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COMMENTARY (INVITED)

Sub-threshold mental illness in adolescents: within and beyond DSM's boundaries

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Abstract As researchers, clinicians and health systems strive to understand and improve mental health and well-being in youth, the parameters by which mental illness itself is defined have increasingly become the topic of inquiry. In the March 2015 issue of SPPE, Roberts et al. (Soc Psychiatry Psychiatr Epidemiol 50(3):397–406, 2015) integrate DSM diagnostic criteria with impairment in adolescents, showing that the latter is more frequent in full-syndrome disorders but still relevant for sub-threshold conditions, which have higher overall prevalence. These findings shift the focus away from specific diagnostic criteria and thresholds, and towards the backdrop of distress and impairment in young people. They also have implications for staging models and clinical services for youth mental health, particularly for prevention and early intervention efforts.

Keywords Sub-threshold · Adolescent mental health · Diagnosis · Impairment · DSM

Where should the boundaries of caseness in psychiatric diagnoses be set, and what are the implications of such decisions? This topic has been much discussed in the wake of DSM-5 [1, 2], and has attracted particular controversy in areas involving the mental health of young people [3–5]. Given startlingly high rates of major DSM-IV mental disorders in adolescents [6], it is both in need of further investigation and the subject of renewed efforts [7].

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Explorations of youth mental health are invariably challenged by the complexities of human development, its diverse and multi-layered influences, including both intrinsic and extrinsic mediating and moderating forces. In one dimension, this has been extensively studied through the concept of sub-clinical experiences or attenuated symptoms, most prominently in the early phases of psychosis [8–10] where a myriad of neurobiological, socio-environmental, clinical, and systems-level factors variously influence risk, help-seeking behavior, referrals and rates of transition to full-blown illness.

Roberts and colleagues [11] add important texture to another aspect of the epidemiology of youth mental health. They examine two parameters of diagnosis in order to better understand the population-level burden of adolescent mental illness and its implications. Their analysis is centered not around caseness based on attenuated symptoms, but caseness defined as sub-threshold numbers (ST) of full DSM-IV criteria (i.e. $\geq 1/2n$, where n is the number of signs/symptoms required to meet criteria for a full-blown diagnosis) in youth aged 9–17. Their calculations reveal that more than half (58 %) of youth have a ST or full-syndrome (FS) DSM-IV condition, with ST disorders 2.6 times more prevalent than FS. Since individuals with attenuated or ST symptoms are at risk for developing similar (homotypic) or different (heterotypic) FS disorders [12], this has great relevance for psychiatric epidemiology as well as clinical services.

The authors' approach combines the above ST criteria with a measure of moderate or severe impairment, which plays an important role in long-term prognosis [13, 14]. The first of their key findings is that impairment is more closely associated with FS disorders. In other words, applying a requirement of functional impairment to caseness yields a greater reduction in ST than in FS prevalence,

strongly suggesting that impairment is more common in FS than ST cases. However, Roberts et al. correctly assert that impairment cannot be considered alone: rates of impairment are lower in ST than in FS disorders (i.e. the ST/FS ratio drops from 2.6 to 2.0 when moving from all cases to only those cases with impairment), but ST conditions remain significantly more prevalent than FS. Regardless of the specific measures used, this translates to a major burden of ST illness at the population level, both for ST conditions in their own right but also because these are often precursors of similar or other FS disorders. Indeed, there is reason to think that these documented rates of ST prevalence are in fact underestimates, since some disorders with high morbidity but frequent ST presentation (such as psychosis or eating disorders) were not included in the analysis, and given that subjects were classified as FS even if they had additional comorbid ST conditions.

Taken together, these analyses buttress the argument that current approaches lack a full appreciation of the true population-level burden of mental illness in adolescents [14]. Others have suggested that since attenuated and emerging symptoms in young people are themselves protean, transitory, and fluctuating, clinical epidemiology should attempt to measure mental distress *beyond* specific diagnostic silos [15]. The results of Roberts et al., however, also suggest that a parallel effort is needed to understand the implications of expanding caseness *within* current DSM criteria in this population.

One example of such implications is in the authors' curious statement that the association of impairment with FS (moreso than ST) conditions supports the validity of DSM-IV's diagnostic boundaries. Ironically, this interpretation may have been driven by the binary options present in this data or available in current datasets. Alternative models in which impairment is compared for multiple levels of FS and ST illness (e.g. $n-2$ vs $n-1$ vs n vs $n+1$ diagnostic criteria) might instead show continuous incremental (stepwise) increases in impairment with accumulation of symptoms, without discontinuity at the point that FS criteria are met. Although hypothetical at present, such indexing would highlight the potentially non-discrete nature of contemporary illness constructs and re-animate the question of where diagnostic boundaries ought to lie.

Indeed, there is emerging acknowledgement that even if they do exist, natural boundaries cannot always be precisely defined using current schemas [16]. Points of (dis)-continuity and appropriate cutoffs will likely differ across diagnostic domains, as Roberts et al. allude to in their suggestion that the common two-by-two tables (with categories of yes/no diagnosis or yes/no impairment) sometimes employed in clinical research may no longer suffice for some forms of mental illness or distress. Conditions frequently found in young people but excluded from this study will need to be subjected to similar analyses. And further work is required regarding the longitudinal outcome of different types of ST conditions, including the impact of ST comorbidities on subjects and their other ST or FS diagnoses.

