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FASD BeST: Reliability and Validity Study

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Introduction

Early intervention is critical for dealing with many disabilities experienced by people, whether physical, intellectual, mental or environmental. Children who demonstrate maladaptive behavior patterns are in need of early intervention in order to learn adaptive methods of interacting with others. In order to intervene effectively, early screening and proper diagnosing is necessary.

The central nervous system (CNS) dysfunction associated with prenatal exposure to alcohol (PEA) manifests in a wide range of difficulties from mild cognitive dysfunction to complex neurobehavioral problems (Koren et al., 2003). Some of the behavioral patterns associated with PEA include: "attention deficit hyperactivity disorder, inability to foresee consequences, inability to learn from previous experience, inappropriate or immature behavior, lack of organization, learning difficulties, poor abstract thinking, poor adaptability, poor impulse control, poor judgment, and speech, language, and other communication problems" (p. 1181).

An incidence rate of nearly 7% of agenesis of the corpus callosum (ACC) is reported for PEA children. This is higher than for the general population (0.3%). It is also higher than the reported incidence of ACC with other developmentally delayed groups (2.3%). Jeret & Serur (1991) predicted that "FAS may become the most common syndrome associated with agenesis of the corpus callosum" (p. 1077). Numerous studies (Khatchikian, 2001; Brown & Paul, 2000; Schieffer, 1999) have documented that persons who are born with agenesis or dysgenesis of the corpus callosum also exhibit a number of behaviors that are problematic, particularly within the social and personal domains. Although many of the anecdotal comments from parents and educators of children with ACC and ADHD suggest similar behavioral patterns to those children with FASD, it would prove helpful if a screening device could differentiate any subtle behavioral pattern differences.

Earlier research suggests children with FASD are more likely to have difficulty learning from experience, delaying gratification, interacting socially and inhibiting impulsive behaviors (Burd et al., 2003; Burgess, 1994). The behavior profile as measured by the BeST includes; being easily influenced by others, difficulty learning from experience, appearing and declaring innocence even when confronted with evidence to the contrary, and experiencing difficulties in other domains.

Porter and Andrews (2004) compared behavioral profiles using the FASD BeST between controls with no mental or physical diagnoses, participants with ACC, and participants with FASD in age equivalent groups. Their results supported the hypothesis that the BeST detects differences between the behavioral patterns of people with FASD, ACC and controls.

The BeST scores of the controls were significantly lower indicating fewer behavioral problems as reported by parents of these participants. The higher scores for participants with ACC suggest some overlap in behaviors between children and adolescents with ACC and FASD but with less severity when PEA was not a factor.

Upon initial analysis, the BeST appears to be a very useful screening tool for early detection of behavioral patterns that are more characteristic of prenatally exposed children than children with other disabilities, specifically ACC, ADHD combined and ADHD hyperactive. The use of such a tool may allow for accurate detection and early intervention of possible behavioral problems that would interfere with a child's education and social development.

Method

Participants

The current sample included 294 participants (141 females, 153 males, mean age = 8.95 years). There were 7 controls (no mental or physical diagnoses ,5 females, 2 males). There were a total of 226 in the ACC group (103 females, 123 males), 152 with a diagnosis of complete ACC, 64 with a diagnosis of partial ACC, and 10 with a diagnosis of hypoplastic ACC. The FASD group consisted of a total of 54 (31 females, 23 males), 38 with the FAS diagnosis and 16 with the FAE label. The FAE category included all participants with confirmed prenatal alcohol exposure without facial characteristics. Post hoc tests supported that there was no significant difference in age between diagnostic groups ($p > .05$).

Materials

Achenbach Behavioral Checklist. There were two behavioral surveys used for this study. The first was the standardized *Achenbach Behavioral Checklist* (2002). All forms consisted of questions asking about various internal and external behaviors that the person may be displaying. The type of survey used depended on the age of each participant.

Behavioral Traits Survey. The BTS consisted of 52 items that are rated on a Likert scale . It was constructed by Ann Waller and Josie DeVries of the Fetal Alcohol Syndrome Family Resource Institute (FAS*FRI). The questions were developed from behaviors directly observed by professionals and caregivers who work with children and adolescents who have been prenatally exposed to alcohol.

