intensity of psychological treatment, severity of adverse events in each chapter of their lives, presence of illness. Figure 1 presents a diagram of our resilience model, showing the factors, we are incorporating from the life story interview. The focus of this study is to show that we can achieve inter-observer reliability in our resilience assessment and to offer illustrative training cases that we used to obtain that result.

As mentioned, as a measure of reference, we used Adverse Childhood Experience (ACE) scores (Felitti et al. 1998). ACE scores reliably associate experiences in childhood with economic, health, and behavioral outcomes, with a positive relationship between a higher score and worse outcomes (Webster, 2022). ACE scores are mediated by various means including supports – for example ACE scores correlate between mothers and children, but are mediated by SES (Ports, et al., 2021) A higher SES leads to fewer negative outcomes and a weaker correlation to mother's score. ACE scores are also mediated by resilience factors ACE scores have been grouped into categories in various ways that agree. The original authors grouped events into: Emotional Abuse, Physical Abuse, Sexual Abuse, Household Dysfunction including Parental Separation/Divorce, Witnessing Domestic Violence, Substance Abuse in the Household, Mental Illness in the Household, Incarcerated Household Member, Physical Neglect, and Emotional Neglect (Felitti et al., (2019)). While a current categorization researched 7 items including family violence, emotional abuse or neglect, physical neglect, physical abuse, sexual abuse, and added rape, and hate crime as separate events (Daníelsdóttir et al., 2024).

