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A Challenge for a Higher Bar in Research on Childhood Trauma: Reflections on Danese 2019

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Abstract

While there have been major advances in documenting the consequences of childhood adversities for psychopathology, Professor Danese’s excellent paper challenges existing theory and research methods, urging the field to move ahead with future research that overcomes existing limitations. Importantly, he reminds us of the methodological caveats necessary to consider when assessing the body of evidence for causal effects of childhood trauma and urges caution in interpreting the ACEs literature. This editorial calls attention to and elaborates on a number of issues, including: (1) why prospective and retrospective data cannot be used interchangeably; (2) the need for researchers to distinguish among childhood adversities, childhood traumas, and childhood maltreatment; (3) the sparse attention at present to the role of pre-existing vulnerabilities in influencing assessments of the risk of psychopathology; and (4) the critical importance of contextual factors (e.g., age, sex, race, ethnicity, and social class) that are likely to influence the risk of psychopathology. Professor Danese argues for the use of new analytic strategies to advance the field. This editorial elaborates on this recommendation and calls attention to the use of machine learning techniques that may be particularly worthwhile for the child maltreatment field, where there is little psychometric research on measures.

This new paper by Professor Danese “Rethinking childhood trauma: new research directions for measurement, study design, and analytical strategies” should become a classic and is a must read for anyone who has an interest in understanding how childhood traumas may impact the development of psychopathology or risk of psychopathology. At the same time, this paper challenges existing theory and research methods in a way that will impose a higher bar on future research. Professor Danese’s paper is a masterful, wide ranging examination in how to tease out critical factors that have been implicated in the pathway from childhood trauma to psychopathology. He reminds the reader of the important methodological caveats necessary to consider when assessing the body of evidence for causal effects of childhood trauma and describes recent research that illustrates the problems with focusing on findings from studies that suffer from these limitations. He also calls attention to the limited evidence for the causal effect of childhood trauma on overt brain

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damage, based on cross-sectional studies showing cognitive deficits that do not preclude the possibility that the trauma could have other causal effects on the brain.

Professor Danese points to accumulating evidence and a recent paper demonstrating why we cannot use prospective and retrospective data interchangeably (Baldwin, Reuben, Newbury, & Danese, 2019). Twenty years ago, I published a paper with colleagues on the relationship between child maltreatment and DSM-III-R drug abuse and dependence diagnoses using prospective data from official records of children with documented cases of child abuse and neglect and retrospective data from adult self-reports when these people were young adults about age 29 (Widom, Weiler, & Cottler, 1999). I first presented only the prospective findings to staff at the National Institute on Drug Abuse who had funded that part of the work. Our results indicated that there was no difference between the previously maltreated children and the matched controls in the prevalence of lifetime diagnoses of drug abuse. This was not received enthusiastically. However, because we also had collected retrospective self-reports of childhood maltreatment, we were in a position to determine whether these findings would replicate the cross-sectional findings in the existing literature. Those findings based on retrospective reports showed exactly what the cross-sectional studies showed. It was these dramatic differences in findings based on prospective and retrospective data that set in motion for me serious questioning of the meaning of these discrepancies. Another more recent paper (Osborn & Widom, 2019) illustrated this caution dramatically. Following up on the emerging literature that has associated early adversities with higher levels of inflammation, we examined whether childhood maltreatment (using official reports from childhood and retrospective self-reports gathered concurrently with the assessment of CRP) and found that individuals with official reports had higher levels of CRP, whereas there was no association between retrospective self-reports of child maltreatment and CRP levels. These unexpected results led us to suggest that self-reports may reflect less serious or severe instances of maltreatment compared to cases processed through child protection agencies, and where additional stress may be caused by the process of identification by the system, not directly by the maltreatment.

Professor Danese even takes aim at longitudinal studies that are thought to be the gold standard for studying development, developmental sequences, continuities and discontinuities, and causes and consequences. He points out the limitation that many prospective longitudinal studies have only measured critical constructs (e.g., cognitive abilities) at a single point in time. This is particularly problematic when the construct is assessed in adulthood, because it is difficult to draw conclusions about change or stability. Unfortunately, one of the clear disadvantages of longitudinal studies is that the research is limited to the data collected at the time of the origin of the study.

