

COMMENTARY

As the Twig Is Bent, the Tree Inclines

Adult Mental Health Consequences of Childhood Adversity

FOLK PSYCHOLOGY HAS long appreciated the links between childhood trauma and both childhood and adult mental health problems. In this issue of *Archives*, 2 related articles from the National Comorbidity Survey Replication¹ enhance this traditional wisdom with precise estimates, confidence intervals, and sophisticated modeling.^{2,3} Based on detailed interviews with 5692 adults, the researchers derived lifetime diagnoses for a range of mental health disorders. In addition, the respondents were asked to recall if they had been exposed to 12 different stressors prior to the age of 18 years. The

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prevalence of childhood adversities (CAs) was high—about half of all respondents endorsed at least 1 CA. The CAs were also highly intercorrelated. Factor analysis grouped the CAs into those reflecting maladaptive family functioning (parental mental illness, parental substance abuse, criminal behavior, domestic violence, physical abuse, sexual abuse, and neglect) and other CAs (parental death, parental divorce, other parental loss, childhood physical illness, and family economic adversity). Multiple childhood adversities were the norm in subjects exposed to any of the CAs that contributed to the maladaptive family functioning factor.

The first article, by Green et al,² examined associations between CAs and the risk of various *DSM-IV* disorders. Many previous studies have examined the association between 1 particular variety of CA and later mental illness. Because these studies could miss the contribution of other correlated CAs, they are prone to overestimate the strength of the as-

sociation between the variables of interest. While mindful of issues related to recall bias and direction of causality within cross-sectional data, the researchers show a subadditive dose-response effect, with the association between CAs and mental illness increasing with a higher count of CA exposures. However, while the strength of the association increased with more CAs, the increase in the strength of the association was smaller with each additional exposure. From a clinical perspective, the subadditive effect suggests that to prevent CA-associated mental health problems, maladaptive family functioning needs to be addressed in a more holistic perspective rather than one CA at a time. It is a reminder to choose the appropriate category of observation when assessing CAs. There are patterns of cosegregation within CAs, and these broader patterns may better capture the “toxic” nature of the exposure with respect to later mental health. Merely summing individual exposures does not always provide an obedient linear dose-response relationship.

The findings also bring into sharp relief the nonspecificity between CAs and subsequent mental disorders. Childhood adversity arising from problems in family functioning was significantly associated with all types of mental illness. This challenges early studies that suggested that particular exposures (eg, death of mother) may be linked to particular mental health outcomes (eg, depression).⁴ While not assessed in the current study, there is also evidence that CAs are associated with an increased risk of later psychosis.⁵⁻⁷ Thus, childhood trauma upsets the orderly psychological and biological cascades of development, leaving the affected individual at increased risk of a wide range of adverse mental health outcomes.

In the companion article, McLaughlin et al³ found that childhood adversity from maladaptive family functioning was more strongly associated with persistence of psychiatric disorders compared with other childhood adversities. Childhood adversity was more strongly associated with persistence of mood disorders compared with other disorder classes. While the effect size for this association was modest, this finding suggests that not only are CAs associated with an increased risk of adult mental health disorders, the nature of these disorders also appears to be more chronic. When considered from a dynamic epidemiological perspective,⁸ CAs appear to contribute to the increased prevalence (or stock) of mental health disorders from 2 mechanisms: (1) more new cases (ie, greater inflow) and (2) less recovery (ie, less outflow).

Green et al² reported that childhood adversity could potentially explain 32.4% of all disorders examined in the study. While the authors recommend caution in the interpretation of population-attributable fractions, this is a very disturbing estimate. If we were to add in adverse physical health outcomes associated with CAs,⁹ these childhood exposures would be associated with an even greater later disease burden. The disability-adjusted life-years attributed to childhood sexual abuse have been assessed,¹⁰ but neither other CAs nor the broad category of maladaptive family functioning have. Based on the findings presented in these articles, we speculate that the burden of disease attributable to maladaptive family functioning would be sizable. In addition, CAs would also be expected to contribute to societal burden related to adverse educational and crime-related outcomes.

Within Waddington's epigenetic landscape metaphor,¹¹ perhaps vulnerable individuals are less able to main-

tain optimal developmental trajectories (canalization) in the face of CAs. Once the developmental pathway is “decanalized,” the affected individuals could be at increased risk of different disorders as a reflection of their particular disease susceptibilities (ie, their unique epigenetic landscape). On a related note, Gibson¹² has suggested that the apparent rise in the prevalence of psychological disorders such as depression may reflect the rapid evolution of the human genome combined with marked environmental and cultural change over recent generations. Regardless of these broader speculations, we need a better understanding of factors that confer resilience and vulnerability to understand the pathways linking CAs and adult mental health outcomes.^{13,14} It is unrealistic to think that we could protect all children from all adversities, but can we identify factors that bolster resilience and focus our efforts on the most vulnerable subgroups?

Although it has been known for several decades that child maltreatment has a deleterious effect on health outcomes, interventions to improve the safety of children in their homes have been relatively poorly studied.¹⁵ This is even more disappointing when one considers that family functioning is intergenerational.¹⁶ Adults who have mental health problems associated with childhood adversity (ie, in their family of origin) are more likely to expose their offspring to CAs (ie, in their family of procreation), thus the cycle continues.^{17,18} With such a large proportion of mental illness attributable to childhood adversity and the evidence of transgenerational transmission of childhood adversity, part of any future national policy initiatives regarding mental health must address the welfare of families and children.

We now have more than enough evidence linking CAs and adverse health outcomes. We must guard against this field becoming trapped in uninformative circular epidemiology (ie, the continuation of epidemiologic studies beyond the point of reasonable doubt).¹⁹ Instead, we need to focus on research related to prevention and intervention. A recent review by Macmillan et al¹⁵ noted that while many different in-

terventions that aim to prevent child maltreatment have been developed, there is relatively little research exploring their effectiveness. In addition to prevention, targeted early interventions following exposure to adversity also warrant closer scrutiny.^{20,21} In short, we now must shift our attention to focus on the development of population-based strategies that target prevention and early intervention and ensure that these programs are carefully evaluated. The quality of the primary epidemiological research has far surpassed the quality of the research related to prevention and intervention. It is now time for the latter to catch up.

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