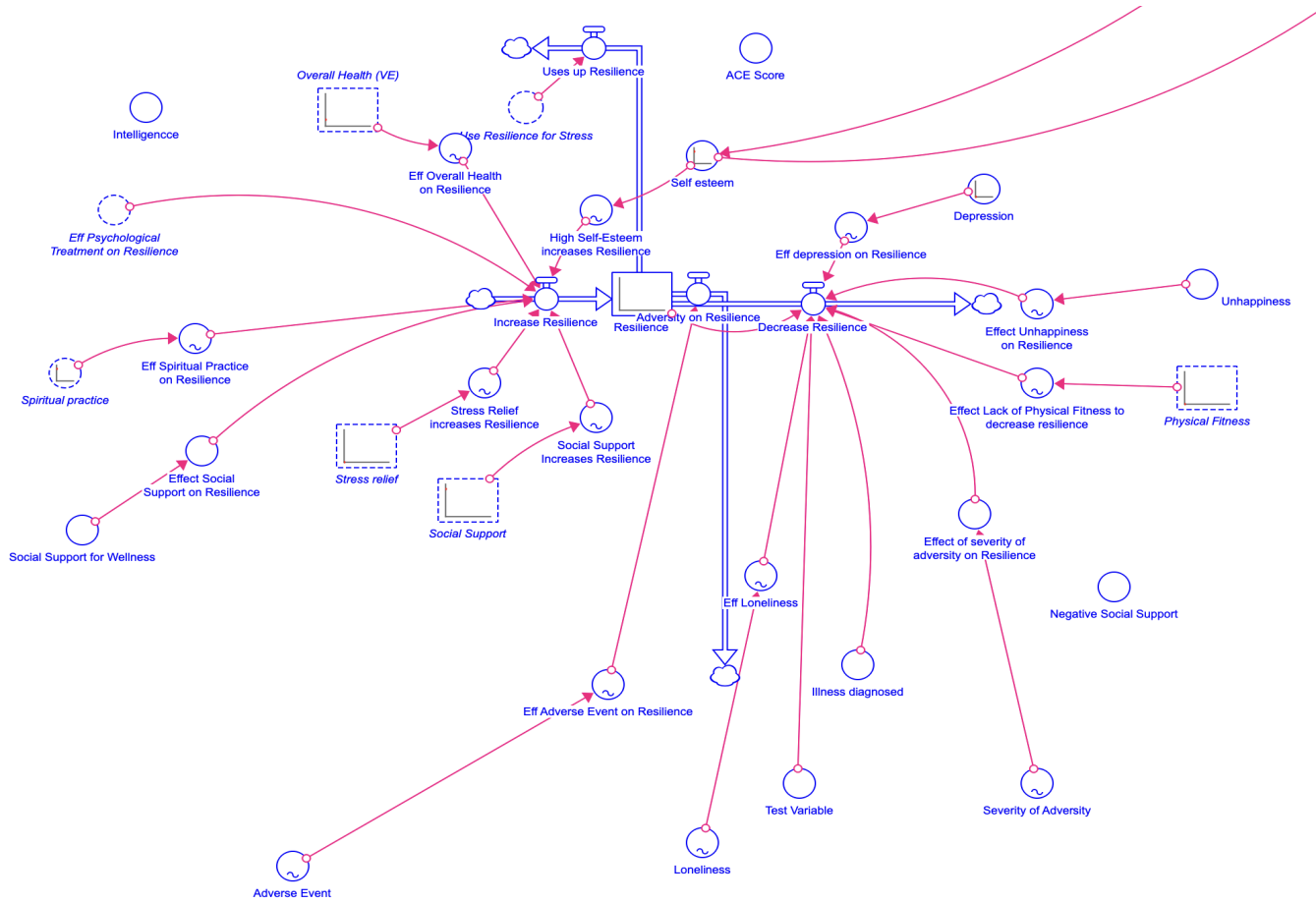


Figure 1. Diagram of a model of resilience. Abbreviations used include Eff = Effect, ACE = Adverse Childhood Events Score. We consider resilience as a reservoir that gets depleted by adversity. In this sense, resilience is an action potential that can quickly disappear, given the existence of adverse childhood events, poor physical conditioning, loneliness, and depression. Resilience is increased by positive social support, high self-esteem, stress relief, psychological treatments, spiritual practice, and high overall health. We are conceiving resilience as continually varying as adverse events occur and people recover or do not. Like Troy et al., we defined resilience as a relatively stable outcome rather than a short-term one.

Results

The following are prototypes of each pattern we identified from the life stories we gathered. Through our interviews, we observed that the individuals who fit into the pattern 1 tended to have a high ACE score, as shown through the ACE survey. Many external factors modify their resilience, including intelligence/education level, drug/alcohol use, positive role models, and exposures to nature/art/spirituality, steering a person down a set of patterned thinking and actions that ultimately depict their overall

life story. These results have been categorized by adverse experiences in order to de-identify participants.

Pattern 1 (Narrative): Participant L100

As a young child, Participant L100 lived with relatives who suffered from mental health issues. With an ACE score of 6, her adverse childhood events included abuse (physical, emotional, sexual), neglect (physical, emotional), and household dysfunction (violence (including domestic violence) and exposure to substance abuse. L100 adapted the patterns she was exposed to including violence and substance use. While she showed promise academically, she was frequently disciplined for behaviors at school.

Participant L100 's substance use continued through her university years and her work life. L100 had a successful worklife, but some of the patterns of her early exposure impacted her family life and she entered into a series of abusive and dysfunctional relationships and continued intermittent substance use. She was unable to maintain healthy boundaries and eventually became homeless and lost custody of her child. After an accident she became disabled and unable to work. At the time of the interview, she was homeless, unable to physically work, and still separated from her daughter.

Pattern 1 (Analysis): Participant L100

The essence of pattern 1 is to sink to the bottom of the pool despite having advantage. These advantages - her school success, and work skills, for example, are offset by high ACE scores reflecting exposure to experience of physical, emotional, and sexual abuse, household disruption, witnessing substance abuse and domestic violence and being placed into abusive foster care placement.

Participant L100 lacked mediating factors including support or adequate positive role models in her immediate family unit or beyond. The presence of an abusive father early in her life may have contributed to her limited perspective and poor judgment in finding a healthy, supportive relationship of her own. She found men who were also physically and emotionally abusive. She consciously acknowledged her desire for a "good man," with hopes of steering away from making the same mistakes her mother made, and a legacy of intergenerational trauma, however she was unable to escape this cycle and entered into multiple relationships with partners who were alcoholic and abusive.

Participant L100 entered foster care at a time when her skills for abstraction and perspective thinking, used to analyze the environment, were emerging. She felt disregarded and left behind. At such a young age, without any external positive factors or therapeutic interventions to mitigate those feelings, the potential arises that this frame

of mind becomes incorporated into her core understanding and representation of identity.

Her school and work successes were unable to sustainably mediate her patterns of maladaptive coping and without additional factors and the ability to swim, she continued a cycle of destructive behaviors, and sank, became homeless, lost her children, returned to alcohol use, and became more involved in substance use.

