Screening and Early Assessment for FASD: Links to Prevention and Intervention

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Early Diagnosis

- Early diagnosis (< age 6) is a protective factor against adverse outcomes in FASD (Streissguth et al. 1996).

- However, FASD diagnoses in the preschool years can be challenging (McLachlan et al., 2013).
  - Difficult to assess complex cognitive functions
  - Influence of environmental risk factors

Early Assessment

- Association between risk and protective factors (types of services used) with adverse outcomes and mental health diagnoses in FASD/PAE (Rasmussen et al., 2012).
- We found that an ***earlier age of assessment*** was associated with **fewer**:
  - Co-morbid mental health diagnoses
  - Externalizing, internalizing, adaptive skills, and behavior problems on BASC.
  - School Problems

Early Assessment

- Early assessment was associated with fewer adverse outcomes than diagnosis was (FASD vs. PAE) (Rasmussen et al., 2012).
- Need for early functional assessments
  - Screening

Screening for FASD

- The Public Health Agency of Canada (PHAC) has published a National Screening Tool Kit for FASD (CAPHC, 2012):

  - Meconium Screening
  - The Youth Justice Screening Tool
  - Maternal Drinking Guide
  - Medicine Wheel Screening Tool
  - The Neurobehavioral Screening Tool (NST)

The NST

- Created by Nash et al. (2006) at Motherisk in Toronto, Ontario.
- Parental Report questionnaire
- Based on the Child Behaviour Checklist (CBCL)
- Focuses on 10 key items found to be predicative of FASD such as:
  - Lack of guilt, acts young, restless,

1. Has your child been seen or accused of or thought to have acted too young for his or her age?	YES	NO
2. Has your child been seen or accused of or is thought to be disobedient at home?	YES	NO
3. Has your child been seen or accused of or is thought to lie or cheat?	YES	NO
4. Has your child been seen or accused of or is thought to lack guilt after misbehaving?	YES	NO
5. Has your child been seen or accused of or thought to have difficulty concentrating, and can't pay attention for long?	YES	NO
6. Has your child been seen or accused of or is thought to act impulsively and without thinking?	YES	NO
7. Has your child been seen or accused of or is thought to have difficulty sitting still is restless or hyperactive?	YES	NO
8. Has your child been seen or accused of or is thought to display acts of cruelty, bullying or meanness to others?	YES	NO
9. Has your child been seen or accused of or is thought to steal items from home?	YES	NO
10. Has your child been seen or accused of or is thought to steal items outside of the home?	YES	NO

Objective

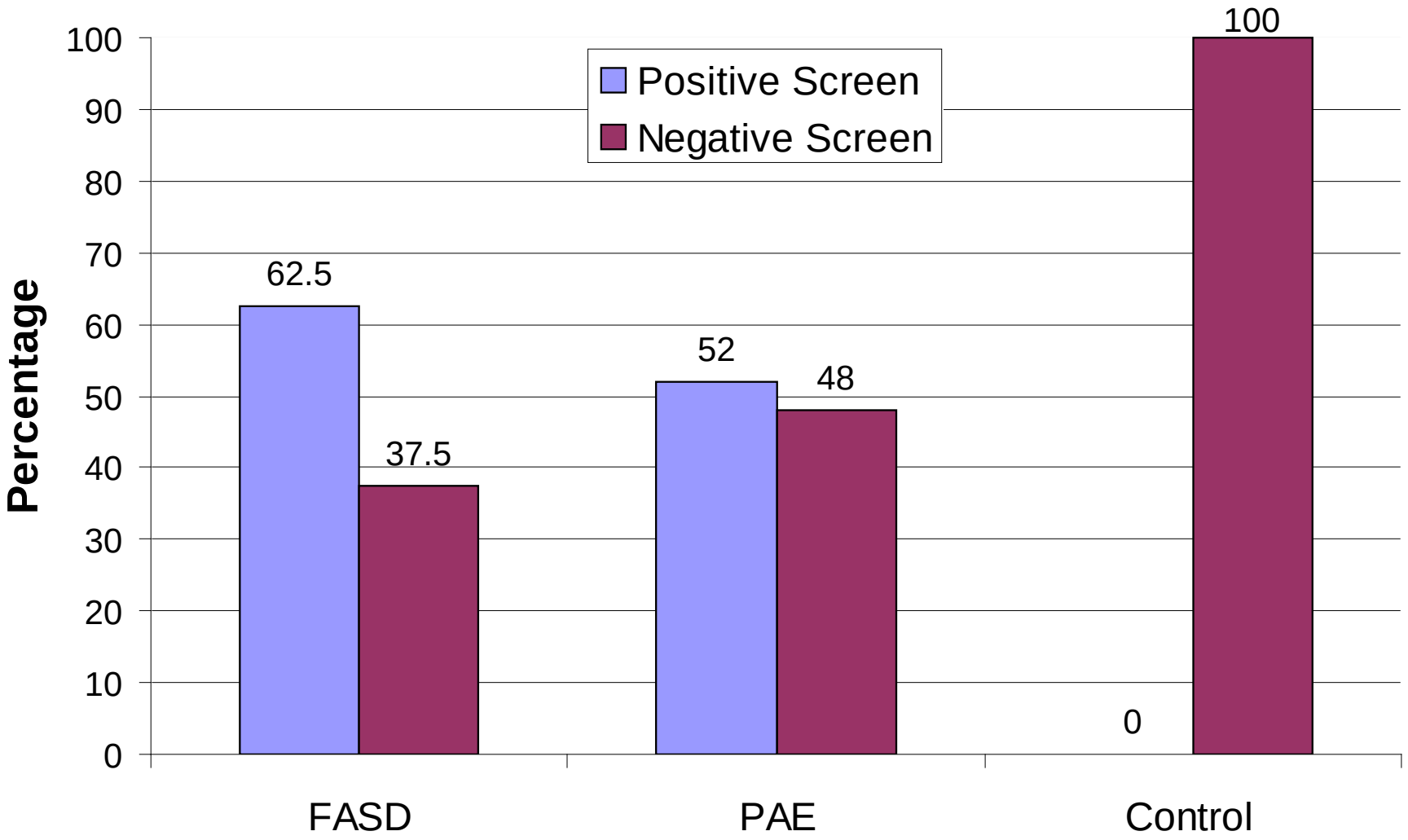
- To determine whether the NST is able to differentiate between:
  - Children diagnosed with an FASD
  - Children with confirmed Prenatal Alcohol Exposure (PAE) but no FASD diagnosis
  - Typically Developing Controls (TDC)

