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RESEARCH ARTICLE

Discussant: Distilling symptom heterogeneity in youth with ODD: a commentary on Leadbeater et al., 2023

Brendan F. Andrade, Ph.D., C.Psych.[1]

Approximately 1-12% of children and youth are estimated to meet criteria for Oppositional Defiant Disorder (ODD) and ODD constitutes a major reason for referral to mental health centers [1,2]. Effective and targeted interventions are necessary to reduce and prevent significant morbidities.

A number of well-established psychosocial interventions exist that show on average, low to moderate treatment effect sizes [3-8]. Although promising, these evidence-based interventions do not meet the needs of a substantial proportion of youth with ODD [7,9]. One possible explanation for these sub-optimal intervention effects may be due to the considerable heterogeneity in symptoms of ODD. DSM-5 criteria for ODD allow diagnosis based on four out of eight possible symptoms from any of the three clusters of symptoms (angry/irritable mood; argumentative/defiant behavior; vindictiveness). Thus, a child with ODD may be diagnosed based on many distinct combinations of symptoms, making it difficult to design treatment for ODD per se. As such, clinicians commonly recommend that children with ODD, and their parents, receive best-practice psychosocial interventions based on diagnostic cutoffs or symptom severity [10]. What is missing from this widely used and mostly generic approach is specificity based on symptom domains, or key aspects of psychopathology that may underlie symptom presentation and severity.

A more personalized approach to intervention may be needed. One perspective emphasizes differences in mental health outcomes based on symptoms that comprise the angry/irritable and argumentative/defiance dimensions. For example, symptoms on the angry/irritable dimension, such as "often loses temper," "often touchy and easily annoyed" and "often angry and resentful," may be more associated with internalizing difficulties such as mood and anxiety disorders [11,12,13]. In contrast, symptoms on the argumentative/defiant dimension, such as "often argues with authority figures," "often actively defies or refuses to comply with requests" and "often deliberately annoys others" may be more associated with outcomes such as Conduct Disorder and delinquency [11, 12]. Although not independent, based solely on an ODD diagnosis, children and adolescents with these two somewhat distinct *clinical presentations* may be placed in the same psychosocial intervention, regardless of differences in their symptom presentation or underlying psychological and/or neurobiological bases of these clinical presentations. This relatively non-specific form of treatment selection should be revisited within mental health care.

In their longitudinal study of ODD, Leadbeater et. al. [19], determined symptom trajectory classes within a community sample of adolescents and emerging adults that they then associate with comorbid substance use, other mental health and behavioral symptoms. A key finding was their

[1]Senior Scientist,Campbell Family Mental Health Research Institute, Margaret and Wallace McCain Centre for Child Youth and Family Mental Health at the Centre for Addiction and Mental Health; Associate Professor, Department of Psychiatry, University of Toronto

Corresponding E-Mail: Brendan.Andrade@camh.ca

identification of trajectories based on overall ODD symptom severity (i.e., low, moderate, and high). They did not identify distinct trajectories for defiance and irritably symptoms (e.g., in which one increases or decreases over time while the other did not). This finding may be consistent with some who propose that there are not clear subtypes based on these symptom groups, but that heterogeneity is accounted for by a general ODD factor (18). Further longitudinal studies with clinical samples or those populations enriched for ODD symptoms may be important to potentially uncover symptom differences.

Leadbeater et al.'s study is an important contribution to the literature in a number of ways. First, the authors highlight the continuity in the three trajectory classes identified (i.e., low, moderate and high) across development. Current best-practice and widely used interventions for ODD often focus on the pre-adolescent period. Findings from this study are consistent with other studies showing evidence of enduring and broad impacts of ODD. The persistence of ODD symptom severity trajectories may necessitate developmentally informed and tailored intervention approaches that target not only ODD symptoms but also co-occurring challenges such as substance use and comorbid mental health challenges.

Another strength of the study is the use of person-centered methods to study ODD trajectories and associated impairments. These methods identify subgroups based on patterns of multiple characteristics [15,16]. This type of research is needed to distill the heterogeneity and non-specific nature of an ODD diagnosis in order to move towards more personalized and tailored approaches to interventions. Determination of patterns may enable development of approaches to best target subgroups of children and youth with ODD. Most studies to date have used variable centered approaches that explain associations between variables of interest within this population and compare groups. Although these approaches have provided a wealth of important information, they are likely not sufficient as they do not take into account the impact of specific *combinations* of symptoms or characteristics that jointly influence the type and severity of problems experienced by children with ODD [14,15].

Findings from Leadbeater et al.'s study also raise a number of important questions and avenues for further study. First, application of longitudinal person-centered methods within clinical samples of children and youth with elevated symptoms may be necessary to advance understanding and improve interventions. Second, further consideration of environmental factors, such as caregiver and sibling influences on ODD trajectories and symptom severity, is needed to inform prevention and intervention. Third, the importance of conceptualizing irritability that is characteristic of ODD and how this may be similar or different than irritability within other mental health disorders is in need of clarification. Fourth, additional work is needed to understand the biopsychosocial domains, including learning, cognitive, and aspects of psychopathology, that may underlie ODD and low, moderate and high symptom severity trajectories that were identified. This information may be important in order to meaningfully subgroup children and potentially provide more tailored intervention. Finally, consideration of diversity factors and engaging youth, caregivers and other clinical stakeholders in unpacking findings from these and other studies, may be key to build on and contextualize findings from studies such as these.

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