Concurrent Validity of the Brief Observation of Symptoms of Autism (BOSA)

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Background

• The Autism Diagnostic Observation Schedule, 2nd Edition, is considered the “gold standard” measure for diagnosis of autism spectrum disorder (ASD).
• COVID-19 presented challenges with use of the ADOS-2, which cannot be validly administered with masks.
• The Brief Observation of Symptoms of Autism (BOSA) was developed for use with pandemic-friendly procedures (Lord et al., 2020).
• BOSA activities and coding procedures were derived from the ADOS-2 and the Brief Observation of Social Communication Change (BOSCC; Grzadzinski et al., 2016).
• The BOSA was widely adopted for clinical and research programs, though there is limited research to evaluate its validity.
• The BOSA showed good interrater and cross site reliability, and convergent validity with the ADOS-2 Toddler Module and Module 3 (Dow et al., 2021).

Measures

• Autism Diagnostic Observation Schedule, 2nd Edition (ADOS-2)
• Brief Observation of Symptoms of Autism (BOSA)
• Social Responsiveness Scale-2nd Edition (SRS-2)
• Autism Diagnostic Interview-Revised (ADI-R)
• Vineland Adaptive Behavior Scales-3rd Edition (Vineland-3)
• Autism Rating Scale-2nd Edition (CARS-2)

Procedure

• 190 participants with an existing diagnosis of ASD were administered the ADOS-2 Module 3 or 4 (pre-pandemic, without mask restrictions) and/or the BOSA Module F1 or F2 (coded on ADOS-2 Module 3 or 4).
• Participants were administered additional social communication measures listed above.
• ADOS-2, BOSA, and ADI-R were administered by research reliable clinicians.

Results

Table 1. The BOSA Module Total Score did not correlate significantly with the SRS-2 or with any domains of the ADI-R or Vineland-3 for either BOSA Module 3 or 4. In contrast, the ADOS-2 CSS correlated significantly with the Reciprocal Social Interaction and Communication domains of the ADI-R. (**Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level.)*

Figure 1. The BOSA Algorithm Total Score correlated significantly with the CARS-2 T-Score for both BOSA Modules 3 (r(12)=.68, p<.008) and 4 (r(34)=.74, p<.001).

Figure 2. The BOSA Module 4 Total Algorithm Score did not correlate significantly with the ADOS-2 CSS administered at a previous timepoint (r(7)=.07, n.s.; average time between administrations: 52.88 months). Notably, the ADOS-2 CSS also did not correlate significantly with the CSS from a previously administered ADOS-2 (r(19)=.004, n.s.; average time between administrations: 52.56 months).

Conclusions

• The BOSA showed concurrent validity with another clinician-rated measure (CARS-2) but not with parent- or self-report measures of social communication.
• In contrast, the ADOS-2 exhibited concurrent validity with two domains of the ADI-R.
• Counter to predictions, neither the BOSA nor the ADOS-2 correlated with prior ADOS-2 administration.
• Results are limited by a small sample size.
• May also be related to the amount of time elapsed between administrations.
• The BOSA holds promise as a brief measure of ASD-related symptoms but may not be as robust a clinical measure as the ADOS-2.
• Additional research is needed to expand on these findings:
  • Replicate with a larger sample size.
  • Expand validity investigation to other BOSA modules.
  • Revisit once a cross-module BOSA score is available.

References


Funding Sources

NIMH R01 MH100173 (McPartland), NIMH R21 MH091309 (McPartland), NIMH R01 MH107426 (McPartland, Srijanri)

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