

## **Framework for Discussion of Expanding ACE Categories and Defining Resilience Issues to be Addressed**

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### **What is the basis of evidence for the questions to be addressed by the CRI conference?**

Much has been written about the seminal Anda and Felitti research on Adverse Childhood Experiences (ACEs). Many years later, in their article, *A Critical Assessment of the Adverse Childhood Experiences Study at 20 Years*, Craig A. McEwen and Scott Gregerson highlighted findings of diverse adverse events in wider social contexts leading to the same traumatic consequences, consistent with the growing neuroscience of early childhood adversity. This brief seeks to honor McEwen and Gregerson's conclusions by examining more closely the exciting insights from a current neuroscience framework, summarized in Lisa Feldman Barrett's 2020 book, *7 and 1/2 Lessons about the Brain*, that identifies the core mechanisms whereby trauma is generated by diverse ACEs.

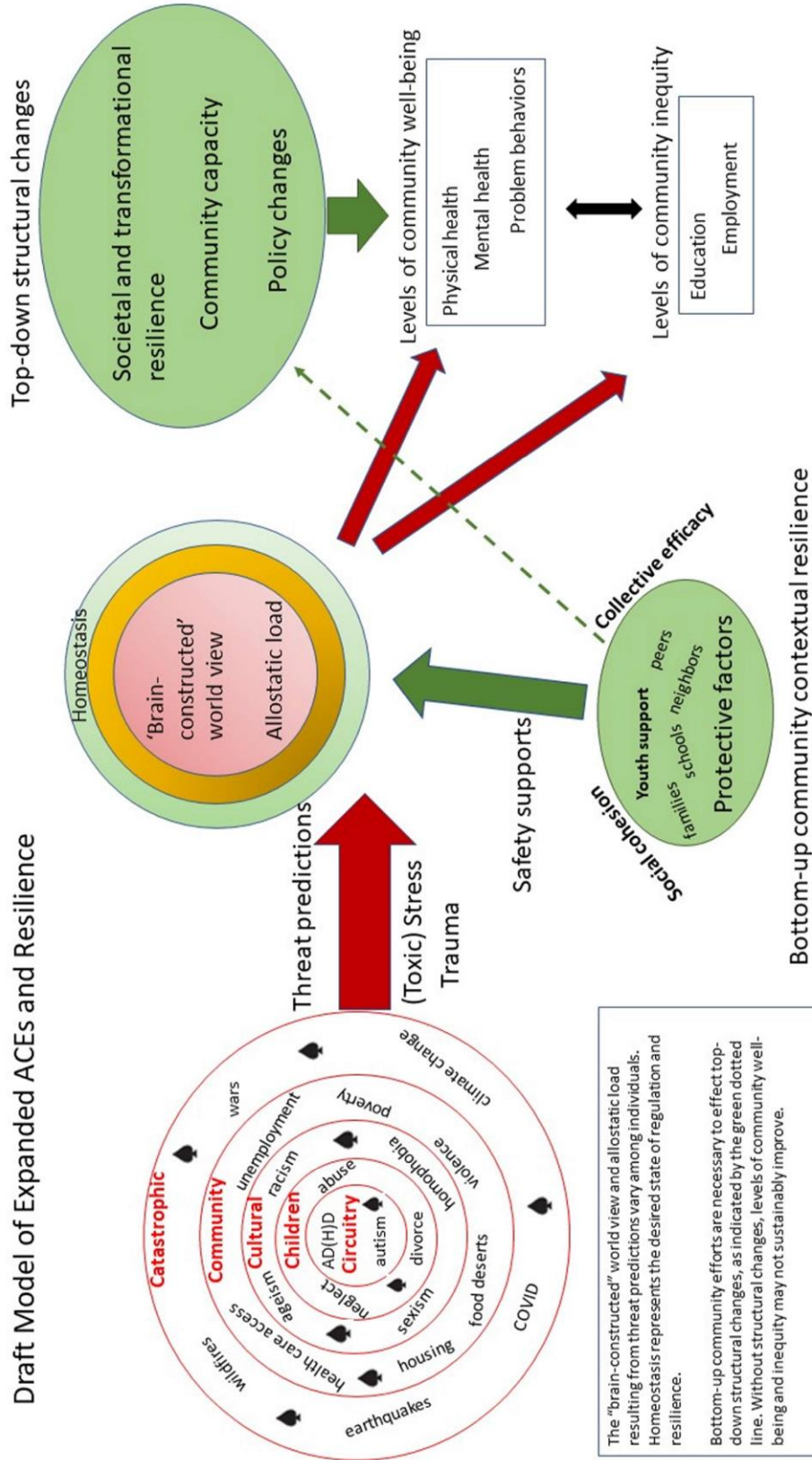
Our own research in Washington State, and in Walla Walla in particular, published recently in a special American Psychology issue on ACEs (AP paper) has tested empirically, across communities, what impact the rates of diverse ACEs have on community-wide mental and physical health, behavior problems, and school/ work performance and what resilience factors mitigate these effects.

