

TELE-ASD-PEDS: A Remote Approach to Autism Spectrum Disorder Evaluation

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Background

- The prevalence of Autism Spectrum Disorder (ASD) in the United States has increased significantly over the past 20 years (Zeidan et al., 2022).
- Early diagnosis is critical, as it enables access to interventions that improve outcomes in communication, social skills, and behavior. (Avula et al., 2025; Guthrie et al., 2023; Maksimovic et al., 2023) .
- The COVID-19 pandemic disrupted early identification and screening for ASD, resulting in a significant backlog of at-risk children awaiting evaluation (Shaw et al., 2025).
- Furthermore, research indicates that there is a large disparity in the age of diagnosis and availability of services between rural and urban areas (Zhang et al., 2025; Antezana et al., 2017).
- Telehealth has emerged as a promising approach to improve access to care, particularly in underserved areas (Calleja et al., 2021).
- The TELE-ASD-PEDS (TAP) is a telemedicine-based evaluation tool designed for children under 36 months who do not use flexible phrase speech.
- The TAP requires 10 to 20 minutes to administer, compared to 45 to 60 minutes for the Autism Diagnostic Observation Schedule-Second Edition (ADOS-2.)
- This approach helps reduce disparities in access to timely diagnostic services and logistical barriers for patients in rural communities (Corona et al., 2023; Gangi et al., 2025).
- Research indicates that in-home use of the TAP is valid, reliable, feasible, and acceptable to caregivers for evaluating ASD in toddlers.
- However, there is minimal research that has been conducted on pediatric patients prior to an ASD diagnosis.
- Hypothesis:** We hypothesize that there will be no significant difference in TELE-ASD-PEDS results and ADOS results in determining ASD diagnosis.

Methods

Participants in the preliminary study include 21 pediatric patients (M = 15, F = 6), aged 18-47 months (M = 31, SD = 8.67). Assessments were conducted on average 9.67 days apart (SD = 10.73, range = 0 – 40).

Inclusion criteria:

- ✓ Born at full term (38 weeks or greater)
- ✓ Ages between 14 and 48 months at time of clinic visit
- ✓ Biological parent can speak and understand fluent English
- ✓ Parental access to an electronic device with video capabilities

Exclusion criteria:

- ✗ Child has a genetic syndrome or a neurological disorder
- ✗ Non-English-speaking caregiver

TELE-ASD-PEDS Measures

- 1 – 3 Likert scoring for eight distinct activities (3 = behaviors characteristic of ASD clearly present; 2 = possible atypical behavior; 1 = behaviors characteristic of ASD not present)
- Total Likert scores ≥ 12 = ASD present