Pattern 1 (Narrative): Participant L101

Participant L101 experienced neglect, emotional, and physical abuse and household dysfunction during childhood. As a young child his parents involved him in an ongoing vicious custody battle. He began living with his mother in pre-adolescence and was exposed to substance use, violence, neglect, and included in criminal behaviors including theft.

When he left the family home, he was unable to manage his addictions, supported himself through criminal activities and became homeless. His substance and alcohol use increased. He was eventually imprisoned and had a brief period of sobriety, however he returned to use.

At the time of the interview he had violated his probation and was avoiding authorities.

Pattern 1 (Analysis): Participant L101

Participant L101's experiences of emotional and physical abuse, and lack of positive role models, limited his resilience. He experienced the significant trauma of witnessing his mother undergo a severe injury. The custody fight between his parents took a severe emotional toll especially since his parents deceived him in their interactions. Once he entered adolescence, his environment favored misconduct including acts of burglary and stealing cars. He relied on the kids around him as models to mirror in order to be able to fit in socially. With this social group he entered into an environment of crime and drugs, which led to his incarceration. Despite intermittent attempts to stabilize his life, he was unable to avoid his previous influences and reinforcements for criminal behavior and substance use and continued a pattern of relapse and return to jail. He reports that at the time of the interview, his probation violation could result in 10 years in prison.

Pattern 2 (Narrative): Participant L200

Participant L200 has an ACE score of 3. In her early childhood, she felt shame for her family environment, where she experienced food scarcity, poverty, neglect and

household dysfunction including alcohol use. L200 began running away from home in early childhood. As a pre-teen, she began skipping school. She was placed in foster care, where she stabilized for a few years, however she was bullied in middle school, struggled socially in school and finally left in her teenage years.

She ran away from her foster home as well at this age, and for the next few years, moved, staying with friends and her sister. In her early 20s she had children and moved closer to her mother and sister to have their assistance. She was able to briefly stabilize however she was unable to sustain a financially viable life and struggled to make ends meet and provide adequate child care. Her children were removed, She was motivated to try counseling with medication. After one year, she regained custody of her children, and with her mother's help with child care and housing began attending college.

During this time she had another child in an on-again, off-again relationship with a partner who appeared to be stable but struggled to find work. She finally left the relationship and moved to a new city, however she remained impoverished and had difficulty caring for her children. She repeated the cycle of connecting with men who became abusive, until friends helped her escape. She moved in with her mother where she continued to struggle financially.

Pattern 2 (Analysis): Participant L200

Differentiating a pattern 1 from pattern 2 we see the person fighting to swim to the surface and attempting to stay afloat. Following our swimming analogy, this person still sinks occasionally, especially when their struggles become too much to tread water.

Participant L200 has an ACE score that is less than our participants in category 1. Though the ACE survey captures the severity of a child's environment well through its ten questions, its limitation is that it is not all-inclusive of potential adversity during childhood. It can be inferred that she experienced substantial adversity due to her foster care situation.

There are several ways to interpret her choice of running away; one hypothesis is that internally, she felt motivated to change her environment, thereby changing her life. Her sense of hope for a different way of living contributed to characteristics of psychological resilience. However, at such an early age, without any structure or resources to make the necessary changes, she was treading water as best she could while chained to the floor.

One differentiating factor between this individual moving towards the pattern of a 2 is the sustainability of her protective factor, which was her children. Despite not having role models, proper guidance, or structure, she reported that she made substantial efforts to raise her children and provide a different path for them. When DHS removed her children from her custody, rather than sinking through unsuccessful coping strategies, she conveyed resilience by working and saving money to afford a place for her children to return to her care.

Unfortunately, she too often entangled herself with abusive men, which contributed to her life adversity and pulled her down from the surface, preventing her from swimming to a better environment. She was stuck in a place of struggle and resistance, where change was elusive.

She experienced another positive factor of social support as she maintained trustworthy and compassionate friends who helped her move away from her abusive husband. These social connections functioned as a buoy or life raft. She remained socioeconomically poor and unable to enact lasting change within her environment, which keeps her in a pattern 2.

3 (Narrative): Participant L300

Participant L300 has an ACE score of 5. L300 was born to adolescent parents who were neglectful and had poor boundaries. Her mother left the family, and her father met another woman with children. As a preteen, L300 witnessed the suicide of her stepsister. Following that, she left that house with her brother, wanting to protect him, and the two lived together and attended school. In time, her brother went to live with their mother. L300 was able to complete high school.