PARTICIPANTS

Demographic Characteristic	FASD n= 48	PAE n=25	Control n= 32	*p*-value
Sex (% Female)	56.3%	40.0%	68.8%	0.098 (ns)[a]
Mean Age (range)	12 yrs, 2m (6-17)	11 yrs, 5m (7-17)	12 yrs, 0m (6-17)	0.596 (ns)[b]
Current Living Arrangement:				0.000[a*]
Biological Parent	20.8%	12.0%	96.9%	
Non-Biological Parent	79.2%	88.0%	3.1%	
Mean Number of Living Situations (range)	3.6 (1-9)	3.4 (1-10)	1.16 (1-3)	0.000[b*]
Mean SES (SD)	34.5 (14.3)	38.8(14.4)	44.3(10.9)	0.007[b*]

Note. SES as determined by Hollingshead's Four-Factor Index of Social Status. SES, education, and income information obtained from current caregivers.
[a]Analyzed by chi-square analysis; [b]analyzed by ANOVA.

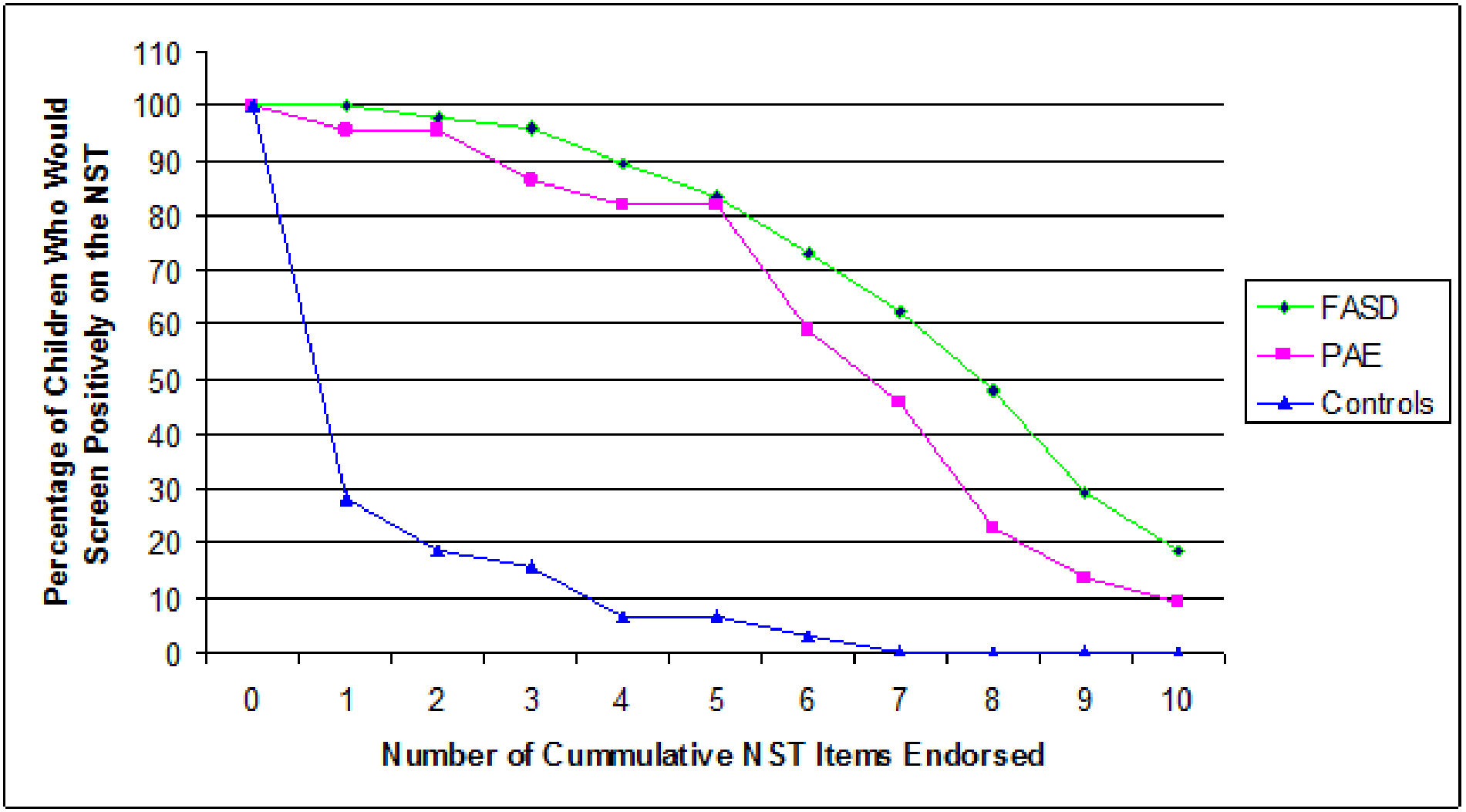
RESULTS



- The overall *sensitivity* of the NST was 62.5% and the *specificity* was 100%.

Question	Percentages			p-value (* < 0.01)		
	FASD	PAE	Controls	FASD vs Controls	FASD vs PAE	PAE vs Controls
1. Acted too young for his or her age	72.9	72.0	3.1	0.000*	0.934	0.000*
2. Disobedient at home	81.3	84.0	6.3	0.000*	0.771	0.000*
3. Lie or cheat	72.9	80.0	18.8	0.000*	0.505	0.000*
4. Lack guilt after misbehaving	70.8	40.0	0	0.000*	0.011	0.000*
5. Difficulty concentrating and can't pay attention	91.7	88.0	12.5	0.000*	0.614	0.000*
6. Act impulsively and without thinking	91.7	92.0	18.8	0.000*	0.961	0.000*
7. Difficulty sitting still is restless or hyperactive	85.4	68.0	6.3	0.000*	0.081	0.000*
8. Display acts of cruelty, bullying or meanness to others	47.9	40.0	12.5	0.001*	0.519	0.017
9. Steal items from	41.7	32.0	3.1	0.000*	0.420	0.003*