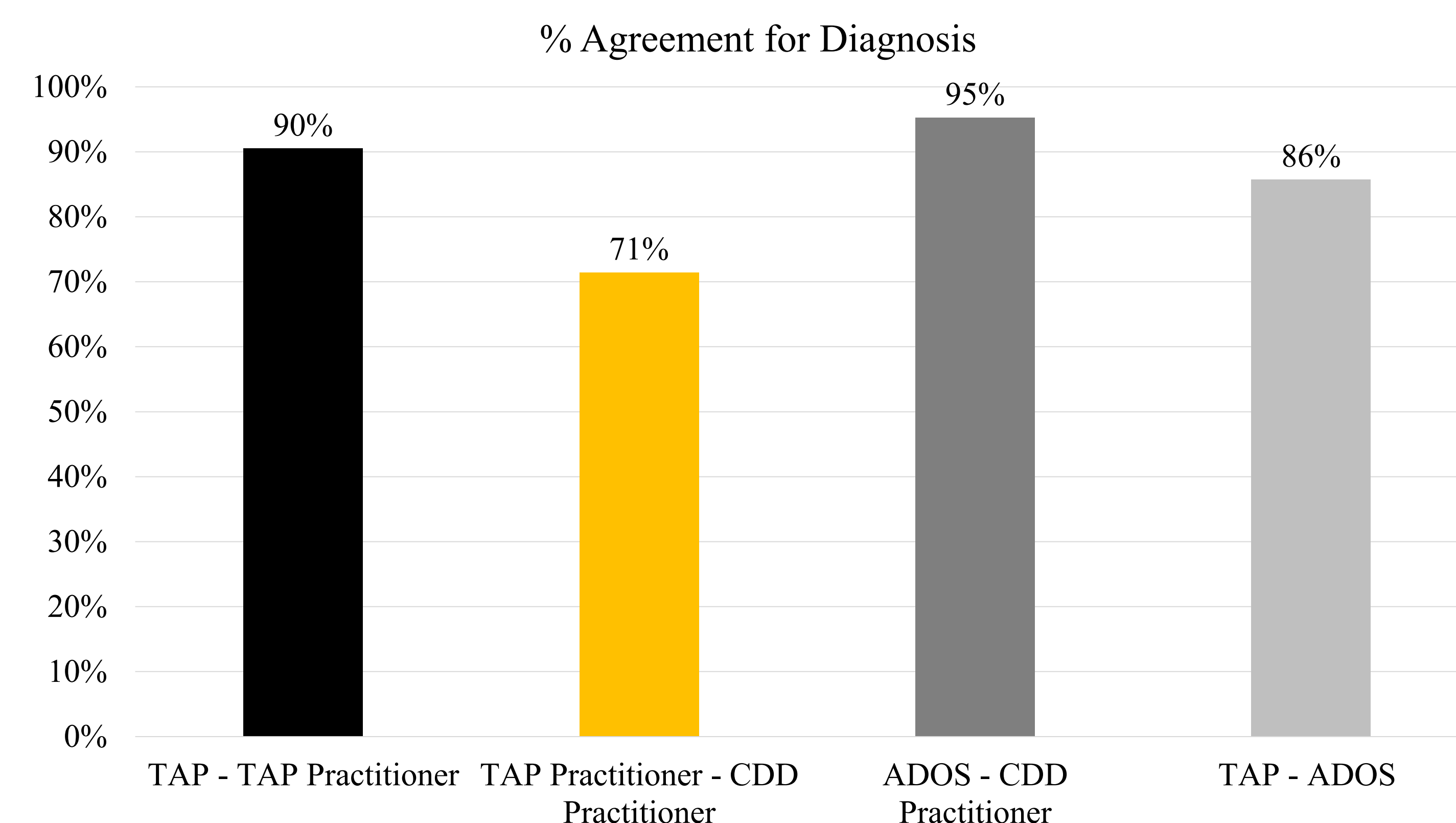