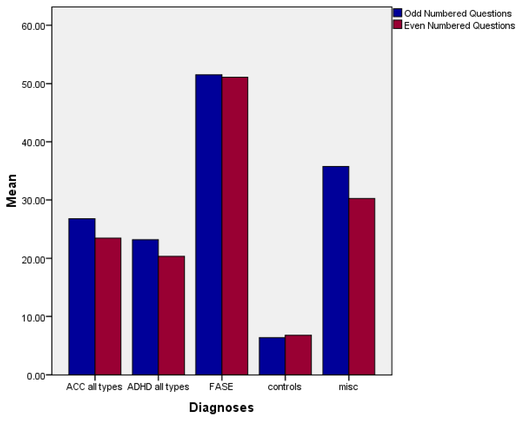
Demographics and Consent. We used a demographic questionnaire in order to obtain diagnostic age, gender, and educational information. Diagnostic categories were targeting to each participant group (i.e. complete ACC or FAS).

FASD BeST Sample Items

4.	Irritable from disrupted sleep	0	1	2	3
5.	Doesn't connect cause and effect (behavior and consequences)	0	1	2	3
6.	More difficult to manage in public than at home	0	1	2	3
7.	Can't easily distinguish between friend or foe	0	1	2	3
8.	Impulsive	0	1	2	3
9.	Unpredictable	0	1	2	3
10.	Engages in dangerous behavior	0	1	2	3
11.	Appears desperate for stimulation and excitement	0	1	2	3
12.	Moral chameleon (excessively vulnerable to peer pressure)	0	1	2	3
13.	Shows anti-social behavior	0	1	2	3
14.	Needs more structure and supervision than peers	0	1	2	3

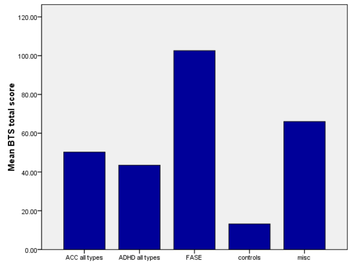
Results

The reliability for the FASD BeST was evaluated using split-half reliability analysis. An odd/even paired sample t-test indicated no significant difference in responses for persons with FAS/E $t(39)=.434$, $p>.05$). Reliability was verified for persons with a diagnosis of ADHD (all types), $t(5)=1.194$, $p>.05$. Persons diagnosed with DCC were variable in the reliability results. A top/bottom split for the group with complete ACC supported reliability ($t(38)=1.31$, $p>.05$) with means of 24.04 (top half) and 22.347 (bottom half). The odd/even split was significantly different ($t(48)=5.596$, $p<.05$) with means of 21.32 (even) and 25.06 (odd). Persons with partial ACC showed an opposite pattern with a significant difference between the top/bottom split ($t(16)=2.358$,$p<.05$) but no significant difference for the odd/even split ($t(16)=1.85$, $p>.05$).



All of the means for non- FASD groups are below the cutoff for possible FAS .

There is no significant difference on the BeST total score between those with a diagnosis of FAS and those with FAE ($t(51)=.626$, $p>.05$). An ANOVA demonstrated a significant difference in total BeST scores between the various diagnoses ($F(4, 387) = 10.952$, $p<.05$). Persons in the control and ADHD groups were significantly lower on the BeST than the other groups. The persons in the ACC groups (all types) were significantly higher than the control group. Those in the FAS/E group had the highest mean which is significantly different than all groups.



Criterion validity was established using the Achenbach behavioral checklists (2002), versions for age groups 1.5-5 and 6-18 and 18-59 years. There is a significant difference in the externalizing T score which parallels the difference in the BeST score totals ($F(4, 151)=22.498$, $p<.05$). The means for the control group was the lowest (48.8), those in the ADHD and ACC groups were slightly higher ($M = 53.79, 54.5$ respectively) and the FAS/E group had the highest mean (70.83).

A factor analysis of the FASD BeST indicated that all 50 core questions load on the first factor with correlation values .5 and greater. The second factor had all but 1 item with correlations less than .5.

Discussion

The purpose of this study was to determine the reliability and validity of the FASD BeST as a screening tool for evaluating whether a person with prenatal exposure to alcohol should undergo further assessment for possible Fetal Alcohol Syndrome. Reliability was demonstrated using a split-half reliability analysis which indicated no significant difference between question groups. Validity was demonstrated using the CBCL and comparing the FASD BeST scores from participants already diagnosed with FAS/E with those with ACC, FASD, and those without a diagnosis. The results of this analysis show that the participants with FAS/E scored significantly higher on the FASD BeST than any of the other groups. Porters and Andrews (2004) suggested a cutoff score of 75 points on the BeST to identify potential FASD. When this measure was used for the current data, there was a hit rate of 78% for the FAS/E group, 100% for controls, 85% for the ACC group, and 100% for ADHD group.