Following high school she moved in with a friend's family. When she left that home, she began abusing and eventually trafficking substances. She served a prison sentence and was able to reform. With the help of the justice system, she was able to start up her own small business, which has been successful.

Pattern 3 (Analysis): Participant L300

This person's life story fits a prototype of pattern 3 in that she had moderate adversity with an ACE score of 5, and her life shows clear evidence of perseverance to "keep swimming." She showed success in treading water during her life, working extremely hard to stay afloat despite numerous adversities that could have sunk her to the bottom if she did not possess some characteristics of resilient behaviors. However, several

aspects of her life choices and circumstances hinder her from attaining lasting change in her environment.

After graduating high school, she became involved with an unstable partner which she described as leading to a period of dysfunctional and abusive relationships. She had some resilience skills that mediated her behavior, however was unable to stabilize her life until she had the confinement of prison and the support of prison programs.

With her high intelligence, motivation to protect her brother, and her will to survive, she was able to tread water for years, maintaining a job despite struggling with addiction. This shows her ability to attempt to reach new territory in her environment, pushing against the tide; however, the turbulence of her environment, past trauma, and lack of foundational structure together exerted a more powerful force, keeping her from swimming out of her environment.

Pattern 4 (Narrative): Participant L400

Participant L400 has an ACE score of 9. Her father was physically and emotionally abusive, and her mother was emotionally neglectful (withholding) , openly stating that she preferred L400's older cousin, who lived with them. From the age of 3 onwards, L400 experienced a series of traumatic, life-threatening episodes including punishment, child sexual assault and intergenerational abuse from family members. L400 was frequently exposed to invalidating statements and expressions of homicidal ideation and intention. She lived in a chronically sexually exploitive environment, with interactions that included torture, degradation and life-threatening experiences, as well as episodes of sadistic violence and involuntary drugging. Attempts to escape were met with violent punishment. She and her cousin experienced repeated assault over and were not protected by household members.

Some community members attempted intervention, voicing health concerns, but they were prevented from offering treatment. L400 admitted to powerful thoughts of suicide during her childhood but chose to stay alive to support her cousin.

Eventually, as a preteen, she was able to escape her environment with help from a neighbor, however L400 experienced considerable neglect including food insecurity, lack of life necessities including appropriate clothing, household, and sanitary supplies. L400 reports that she was often ill. During these years, she and her cousin fell out when he began replicating the family's abusive behavioral patterns. L400 reports that during this time she became an avid hiker and that nature helped her through the difficult times.

L400 had several mentors who fostered her strengths. She succeeded at school and was accepted into university. In early adulthood, her history began to penetrate her conscious mind, and she developed PTSD symptoms, including intrusive thoughts, hypervigilance, and hallucinations. She began seeing a psychiatrist but this relationship was not successful.

During this time, she partnered and she and her partner had children. The relationship did not last and became hostile, and with difficulty she maintained some contact with the children. Eventually she accessed some more useful mental health support and was able to stabilize her life. She reports being content with her current partner.

Pattern 4 (Analysis): Participant L400

Participant L400 is our example of pattern 4. We see that despite her severe adverse events in childhood, she was able to swim to new environments.

At first, one of her main protective factors, until he became abusive, was her motivation to support her younger cousin. She felt a sincere responsibility to care for him and not abandon him in their turbulent water. This allowed her to give meaning to her own life.

Additionally, beginning in later childhood, she experienced kind neighbors who would make her feel unique and seen. Even minor acts of positive attention allowed her to expand her limited perspective and see beauty and peace around her. Several outstanding teachers served as mentors, collectively showing her kindness, purpose, and hope. They all helped her stay afloat during late adolescence. She recalled always doing better when she felt she had a purpose and connections. She also reflected on the small, quick moments when people outside her immediate family showed her kindness and graciousness. She realized that all those moments were significant and, she believed, contributed to changing the trajectory of her life.

L400 was also able to identify patterns of abuse that would creep into her own sexual desires and choices. She vowed to herself that she would never hurt anyone, and she kept that promise, especially after witnessing her cousin turn into a physically and sexually abusive man.