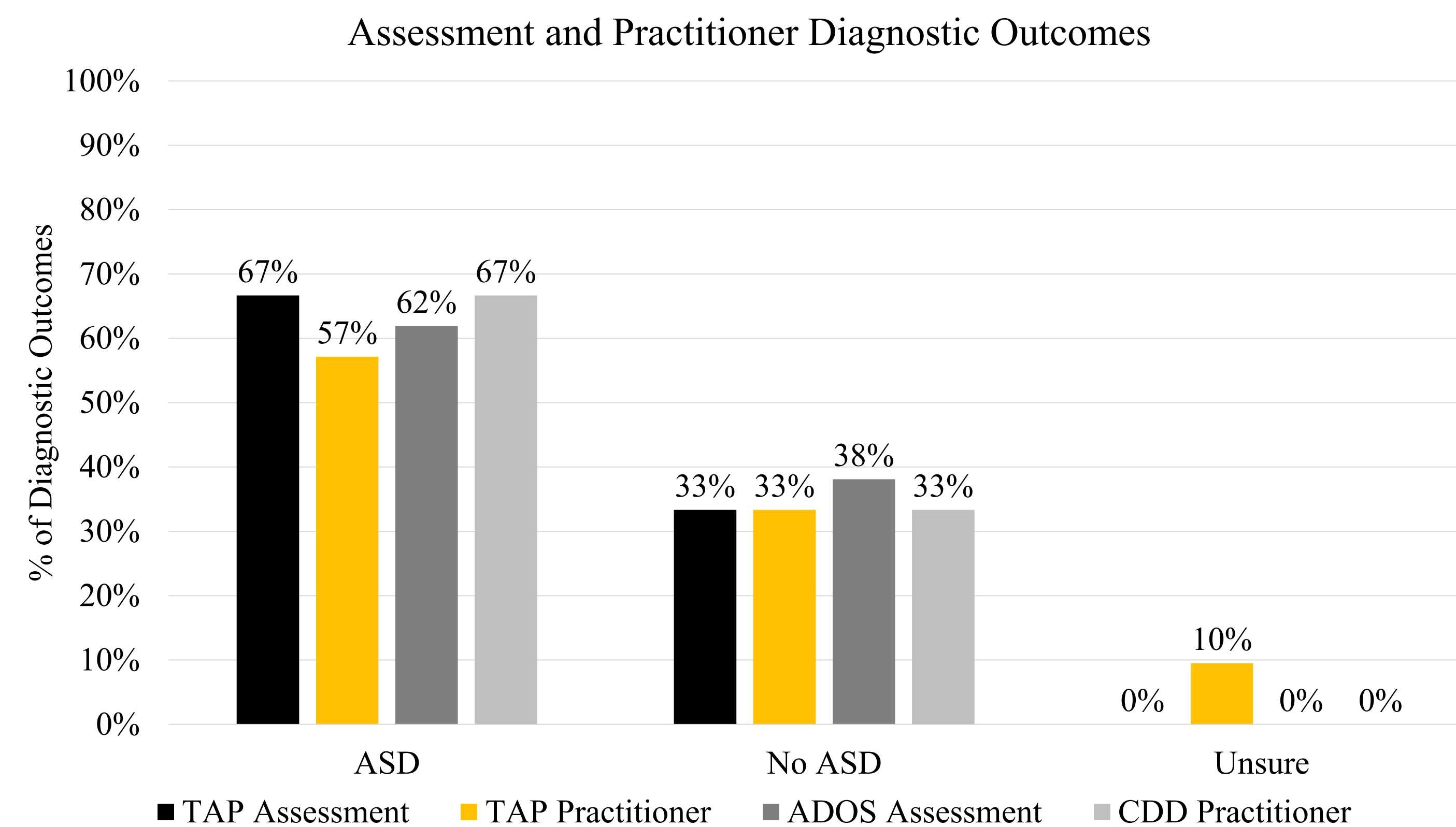
In-person Clinical Measures