Another important observation made by Professor Danese is that researchers often forget the potential importance of pre-existing vulnerabilities and that these vulnerabilities are rarely integrated into dominant explanatory models of the long-term consequences of childhood victimization or trauma. He makes the point that unlike animal models, childhood victimization and adverse experiences are not randomly distributed to children. Pre-existing vulnerabilities are often overlooked in studies of the long-term consequences of or intergenerational transmission of child maltreatment and may lead to inappropriate

attributions of causality to the child maltreatment. Many studies have not controlled for factors that may predispose to both child maltreatment and poor outcomes such as individual and familial socio-demographic characteristics that may cause spurious relationships (Thornberry, Knight, & Lovegrove, 2012). Parental characteristics may contribute to understanding outcomes, through genetic or environmental mechanisms that ought to be examined. For example, examinations of the impact of exposure to family violence on offspring that does not take into account characteristics of parents who are engaging in violence may miss understanding of potentially important causal mechanisms. Professor Danese points to the discovery of potentially modifiable risk factors for exposure to trauma and, therefore, promotes a strategy for primary prevention of trauma exposure.

Another important point that Professor Danese makes is the need to distinguish among childhood traumas and recognition of individual differences in response to traumatic experiences. At present, there is a general tendency to collapse into one category a diverse array of childhood experiences including child maltreatment, bullying, and exposure to violence, etc. While adopting this approach has certain advantages, notably increasing the size of the potentially traumatized group, this practice also has a number of limitations that hinder a better understanding of causes and consequences of childhood adverse experiences. First, this collapsing ignores the confound that occurs with age. The impact of bullying (occurring at a later age and in school) is most likely quite different from children abused and/or neglected at a young age when so much of their development is before them. Age of onset may be related to the duration and type of abuse experience and this might be confounded with outcomes. Older children are also better able to understand what is happening to them and this knowledge may contribute to their appraisal of the event and ultimately determine its impact.

There is also sparse research on the role of context and contextual factors. Child abuse and/or neglect in the context of a chaotic family (multiple adversities) may not have the same impact as maltreatment occurring in families with fewer adversities. Alternatively, child abuse and/or neglect in the context of a middle class family where the child may have more protective factors or the family or community has more resources may minimize the impact of the trauma. However, few longitudinal studies have examined the extent to which the consequences of maltreatment or trauma differ for families of varying social class, very likely because of the dearth of middle class samples of sufficient size. Another example is provided by our research on the role of MAOA as a moderator of the relationship between child abuse and neglect and violent and antisocial behavior (Widom & Brzustowicz, 2006). As others had reported, we found a protective effect of high levels of MAOA for White maltreated children in our sample compared to the White controls; however, there was no protective effect of high levels of MAOA for the Black maltreated children compared to Black controls. Although we do not know the reason for this difference, one suggestion was that high levels of MAOA were not enough to protect Black children who may be living in contexts of chronic and higher levels of adversity.

The influence of contextual factors may also be manifest later in life suggesting “sleeper effects”. I began this essay with a description of our failure to find differences in the prevalence of drug abuse diagnoses associated with child maltreatment when we assessed

these individuals at mean age 29 in young adulthood. One possible explanation for these surprising findings was that we had failed to take into consideration the role of contextual factors. At the time these psychiatric assessments were made, the extent of drug use and abuse in this particular sample (both maltreated and controls) was quite high and it was possible that the normative nature of drug use at that age was masking differences between the two groups. We speculated that if we assessed these individuals at a later point in time, we might see differences between the groups, reflecting the maturing out for the controls (non-maltreated individuals) but continuing drug use for the adults with documented histories. Indeed, this is exactly what we found when we examined the issue 10 years later (Widom, Marmorstein, & White, 2006). These findings are also relevant to Professor Danese's concerns about longitudinal studies assessing key constructs at only one point in time and reinforce the fact that cross-sectional studies only represent a snapshot of what the person looks like at that point in time. For clinical descriptive purposes, this is clearly important. But in terms of understanding causality and development, we need the ability to examine changes over time that may depend on pre-existing vulnerabilities, severity of exposure, type of exposure, and contextual and protective factors.