The question of what community mobilization efforts increase such grass-root local resilience is addressed by another recent publication in the *Journal of Prevention and Intervention in the Community* based on Walla Walla's experiences (JPIC paper). This paper concludes that a combination of local grassroots movements and national policy changes are necessary to make more systemic, policy and cultural changes that would both mitigate traumatic impacts and also build a new national healing culture (Laura Porter paper on *Self-Healing Communities*). To uncover what these changes entail, we draw from Robert Putnam's 100-year data and conclusions in his new 2020 book, *The Upswing: How America Came Together a Century Ago and How We Can Do It Again*. Putnam, the author of *Bowling Alone*, first discussed the decline of community-wide social cohesion and collective efficacy at the end of the past century, main factors of contextual resilience that need to be increased.

### **What are the specific issues related to expanded ACE categories, prevalence, effects, and mitigation?**

In order to better discuss the specific issues to be addressed, we provide a draft model of expanded ACEs and resilience factors and how they may affect each other. The draft model, on the next page, page 2, presents:

1. an ecological view of a new, expanded set of adversities depicted in circles, moving from internal individual, family-based ones, to culturally defined sub-population ones (e.g., race, gender), to community ones (e.g., neighborhood divisions, poverty and violence), and to catastrophic ones (e.g., climate change, COVID);
2. the impacts of such adversities (red arrows) on
  - a. levels of toxic stress and allostatic load depending on threat predictions
  - b. levels of well-being (physical health, mental health, and problem behaviors)
  - c. levels of inequities (linked to disparities in education and ability to work)
3. the mitigating effects (green arrows) of two types of resilience,
  - a. a community contextual one and
  - b. a societal transformational one,that improve levels of well-being and levels of inequity.



The "brain-constructed" world view and allostatic load resulting from threat predictions vary among individuals. Homeostasis represents the desired state of regulation and resilience.

Bottom-up community efforts are necessary to effect top-down structural changes, as indicated by the green dotted line. Without structural changes, levels of community well-being and inequity may not sustainably improve.

**1) What are the main categories of diverse ACEs (see concentric circles at the left of the model)?**

The initial ACE Study, pioneered by Drs. Felitti and Anda, helped us to understand the impact of the family environment on shaping our internal experiences and interpretations, and resulting mental and physical health outcomes in response to childhood adversities. We know that the family environment is only one domain in which human beings operate: we also live in communities; we are heavily influenced by our culture and imbedded values; our own unique neurological wiring shapes us, too; and we often face cataclysmic events bigger than any one category, including the accumulation of stress that undermines the very reason our brains support us – to stay regulated and to balance our body’s budget.

The Community Resilience Initiative (CRI) in Walla Walla has identified 5 categories of ACEs and an underlying common understanding, based on neuroscience, that the threat response is elicited when the brain, through its incredible ability to manage incoming sensory and motor stimuli to predict what is next, senses either safety or threat, and thus prepares us to preserve our resources accordingly.

The four CRI proposed ACE categories, in addition to the original Anda and Felitti family/ household ones, are:

1. Circuitry – neurological variation (e.g., autism, AD(H)D); there is no one way to be “normal”
2. Cultural – subgroup oppression/ discrimination leading to inequities (e.g., race, ethnicity, gender), treatment as inferior, violence, hate crimes
3. Community – e.g., unsafe neighborhoods, poverty, food deserts, food insecurity, lack of access to health care, lack of housing
4. Catastrophic – environmental events (e.g., natural disasters, bad air/ water), climate change, wars), pandemics (e.g., COVID)

While we recognize that these additional categories may not be the only categories where individuals can experience adversity, they help us begin to broaden the perspective of how categories of ACEs are defined.

**The neurological threat response is the important link to understanding the trauma from events and circumstances at the heart of the adverse childhood experience study. Comprehending the threat response allows us to recognize the variations in the human experience in different contexts that can lead to trauma.**

It is not enough, however, to consider only the brain’s prediction of threat in understanding trauma. It is also important to consider the brain’s goal in those predictions. The primary goal of the predicting brain is to maintain homeostasis. When the brain predicts threat from events, those predictions lead to allostasis in the body. We identify the outcome of that process as trauma. When the brain predicts safety from events, those predictions lead to homeostasis in the body. We identify the outcome of that phenomenon as resilience. The predicting brain is at the core of both neurological processes.

It is noteworthy to consider that the same events that predict threat for some, predict safety for others, and vice versa. That is the reality of variation in the human experience. Just as there is variation in the adverse factors that initiate the threat response, there is also variation in the protective factors that mitigate those responses. Variation is the norm!