- Completed by a blinded multidisciplinary autism team
- Overall clinical diagnosis (ASD, no ASD, unsure/follow up needed)
- ADOS-2 overall score (“ASD” or “no ASD” based on cut-off scores for “autism”)
- ADOS-2 toddler module (n = 7), module 1 (n = 13), and module 2 (n = 1) were used

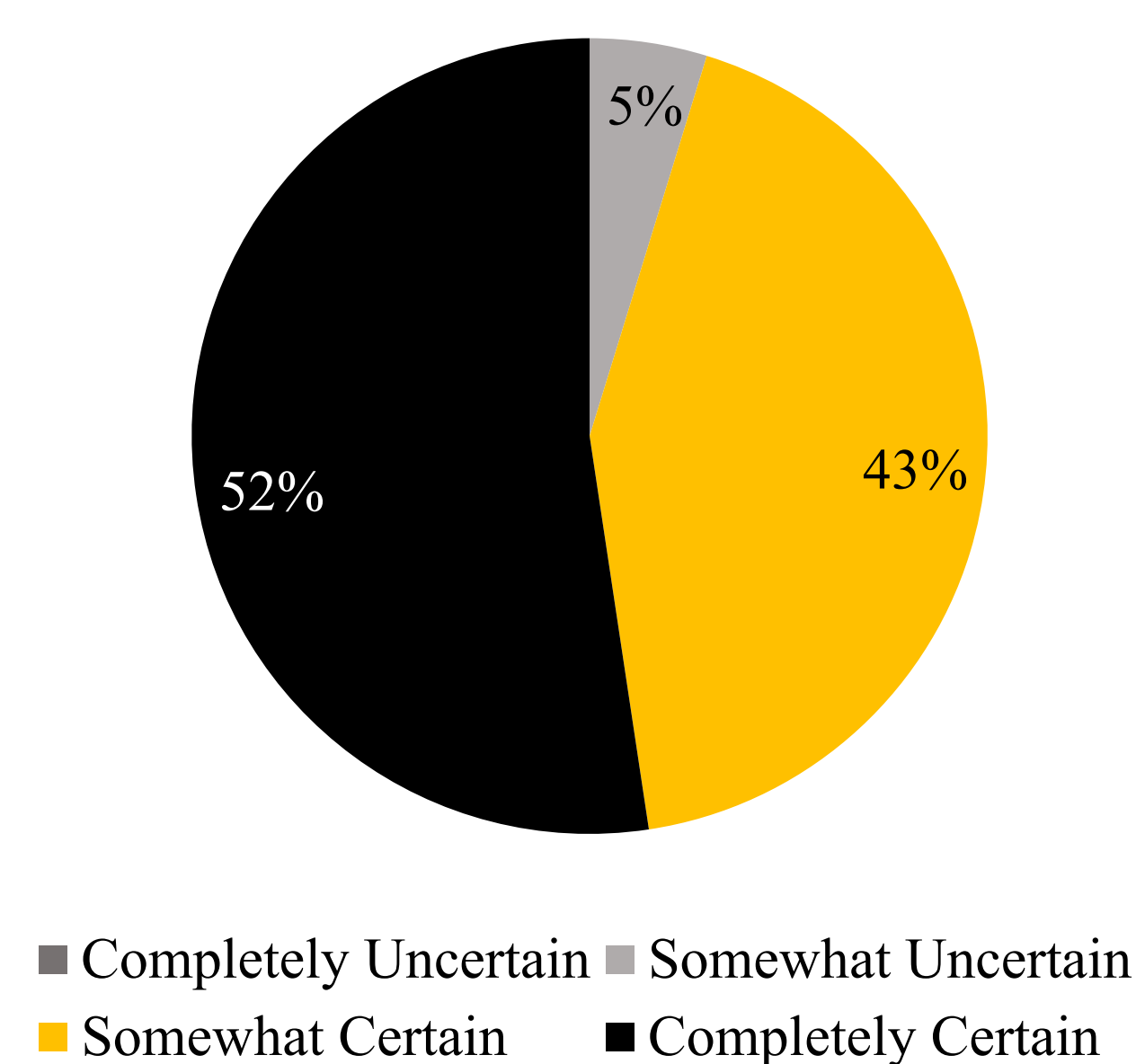
Analysis

- Four different diagnostic outcomes were compared:
 - TAP assessment/ADOS assessment were based on the assessment cutoff scores
 - TAP Practitioner and CDD Practitioner were based on the practitioner's judgement