Percentage of children screening positive on the NST based on number of cumulative items endorsed.



Discussion

- Our findings are similar to previous reports with good sensitivity and specificity.
- It is possible that some children in the PAE group are indeed on the FASD spectrum.
- What about sensitivity against other neurodevelopmental populations?

Prospective study

- Funding from CFFAR

Specific Objectives:

1. Examine the NST in the ***screening*** of FASD at a hospital FASD diagnostic clinic.
2. Compare to children with other neurodevelopmental diagnoses.
3. Whether the NST correlates with results of neurobehavioral testing conducted during the FASD assessment.

Method

- The NST completed by caregivers of 4 groups of children (~40 per group)
  - Aged 6 to 16 years

FASD referrals → **1. FASD Diagnosis**

FASD referrals → **2. PAE No Diagnosis**

3. **Clinical controls**: Neurodevelopment clinic

4. **Healthy controls**

SIGNIFICANCE

- First prospective data on the utility of the NST in the ***screening*** of FASD.
- Provide novel information on how this screening tool correlates with specific FASD diagnostic results.
- Specificity against other neurodevelopmental populations

Conclusions

- **Screening** and **early assessment** of FASD are important for:
  - Preventing further FASD births
  - Linking individuals with appropriate services and resources
  - Preventing further harm from prenatal alcohol exposure and adverse outcomes

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Thank You!

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