Beyond the specific boundaries and definitions of caseness, the clinical implications of these debates and the major burden of illness and morbidity due to ST conditions are profound. Case identification, 'indicated' prevention and early intervention efforts could broaden their purview to target and follow those with ST conditions, since distress and impairment are often present and they are already known to be at risk of developing FS illness. Such initiatives would, of course, come with challenges. For example, efforts to expand the boundaries of caseness (by including ST symptoms) to offer individuals clinical services may pathologize distress or medicalize ST states as full-blown illnesses. This could be inadvertent or even with the best of intentions [17], particularly given the tendency in some systems for insured treatment to be dependent on presence of a categorical diagnosis or a minimal level of severity. It also runs the risk of focusing efforts towards tertiary-level interventions and away from more upstream, stage-appropriate secondary prevention.

As an alternative, the prevalence and magnitude of ST morbidity and the frequent development of ST conditions into FS disorders mean that clinical staging models and services for young people could instead be reconfigured to include, evaluate and intervene in distressed and/or help-seeking cases: without regard to whether individuals possess a DSM diagnosis, and whether symptoms are attenuated, ST or FS. This, combined with policy changes that expand insurance coverage for and provide rapid access to modular, high-quality transdiagnostic interventions [18] could uncouple the requirement for a diagnosis before treatment. Such changes would minimize the risk of inappropriate medicalization while still potentially reducing the likelihood of progression to full-blown and more impairing illness through secondary or indicated prevention.

At the same time as research works to illuminate the contours and form of diagnostic boundaries, then, the effective organization of mental health systems and services for distressed and impaired young people calls to mind the old adage that clinicians should treat the patient, not just the diagnosis—and perhaps regardless of it.

References

1. Cuthbert BN (2014) The RDoC framework: facilitating transition from ICD/DSM to dimensional approaches that integrate neuroscience and psychopathology. World Psychiatry 13:28–35. doi:10.1002/wps.20087

2. Frances AJ, Nardo JM (2013) ICD-11 should not repeat the mistakes made by DSM-5. Br J Psychiatry 203:1–2. doi:10.1192/bjp.bp.113.127647
3. Levy F (2014) Child and adolescent changes to DSM-5. Asian J Psychiatr 11:87–92. doi:10.1016/j.ajp.2014.03.013
4. Smink FRE, van Hoeken D, Oldehinkel AJ, Hoek HW (2014) Prevalence and severity of DSM-5 eating disorders in a community cohort of adolescents. Int J Eat Disord 47:610–619. doi:10.1002/eat.22316
5. Vande Voort JL, He J-P, Jameson ND, Merikangas KR (2014) Impact of the DSM-5 attention-deficit/hyperactivity disorder age-of-onset criterion in the US adolescent population. J Am Acad Child Adolesc Psychiatry 53:736–744. doi:10.1016/j.jaac.2014.03.005
6. Merikangas KR, He J-P, Burstein M et al (2010) Lifetime prevalence of mental disorders in US adolescents: results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). J Am Acad Child Adolesc Psychiatry 49:980–989. doi:10.1016/j.jaac.2010.05.017
7. Iyer S, Boksa P, Lal S, et al. (2015) Transforming youth mental health: a Canadian perspective. Irish J Psychol Med (In press)
8. van Os J, Linscott RJ, Myin-Germeys I et al (2009) A systematic review and meta-analysis of the psychosis continuum: evidence for a psychosis proneness-persistence-impairment model of psychotic disorder. Psychol Med 39:179–195. doi:10.1017/S0033291708003814
9. Fusar-Poli P, Borgwardt S, Bechdolf A et al (2013) The psychosis high-risk state: a comprehensive state-of-the-art review. JAMA Psychiatry 70:107–120. doi:10.1001/jamapsychiatry.2013.269
10. Yung AR, Yuen HP, Berger G et al (2007) Declining transition rate in ultra high risk (prodromal) services: dilution or reduction of risk? Schizophr Bull 33:673–681. doi:10.1093/schbul/sbm015
11. Roberts RE, Fisher PW, Blake Turner J, Tang M (2015) Estimating the burden of psychiatric disorders in adolescence: the impact of subthreshold disorders. Soc Psychiatry Psychiatr Epidemiol 50(3):397–406
12. Shankman SA, Lewinsohn PM, Klein DN et al (2009) Subthreshold conditions as precursors for full syndrome disorders: a 15-year longitudinal study of multiple diagnostic classes. J Child Psychol Psychiatry 50:1485–1494. doi:10.1111/j.1469-7610.2009.02117.x
13. Costello EJ, Angold A, Keeler GP (1999) Adolescent outcomes of childhood disorders: the consequences of severity and impairment. J Am Acad Child Adolesc Psychiatry 38:121–128. doi:10.1097/00004583-199902000-00010
14. Angold A, Costello EJ, Farmer EM et al (1999) Impaired but undiagnosed. J Am Acad Child Adolesc Psychiatry 38:129–137. doi:10.1097/00004583-199902000-00011
15. Fusar-Poli P, Yung AR, McGorry P, van Os J (2013) Lessons learned from the psychosis high-risk state: towards a general staging model of prodromal intervention. Psychol Med. doi:10.1017/S0033291713000184
16. Linscott RJ, van Os J (2010) Systematic reviews of categorical versus continuum models in psychosis: evidence for discontinuous subpopulations underlying a psychometric continuum. Implications for DSM-V, DSM-VI, and DSM-VII. Annu Rev Clin Psychol 6:391–419. doi:10.1146/annurev.clinpsy.032408.153506
17. Carpenter WT, van Os J (2011) Should Attenuated Psychosis Syndrome Be a DSM-5 Diagnosis? Am J Psychiatry 168:460–463. doi:10.1176/appi.ajp.2011.10121816
18. Weisz JR, Chorpita BF, Palinkas LA et al (2012) Testing standard and modular designs for psychotherapy treating depression, anxiety, and conduct problems in youth: a randomized effectiveness trial. Arch Gen Psychiatry 69:274–282. doi:10.1001/archgenpsychiatry.2011.147