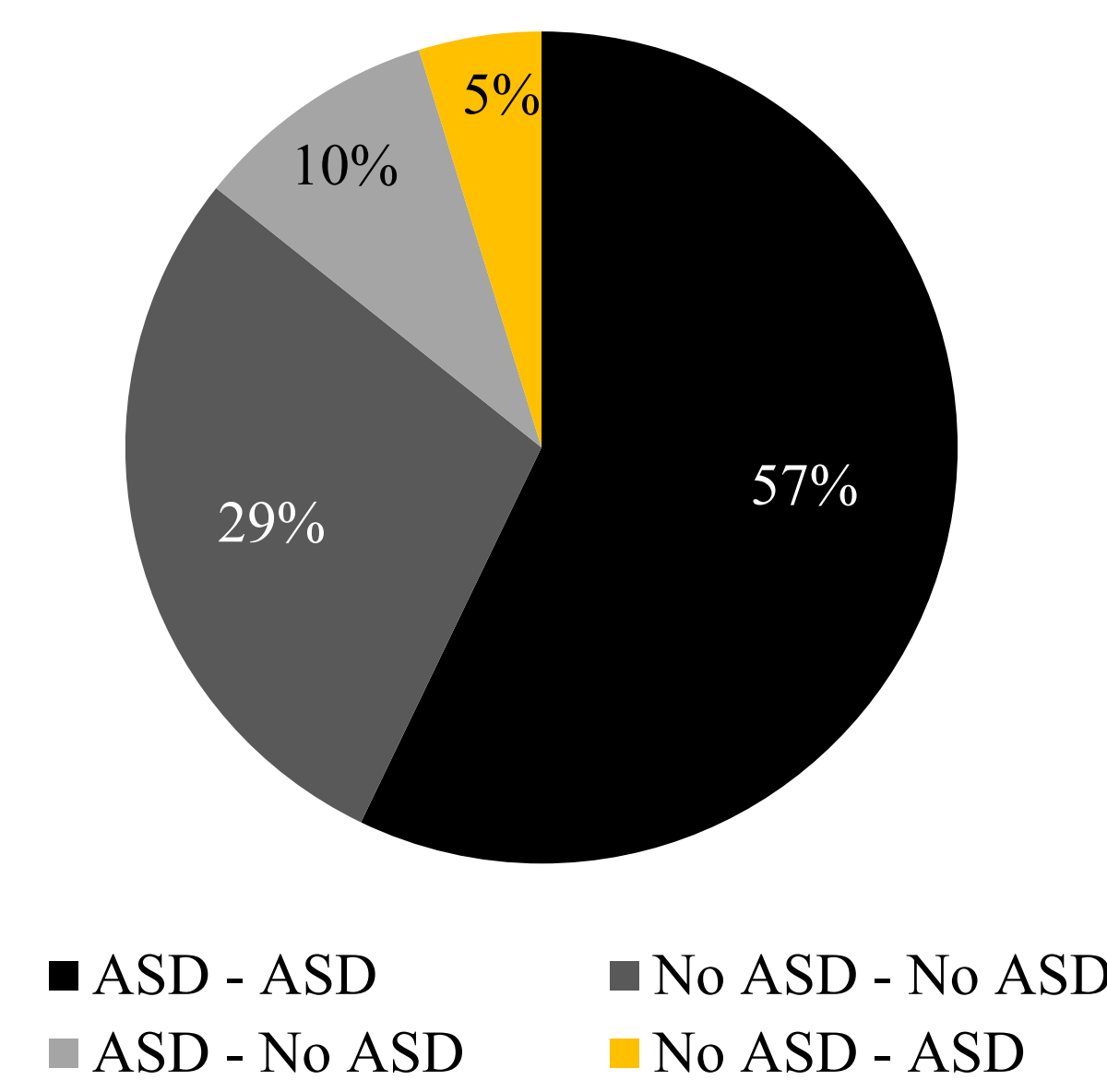
Results



Certainty of Diagnosis on TAP



% of TAP and ADOS Result Combinations



Results (cont.)

- Prevalence of an autism diagnosis ranged from 57% to 67% with no diagnosis ranging from 33% - 38%
- Fisher’s exact test revealed that there is no significant relation between method of diagnosis and outcome ($p = 0.73$)
- The TAP assessment versus the TAP practitioner showed the lowest agreement, likely due to the practitioner selecting “unsure” twice
 - The two “unsure” results were within two points of the diagnosis cutoff
- Nearly all the practitioners for the TAP selected “somewhat certain” or “completely certain” in their diagnosis (95%)
- Disagreements did not appear to correlate with age, though the dataset was too limited to permit statistical analysis
- Instances in which the TAP diagnosed ASD while the ADOS did not occurred twice as frequently as the opposite pattern

Discussion

- TAP demonstrated moderate to high agreement with in-person assessments, supporting its potential as a reliable remote diagnostic tool for ASD.
- Similar ASD diagnosis rates across methods (57%–67%) and no statistically significant association by method suggest that telehealth evaluations can yield comparable outcomes to traditional approaches.
- High TAP clinician certainty overall (95%), with uncertainty near diagnostic cutoffs, indicates TAP is most effective for clear presentations but may require supplemental assessment for borderline or complex cases.
- Observed discrepancies (i.e., TAP identifying ASD when ADOS did not) suggest TAP may be more sensitive in naturalistic home settings, but also raise concerns about possible over-identification in certain cases.
- Findings support the use of TAP to expand access to early ASD evaluation, particularly in rural and underserved areas, and to reduce wait times due to its efficiency.
- Clinically, TAP may be best positioned as a screening or part of a multi-method diagnostic process, rather than a standalone tool in all cases.
- Limitations (small sample size, limited diversity) restrict generalizability, emphasizing the need for larger-scale validation studies.
- Future research should examine diagnostic accuracy (sensitivity/specificity), performance across developmental levels, and strategies to improve agreement across evaluators.

Contact

References are available upon request

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