Next, we need to identify the prevalence of diverse ACEs, their independent and cumulative impacts and ways to mitigate these impacts.

**2) What are the prevalence and cumulative reinforcing nature of diverse ACEs?**

The occurrence of Anda and Felitti’s ACEs has been measured by CDC’s Behavioral Risk Factor Surveillance System (BRFSS) surveys in almost all states. The first such survey was conducted in Washington State, and Anda and Brown in 2010 were the first to identify ACE prevalence as a health crisis. They found that those with 3 or 4 more ACEs had much poorer health and their prevalence included a fourth to a third of the adult population.

To examine the relationships among an expanded set of ACEs, we were able to merge three years of data from adult BRFSS surveys (2009-11) and include data from Healthy Youth Surveys in order to generate average ACEs scores for 118 communities in Washington including some poverty, race, gender, and cultural adverse events for youth. We found that the prevalence of food insecurity (due to poverty), bullying due to race, and intimate boy-girlfriend violence varied a lot across communities: 6 to 71% for food insecurity, 2 to 23% for race bullying and 0 to 20% for intimate boy-girlfriend violence (see Table 3 of AP paper). These adversity levels were correlated with each other and with familial physical abuse and adult violence ACEs. That is, if a community had higher rates of one category of ACEs, it was likely to have higher rates of the others (see correlation table S2 in AP paper Appendix). Correlations were statistically significant, but relatively small, indicating large variances in how different communities experienced this accumulation of diverse ACEs.

We also found a high prevalence of ACEs in places that had been economically depressed for a long time (for example, ex timber/ extractive economies). More research is needed to determine how historical cultural trauma is connected and reinforced by the high prevalence of family ACEs.

### 3) Is the traumatic neuroscience response process the same across diverse ACEs (see red arrows in the model)?

Yes. While attention to the original ACE study and its 10 familial adversities generated a substantial social movement, **a focus on the neuroscience framework expands the context exponentially, by addressing foundational biological processes that initiate adversity outcomes in multiple domains, not only family/ household ones.** This framework encompasses the underlying basis for human response offered in the predictive brain/ Construction Model (as presented by Lisa Feldman Barrett).

Barrett describes the diversity and variation in brain architecture via its billions of neurons and the multiple construction of complex networks and hubs, developed over time as the human body builds its internal reference systems based on our surroundings (environment) and the individual and unique interpretation of the world each human experiences.

Barrett describes the primary job of the brain is not for thinking but for maintaining our body's budget, or resources, to keep us healthy and above all, safe. Everything that happens internally is attempting to regulate our body in order to survive and thrive.

The brain does this by predicting what is going to happen next, based on that moment's sensory and motor input and assimilation, and also based on all prior experience stored as memory when facing a similar situation. This underlying theme of detecting safety or threat is the basis of the human being's response to its world. Variation is the norm! We expect different responses to an adverse event based on each person's prior experience to that event and/ or the person's interpretation of the event as well as the person's unique neurological wiring. And that is why the link to recognizing safety or threat is so instrumental in understanding how we as humans respond to real or perceived threat.

### 4) What are the impacts of diverse ACEs on health, problem behaviors, and education for youth?

The major finding, from our recent research on 118 communities in Washington State, is that the diverse categories of ACEs impact levels of health, problem behaviors, and education, independent of the impacts of familial abuse and adult violence, poverty levels and race composition. We found that the three measures of community levels of cultural adversities we had available had significant effects on community-wide outcome levels.

- food insecurity had significant impacts on mental health, physical health, and school performance,
- bullying due to race had significant impacts on mental health levels, independent of food insecurity,
- boy-girlfriend injury levels had impacts on physical health and problem behaviors.

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These preliminary findings suggest that these additional, expanded sources of adversities have unique, additive effects on one or more levels of well-being for youth in Washington State communities. Better measures may reveal other independent impacts.

**5) Do common resilience factors mitigate these diverse ACEs, informing a common strategy (see bottom-up green arrow in model)?**

In our recent AP paper, we found that the mitigating effects of all ACE impacts, familial and expanded ones, on all four community-wide outcomes for youth (levels of poor mental health, physical health, problem behaviors, and school performance) were due to contextual resilience only, not individual resilience levels.

Individual resilience was measured by three common factors in the literature: youth not feeling alone, having positive, satisfied view of self, and feeling hopeful for the future. Surprisingly, levels of such youth resilience were not found to mitigate community-wide impacts of ACEs.

What did make large mitigating effects was youth's contextual resilience: youth levels of supports from family, peers, school, and neighborhood/community, in places with higher social cohesion (mutual help) and collective efficacy (likelihood to intervene for the common good) among adults.