Professor Danese also argues for the use of new analytic strategies to advance the field and suggests that machine learning techniques may be useful in advancing knowledge. Although not routinely used in psychology or psychiatry research, this recommendation to use machine learning techniques may be particularly worthwhile for the field of child maltreatment, where there is little psychometric research on measures. In a paper for the *Journal of Child Psychology and Psychiatry*, McCrory, Gerin, and Viding (2017) called attention to the measurement of emotional abuse using self-report instruments. Using the Childhood Trauma questionnaire (CTQ) to illustrate their points, they noted that more than half of over 2000 male adolescents met the threshold for "severe" or "extreme" emotional abuse (Mikaeili, Barahmand, & Abdi, 2013) and suggested that the CTQ was not able to differentiate between common experiences for many children that may be unkind or other experiences that may reflect a denigrating or humiliating pattern of treatment. McCrory et al. (2017) expressed another concern that the emotional abuse items "potentially conflate depressive schemas capturing the expectation (rather than the reality) that others will hurt, abuse, humiliate, cheat, lie, manipulate or take advantage (van Vlierbergh, Braet, Bosmans, Rosseel, & Bogels, 2010) with actual experiences of emotional abuse" (page 351). McCrory et al. (2017) argued that measurement of emotional abuse in particular warrants appropriate use of stringent thresholds, structured interviews and/or independent verification, and new research focusing on the psychometric properties of the emotional abuse.

This criticism and resulting limitation of existing research also represent a serious concern in measures of childhood neglect (physical and emotional). The most common single form of psychometric information provided about neglect instruments is internal consistency. This is a problem because neglect takes many forms and may inherently suffer from low internal consistency because components of neglect may not represent an internally consistent construct. In addition, because of the difficulties in obtaining samples of neglected children or adults with documented histories of neglect, researchers have administered measures to people who are expected to have histories of neglect (e.g., psychiatric patients or prisoners) and use this information to provide evidence of validity. The field needs, but lacks a

stringently validated instrument to retrospectively assess childhood neglect. In some work with Tomer Carmel, we have taken initial steps to create a validated self-report measure of childhood neglect, beginning with a set of 70 questions covering a broad range of examples of neglect that draw on the work of previous scholars and clinicians. After many failed attempts using traditional psychometric approaches to find a set of items that would reliably distinguish individuals with documented histories of neglect and those without, we turned to machine learning techniques. To validate the measure, we used documented cases of childhood neglect and other types of maltreatment (physical and sexual abuse) to assess discriminant validity. We have now identified a small subset of items that has good predictive, discriminant, and construct validity (Carmel & Widom, under review) and will continue to pursue its usefulness in future research.

Finally, Professor Danese makes a strong argument for the need for caveats in interpreting the ACEs literature. He argues that it is important not to assume that the health correlates of retrospective ACEs measures are equivalent to the long-term consequences of adversity measured in childhood and assessed later in life or that the mechanisms through which health problems emerge (or could be prevented) are the same. It is noteworthy that there are some jurisdictions in the United States that are embarking on widespread screening of children for ACEs. Professor Danese cautions: “simple, attractive narratives about childhood trauma may be inaccurate and hide the complexity that must be addressed to improve the lives of traumatized children”.

In conclusion, while there have been major advances in documenting the consequences of childhood adversities for psychopathology, the field now needs to move ahead with the next stage of more challenging research addressing the kinds of issues that Professor Danese makes in this excellent paper. Research needs to distinguish among childhood adversities, childhood traumas, and childhood maltreatment and to begin to tease out the role of pre-existing vulnerabilities, contextual factors (e.g., age, sex, race, ethnicity, and social class) that may play a major role in understanding consequences, but also causes, of these childhood adversities. In this way, efforts to treat and design interventions may be more effective with better precision in identifying the appropriate population.

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