EDITORIAL

Check for updates

# Editorial: Can Less Be More When Measuring Psychotic Symptoms in Youth?

Benedetto Vitiello, MD

There is a strong tradition in child mental health of developing measures to assess both general psychopathology and specific constructs such as attention-deficit/hyperactivity disorder, autism, depression, anxiety, and obsessive-compulsive disorder. For psychosis, however, the tendency has been to use in children instruments that were developed for adults, such as the Positive and Negative Syndrome Scale (PANSS). There are general good reasons for using the same assessment tools in youth as in adults, because this facilitates comparisons across the lifespan. In the case of schizophrenia, in particular, there is evidence of continuity of psychopathology from adolescence to adulthood. There are also practical reasons why an instrument such as the PANSS, which has been widely used in research and accepted by drug regulatory agencies, has remained unchanged over time. The PANSS has consistently been shown to be able to discriminate between antipsychotic medication and placebo in adults, children, and adolescents.[1,2] Keeping the same rating instrument across studies and over time also facilitates comparisons between clinical trials and medications, allows possible time trends in treatment effect to be detected, and helps systematic reviews and meta-analyses.[1,2] The drawback of this methodological conservatism is that it provides little motivation to perfect the existing tools for measuring psychopathology, with negative impact on both research and clinical practice.

In many aspects, the PANSS can be regarded as a highly successful instrument, as also shown by its endurance over the 35 years of its existence. It has become a standard outcome measure in schizophrenia research, and its validity is recognized by the US Food and Drug Administration and the European Medicine Agency. Many antipsychotics have received regulatory approval based on demonstration of treatment efficacy on the PANSS. The PANSS, however, is not without limitations. It was introduced to assess medication effects on positive and negative psychotic symptoms but without prior psychometric testing.[3] Its factor structure was investigated in adult patients, with inconsistent replication of the 5-factor model across clinical samples.[4] It includes 30 items, and its administration and scoring can take up to 50 minutes with adults. Indeed, in adults, several attempts have been made to develop shorter versions by selecting the most robust items. In youth, however, despite the widespread use of the PANSS in clinical research, its psychometrics had not been previously described.

A welcome methodological contribution, therefore, is that of Findling *et al.*, who, in this issue, report on a series of analyses aimed at evaluating the basic psychometrics of the PANSS in children and adolescents.[5] Taking advantage of a publicly funded, multisite clinical trial comparing the effectiveness of 3 different antipsychotics in a sample of youth with schizophrenia or schizoaffective disorder,[6] these authors conducted exploratory and confirmatory factor analyses and an item response evaluation of the PANSS. The 5-factor structure of the scale was confirmed. By selecting the 2 items with the strongest loading on each factor, a 10-item version was developed, the total score of which was highly correlated ($p = 0.88$) with that of the original 30-item version. External convergent validity of this abbreviated version was shown by positive correlations with both the Brief Psychiatric Rating Scale and the Clinical Global Impression−Severity scores, even though these correlation coefficients were statistically significantly lower than those seen with the full 30-item version. Like the 30-item PANSS, also the shortened 10-item version was able to document large pre−post effect sizes, without differences between the treatment groups (which was expected, given the primary results of the clinical trial and the absence of a placebo control group).[6] As the authors point out in the report, the lack of treatment effect in this clinical trial does not allow sensitivity to treatment to be ascertained with these analyses. To this end, future applications of the short version to the databases of placebo-controlled clinical trials that discriminated between treatment groups could be useful. In particular, it would be informative to determine

whether the treatment effect sizes are similar when calculated with either the 10- or the 30-item PANSS.

In the analyses reported by Findling *et al.*, a number of the PANSS items showed poor loading on the scale factors and were consequently dropped and excluded from the shorter version. Among them were grandiosity, hallucinations, disturbance of volition, and mannerism and posturing. This may sound surprising, because these are among the cardinal symptoms of psychosis. One needs, however, to consider that assessing the psychopathological valence or specificity of these symptoms may be different in children and adolescents compared with adults.[7] In addition, the study sample on which the analyses were conducted included mainly outpatients, as only 10% of the participants were inpatients at study entry. It is possible that a more acutely severe sample would have yielded different results. Other limitations are the relatively small sample size for this type of analyses and the inevitable fact that, being the 10-item version derived from the data collected with the 30-item PANSS, there was no independence of assessment, and this can inflate the correlation between the 2 versions. The patients were interviewed on the entire 30-item version; it is unknown whether a clinical interview based on only 10 items would have yielded the same data.