After one severe beating she received from family, she recalled feeling dissociation, from her body, and from time and space. She was able to use dissociation as an adaptive strategy to avoid the pain and suffering that filled her physical environment. She articulated that her will to fight and to continue to push forward was partly due to

her existential realization that she only had herself on whom to rely. She learned to take one step at a time, and she reports that she uses that approach often in life.

Pattern 5 (Narrative): Participant L500

L500 and her 4 siblings grew up in a poor, small apartment. As a child, she was exposed to family substance use, emotional withholding, invalidation, and engaged in self-harm. After a traumatic accident, her father's substance use increased and he became increasingly violently abusive. He began to physically abuse her for minor infractions. Her mother was distracted and often did not seem to notice.

During high school she became aware that there were options in life. She started therapy as a teenager to prevent herself from "repeating history." While attending university she lived with her cousin, to avoid distractions. Instead of renting, she and her cousin remodeled and fixed her home. She graduated University with a professional graduate degree and was able to find good employment.

She thought she had 'rules' to find a good partner, including a zero tolerance for abuse, however when she married and had a child, her partner began to become controlling. Her partner's family supported his behavior, and she decided that she would not have any more children with him, to avoid being trapped.

She continued with therapy and began to see that there were alternative perspectives in those around her. She also started attending spiritual classes, which provided additional healing experiences. She waited until her son graduated from high school to file for divorce, which became extremely acrimonious. She eventually remarried, and her new husband was supportive and kind. Her relationship with her son suffered, and at the time of the interview they remained somewhat distant from each other emotionally. At this time she feels she can see the positive elements of her life history.

Pattern 5 (Analysis): Participant L500

This life story represents a prototypical five, as L500 made conscious decisions with sustained efforts to change her environment. She was born into treacherous waters, but she had the skill to see alternatives and be able to overcome the currents and swim to a new pond. Her life did not follow a straightforward, easy path, but we see her resilience in the way she persevered through each step in hopes of changing her situation.

With an ACE score of 5, she suffered emotional pain and abuse, which, as seen in other research participants' life stories, could be enough to sink anyone. Her alcoholic father abused both her mother and her. Her mother was preoccupied with surviving her own marriage and this contributed to her being emotionally distant with L500. Witnessing her

mother's behavior and choices contributed to her path through life – it served negatively in terms of a nurturing mother-daughter relationship, but positively in that L500 witnessed the actions necessary to “get out”; and learned that education and work could free her from the oppression and invalidation of her father. Additionally, in high school, when visiting friends' homes, she observed much less dysfunctional families, which opened her perspective and led her to commit to working hard and studying to better her life. This reinforced L500's will and courage to swim away from the waters she was placed in.

Another positive factor was her connection and joy in nature and spirituality. These gave her a sense of uniqueness and distinction from her family unit, which also contributed to the building blocks of her foundation, allowing her to change her environment and way of life.

She recalled a time in high school when her father yelled at her about why she was wasting her time trying to get into college and that she would never make anything of herself. Her enthusiasm for change, independence, and freedom from him allowed her to respond, “What do you think I'm going to be like you?” Her burning desire for change and a better life fueled her determination to work and study hard.

In her early twenties, we see her begin therapy in conscious efforts to “not repeat history.” This is a clear example of her reluctance to accept the environment into which she was born and her resourcefulness to “call for help” through structured therapy.

With the template of her father as the male figure in her life, her intentions for marriage were to find a man who was the opposite of her father. This mindset illuminates the complexity of the effects of one's environment and experiences on one's thoughts and behaviors. The formula for a successful partnership proved to be more complex. She did not give up, however. Based on her observation of her mother's experience of having more children despite having concern about the marriage, L500 formed a mature perspective, and chose not to have a second child with her husband; she saw the suffering she would face if she stayed. This example illuminates her will to swim away and not repeat history.

During the early years of her son's life, her desire for divorce was unchanged; however, due to the complexities of the marriage, including her partner's controlling nature, she felt compelled to stay married until her son was older. She was able to set herself free and open the opportunity to begin a new relationship with a different perspective.

Pattern 5 (Narrative): Participant L501

When he was a young child, participant L501 had to adjust to an unfamiliar environment when his family moved. His perspective, even at that age, was that the move was a welcoming chance to experience a new culture, and he developed a sense of comfort with change and difference. Another teaching moment occurred in his teens when he responded to a medical crisis by consciously growing closer to nature. He reports that he put his faith in the idea that he could follow a natural way to healing. From that point on in his life he felt himself to be a spiritual being, connected to nature.

