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Commentary: Childhood conduct problems are a public health crisis and require resources: a commentary on Rivenbark et al. (2018)

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Conduct problems (CP) are actions that violate societal norms and/or the personal/property rights of others, and include behaviors such as vandalism, theft, bullying, and assault. Roughly 8%–10% of children engage in the more severe childhood-onset form of CP, while another 25% initiate clinically significant levels of CP during adolescence. As deftly observed in Rivenbark et al. (2018), however, the high prevalence of CP belies its severity: Youth with CP are at increased risk for a number of deleterious individual outcomes, including academic delay/dropout, low professional achievement, psychopathology, addiction, and family instability.

The consequences of CP are not confined to affected individuals and their families, however. Indeed, the work by Rivenbark et al. (2018) in this issue lays bare (some of) the consequences of CP for society as a whole. This study examined adult service usage across criminal justice, health care, and social welfare domains, leveraging 30+ years of longitudinal data and electronic and service records from the Dunnedin Multidisciplinary Health and Development Study to clarify patterns of service utilization in mid-adulthood. They found, perhaps not surprisingly, that those with childhood CP evidenced far higher levels of service utilization than all other individuals in the sample. What was staggering though was the sheer *volume* of service utilization. Although those with childhood CP represented only 9% of the sample, they accounted for a whopping 50% of criminal convictions, 15% of all hospital bed nights, 16% of all emergency department visits, 21% of all prescription fills, 13% of all injury claims, and 25% of all welfare benefit months. Similar results have been reported elsewhere. By age 28, children with CP have accumulated 10 times the public expenditures as those without CP (Scott, Knapp, Henderson, & Maughan, 2001). In short, this relatively small group of individuals accounts for a massive proportion of public service usage. What is more, this service usage is not restricted to their involvement in the criminal justice system, but also reflects the fact that they are far more likely to be sick and injured, to be supported by welfare programs, and have other physical and mental health problems.

Even so, we would note that these already high estimates are in fact likely to represent a vast underestimate of the overall costs of CP to society, for several reasons. First, the Rivenbark et al. study excludes the economic costs of CP prior to adulthood, which are themselves quite substantial. As one example, CP is the primary presenting problem for over half (57.0%) of all children referred for mental health services in the United States, a finding that holds regardless of the referral agency (Comprehensive Community Mental Health Services for Children and Their Families Program, Evaluation Findings: Annual Report to Congress, 2010). The next most common presenting problem, inattention/hyperactivity, is seen in only 38.5% of referred youth. In strictly financial terms, each child with CP costs $70,000 more from ages 7–13 than a child without CP, costs that are distributed across school, juvenile justice, and mental and physical health services (Foster & Jones, 2005). Put another way, even prior to adulthood, youth with CP are consuming disproportionate levels of societal resources. Second, the Rivenbark estimates do not consider the intergenerational costs of CP. Adults with a history of conduct disorder are at elevated risk of engaging in violence inside the family as well, leading to costs associated with adult domestic violence and child welfare system involvement. Third, none of the above estimates include the untold financial and emotional costs of CP on victims or the broader impact of these crimes upon society (Erskine et al., 2014). A next important step in the work of this and other groups will thus be to incorporate analyses of the financial, intergenerational, and emotional burdens to victims and their families. Only then will the estimates of societal costs

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more closely approximate the overall costs of CP to society.

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In summary, Rivenbark et al. provides some of the clearest and most unambiguous data to date that CP emerging early in life predicts poor mental and physical health, education, occupational, and interpersonal outcomes, and place tremendous burden on individuals, families, and society. As such, CP is a critical mental health concern. Based on these broad and large public health impacts, one might assume that research into the etiology, prevention, and intervention of CP would constitute a high priority for agencies charged with improving mental health. Instead, CP has been largely absent from recent funding and public health initiatives. At the National Institutes of Mental Health (NIMH), for example, CP (or Conduct Disorder) is not listed among the disorders in their health and education materials (https://www.nimh.nih.gov/health/topics/index.shtml). It is not clear what leads to this critical omission. Perhaps it is a failure to recognize the notable societal burden linked to CP (hopefully to be remedied by the excellent data provided by Rivenbark et al.). However, we are concerned that the relative lack of focus on CP at the NIMH may stem in part from misconceptions that CP does not constitute a mental disorder but is instead reflective of "bad behavior". This is despite the fact that CP fits most, if not all, major definitions of mental disorders, whether it is the focus on impairing behavioral symptoms used by the Diagnostic and Statistical Mental Disorders or the International Classification of Diseases, or other approaches that focus more on the underlying pathogenesis of the behavioral signs, such as the NIMH Research Domain Criteria.

Alternately, and perhaps more troublingly, the omission of CP from recent public health initiatives may be an indirect consequence of its pervasive effects. Namely, because CP can lead to substantial impairments for the child in so many seemingly unrelated domains of functioning (mental health, developmental, educational, and criminal justice), agencies whose primary mission is to serve only one of these domains could argue that CP should be the purview of another agency (likely motivated by the desire to ensure that their dollars are spent in as targeted a way as possible). Put another way, the severity and pervasiveness of CP's potential consequences may lead to a diffusion of responsibility and an absence of strong advocates. Agencies should be mindful of this possibility and seek to avoid the siloing of domains of functioning in preference of a more holistic approach to understanding outcome. It would also be critical to develop an advocacy group primarily focused on increasing awareness of CP as a mental health disorder with widespread and profound consequences.

The need for a new approach is augmented by the very real costs of doing nothing/keeping things as they are. Indeed, the current omission of CP from funding priorities could have seriously detrimental effects on funding for the treatment of CP, and especially its prevention. At both the prevention and indicated intervention level, we have already identified a host of *malleable* risk factors (e.g., multiple indicators of self-regulation, parenting, parental psychopathology, socioeconomic disadvantage) during the toddler period that predict early-starting CP and more serious forms of antisocial behavior during adolescence (Shaw, Hyde, & Brennan, 2012). Targeting these reliable predictors of early-starting CP, *even for those not seeking treatment*, has been demonstrated to reduce the prevalence of CP and related problem behaviors (e.g., internalizing problems, low academic achievement) through middle childhood (Brennan et al., 2013; Dishion et al., 2014), and to be cost-effective in terms of preventing later, expensive public health usage (e.g., Boisjoli, Vitaro, Lacourse, Barker, & Tremblay, 2007). Far more work is needed, however, to refine and streamline these interventions and particularly preventive interventions. This is especially the case given that, at a policy level, the challenge may be in convincing policymakers to consider the long-term, as these programs have relatively large up-front costs and do not pay off in terms of decreased public costs until a decade or more later, particularly, in terms of incarceration.

In sum, despite extraordinarily high levels of individual, familial, and societal burden, CP is both underrecognized (and underfunded) by most funding agencies. We have argued that this myopic approach to CP should be abandoned going forward. The empirical data suggest that the benefits of a broader approach would be substantial.

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