The importance of the contribution by Findling *et al.* extends to bringing attention to the need for psychometrically sound measures of psychosis in children and adolescents. The need goes beyond assessing symptoms in the acute phase. The psychopathological trajectory of schizophrenia runs through multiple sequential stages, and the care of patients with schizophrenia needs to account for acute control of psychotic symptoms, continuation treatment to achieve remission, and maintenance to support functioning and to prevent recurrence.[8] Control of positive symptoms is paramount in the acute phase, whereas maintenance treatment is focused primarily on alleviating negative symptoms and supporting functioning. Rating scales may perform differently in these different phases.

Undoubtedly, a fully validated 10-item PANSS would be advantageous to both clinicians and researchers. Among future steps toward further development, it would be informative to conduct similar analyses on databases of clinical trials that were able to detect treatment effects, and then to administer the short version prospectively and compare the results with those obtained with the longer version.

Accepted January 4, 2023.

Dr. Vitiello is with the University of Turin, Italy.

The author has reported no funding for this work.

Disclosure: In the last 2 years, Dr. Vitiello has received consultant fees from the pharmaceutical companies Medice, Menarini, Angelini, and Alkermes.

Correspondence to Benedetto Vitiello, MD, Child and Adolescent Neuropsychiatry, Università degli studi di Torino, Pediatric Hospital Regina Margherita, Piazza Polonia 94, 10126 Torino, Italy; e-mail: benedetto.vitiello@unito.it



https://doi.org/10.1016/j.jaac.2023.01.003

## REFERENCES

1. Pagsberg AK, Tarp S, Glintborg D, *et al*. Acute antipsychotic treatment of children and adolescents with schizophrenia-spectrum disorders: a systematic review and network meta-analysis. J Am Acad Child Adolesc Psychiatry. 2017;56:191-202. https://doi.org/10.1016/j.jaac.2016.12.013
2. Huhn M, Nikolakopoulou A, Schneider-Thoma J, *et al*. Comparative efficacy and tolerability of 32 oral antipsychotics for the acute treatment of adults with multi-episode schizophrenia: a systematic review and network meta-analysis. Lancet. 2019;394(10202):939-951. https://doi.org/10.1016/S0140-6736(19)31135-3
3. Kay SR, Fiszbein A, Opler LA. The Positive and Negative Syndrome Scale (PANSS) for schizophrenia. Schizophr Bull. 1987;13:261-276. https://doi.org/10.1093/schbul/13.2.261
4. Lindenmayer JP. Are shorter versions of the Positive and Negative Syndrome Scale (PANSS) doable? A critical review. Innov Clin Neurosci. 2017;14:73-76; http://www.ncbi.nlm.nih.gov/pmc/articles/pmc5788254/
5. Findling RL, Youngstrom EA, McClellan JM, *et al*. An optimized version of the Positive and Negative Symptoms Scale (PANSS) for Pediatric Trials. J Am Acad Child Adolesc Psychiatry. 2023;62:427-434. https://doi.org/10.1016/j.jaac.2022.07.864
6. Sikich L, Frazier JA, McClellan J, *et al*. Double-blind comparison of antipsychotics in early onset schizophrenia and schizoaffective disorder. Am J Psychiatry. 2008;165:1420-1431. https://doi.org/10.1176/appi.ajp.2008.08050756
7. Kelleher I, Connor D, Clarke MC, Devlin N, Harley M, Cannon M. Prevalence of psychotic symptoms in childhood and adolescence: a systematic review and meta-analysis of population-based studies. Psychol. Med. 2012;42:1857-1863. https://doi.org/10.1017/s0033291711002960
8. McClellan J, Stock S. American Academy of Child and Adolescent Psychiatry (AACAP) Committee on Quality Issues (CQI). Practice parameter for the assessment and treatment of children and adolescents with schizophrenia. J Am Acad Child Adolesc Psychiatry. 2013;52(9):976-990. https://doi.org/10.1016/j.jaac.2013.02.008