L501 followed family tradition when he became a successful lawyer and engineer. Over time, however, he gained the perspective that one of the problems in the world was the distribution of the abundance of resources, and decided to become an ecological business developer, motivated to improve the world. L501 showed ambition by wanting to swim, change his environment, and help other people have better environments to swim in. These are some of the qualities that help make L501 a pattern 5.

L501 reports that his first marriage was transactional, not founded in a true connection. After that relationship ended, Participant L501 eventually met his second wife at a cooking class. L501 reports that they had a deep connection however the marriage failed due to complications with the father of her children. L501 was financially generous with his wife in their divorce, however his relative poverty suffered from the financial strain that occurred due to the divorce, and also ended acrimoniously.

Participant L501 recovered his fortune but then experienced another business loss, and at the age of 70 he became homeless and had to ask for money. He turned to his spirituality, found “the love of his life,” and felt better than ever. A friend noted that during this challenge, L501 became less distracted, ‘more present’. Participant L501 noted that he shifted from pleasing others, to doing things to please his spiritual self.

Pattern 5 (Analysis): Participant L501

From an early age, L501’s story shows a strong sense of spirituality. At the age of 7 he had a spiritual vision, in which he was told that everything in his life would be okay. At the age of 15 he navigated the experience of complications from the appendectomy by using nature as a source of consolation and support. L501 worked to make constructive meaning of his experiences.

As a businessman, L501 experienced successes and losses, including bankruptcy, but throughout his business career, we see him persevere and swim against the latest adversity of his life. When a business partner cheated him, he found another business partner, and generated millions of dollars in revenue per year. Rather than focusing on accumulating wealth, he became focused on improving the world. This is another

example of L501 striving to swim in a new environment and go to places he felt were best for him to continue growing.

When looking at L501's history of relationships, we again see his remarkable ability to want to change and adjust his perspective, showing an exceptional ability to swim to new circumstances when he finds himself in rocky waters. His first relationship was an open marriage, but after his wife betrayed him, he changed focus and sought to 'swim' to new territory and find a relationship that had more profound meaning and purpose. L501 continued swimming into new territory after meeting a new partner. We continue to see how, despite the adversities that L501 experienced, he continued to swim to new shores, always striving to better himself and find a better environment in which to thrive.

Inter-Observer Reliability

For 35 participants with five ratings and three raters, we had a percent overall agreement of 84.00% with a free-marginal kappa of 0.80 (95% CI for free-marginal kappa; 0.66 to 0.94). The fixed-marginal kappa was 0.78, with a 95% CI of 0.62 to 0.93. AI had a percent overall agreement of 71.33% with a free-marginal kappa of 0.65 (95% CI for free-marginal kappa was 0.50 to 0.79; fixed-marginal kappa of 0.61 (95% CI for fixed-marginal kappa of 0.51 to 0.71). Cohen suggested interpreting the Kappa result as follows: values ≤ 0 as indicating no agreement and 0.01–0.20 as none to slight, 0.21–0.40 as fair, 0.41–0.60 as moderate, 0.61–0.80 as substantial, and 0.81–1.00 as almost perfect agreement (Cohen, 1960). All results were statistically significant at $p < 0.05$.

Conclusions

Three raters can agree on resilience ratings, considering individual backgrounds, including ACE scores, the environment in which people find themselves, and their responses to adversity. Training cases are essential in generating that level of agreement. Using our water/swimming metaphor, we could reliably relate lifetime resilience using our training stories.

Biases are implicit in that we consider returning to using substances, becoming homeless, incarceration, losing custody of children, and losing employment as mitigating against resilience. Resilience means managing adversity without returning to using substances and avoiding incarceration, keeping custody of children, and maintaining employment.

We found that resilience is much more difficult to define than we ever imagined because it is not just intrapersonal, but it relates a person to the environment. When we try to rate resilience, it is always in the context of an environment, a past, and a present. The individual-oriented scales can explain the lack of correlation between our resilience

scale and our ratings. In contrast, our ratings attempted to integrate the environment with the person. We suspect that the field of resilience needs to move toward more holistic directions, integrating individuals with environmental factors.

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