Such findings suggest that funding a 'bottom-up,' community capacity strategy to increase contextual resilience community-wide may well be more effective, less costly, and more sustainable than funding trauma-informed programs and services alone that serve only limited numbers of people.

**6) What forms of community capacity efforts may be needed to improve levels of inequity (see resilience definition and arrow in top-down part of model)?**

Putnam has shown that sources of resilience (based on 'we' collective efficacy) increased due to progressive movements early in the century, leading to the period in the mid-1960s, when many national policy changes occurred improving many systemic categories of adverse experiences. These trends reversed in the last 50 years, however, due to a more individually-based ('I' based) and culturally-divided society. Following Putnam's findings, the best strategy is the mobilization of communities locally that cooperate with each other and form a new progressive national movement for systemic, structural change.

Bob Doppelt has named such resilience 'transformational' since it includes a vision of a hopefully different, structurally better society. According to Doppelt, although contextual resilience will mitigate adverse impacts and help individuals and communities survive, only transformational resilience can bring about systemic changes leading to thriving individuals and communities.

According to Damon Centola, in his new book, *Change*, this means not only collaboration across communities but crucial alliances: with other movements (poverty, race, gender equity ones) and with members of opposition parties in order to gain overall national legitimacy. In addition to current community capacity efforts, outlined in our recent 2021 JPIC paper, based on past Walla Walla experiences, what needs to be added are:

- collaboration across cultural equity, community and environmental bottom-up movements, and
- crucial alliances for legitimacy in making structural policy top-down changes.

**What is the urgency to expand ACE categories?**

There are three sources of urgency to expand ACE categories to contexts beyond the family/ household and to better define sources of resilience: from researchers in different disciplines, from practitioners - community organizers and service providers, and from actual adverse events, and their rapid accumulation over time and across communities.

**Researchers** – Departing from the seminal Anda and Felitti research on family/ household ACEs, a summary of further findings, 20 years later by McEwen and Gregerson, has highlighted categories of adverse events in wider social contexts, leading to similar traumatic consequences, consistent with the growing neuroscience of early childhood development. Based on recent researcher summits, organized by the American Psychological Association (APA), a special issue on this subject has just been published in February-March 2021 in the *American Psychologist*. It covers three key research questions: how broadly should ACEs be defined, how should they be measured/ assessed, how can this scientific progress be translated into more effective practice – better resilience efforts mitigating ACE impacts?

Included in this special issue is a paper by Longhi, Brown, and Fromm Reed that reports findings from the experiences of 118 communities in Washington state. This AP paper shows:

- how ‘contextual resilience’ is key in mitigating community-wide impacts of ACEs on rates of adult and youth well-being – physical and mental health, problem behaviors and levels of school performance and of ability to work, and
- how contextual resilience for youth is composed of protective factors – social cohesion and collective efficacy among adults combined with youth supports from families, peers, schools and neighbors.

Further evidence on how to increase such contextual resilience has also been published recently (January-March 2021) in a paper in the *Journal of Prevention and Intervention in the Community*, based on 15 years of community capacity building efforts in Walla Walla (JPIC paper by Longhi, Brown, Barila, Fromm Reed & Porter).

**Practitioners** – ACEs Connection (PACEs Connection) has summarized community practitioners’ experiences of important adversities encountered in their work in an infographic depicting three realms of ACEs: household, community, and environment. Household ones include the ACEs in the original Anda and Felitti study. Community ones include poverty, racism, historical trauma, and community violence. Environment ones include climate crisis consequences and natural disasters. They are all seen to lead to toxic stress and to be ‘intertwined,’

**Actual trends of adversities** – Natural disasters linked to climate change and the COVID virus pandemic have had differential impacts, making more evident regional, race and economic inequalities, their interrelationships and increasing severity. See, for example, French economist Piketty’s trend data on economic inequality that show the universal growth in disparities, and the research of British epidemiologists Wilkinson and Pickett that shows adverse impacts of inequality on trust, social divisions, democratic institutions and health. Robert Putnam’s recent book, *The Upswing*, shows how economic, social, cultural and political disparities are interrelated, how they have been mitigated in the past (in the USA in the 1960-70s) and could be mitigated again in the future, and how organized action for policy change is urgent given worsening trends of isolation and divisions.

**In conclusion** – This short brief has identified the major issues that need to be addressed in expanding ACEs and resilience, as CRI has done, responding to the urgency to do so:

- new impacts of different types of adversities - their possible differential effects on allostatic load, toxic stress and ‘brain constructed’ world view and
- new necessary expansion of components of resilience - from individual factors to more contextual ones and to more transformational systemic/ societal ones that not only mitigate the intergenerational effects of family/ household ACEs but also change the impacts of more interconnected, historical, societal systemic adversities.

We look forward to hearing how these issues are discussed by the presenters and participants at the upcoming CRI conference in June.