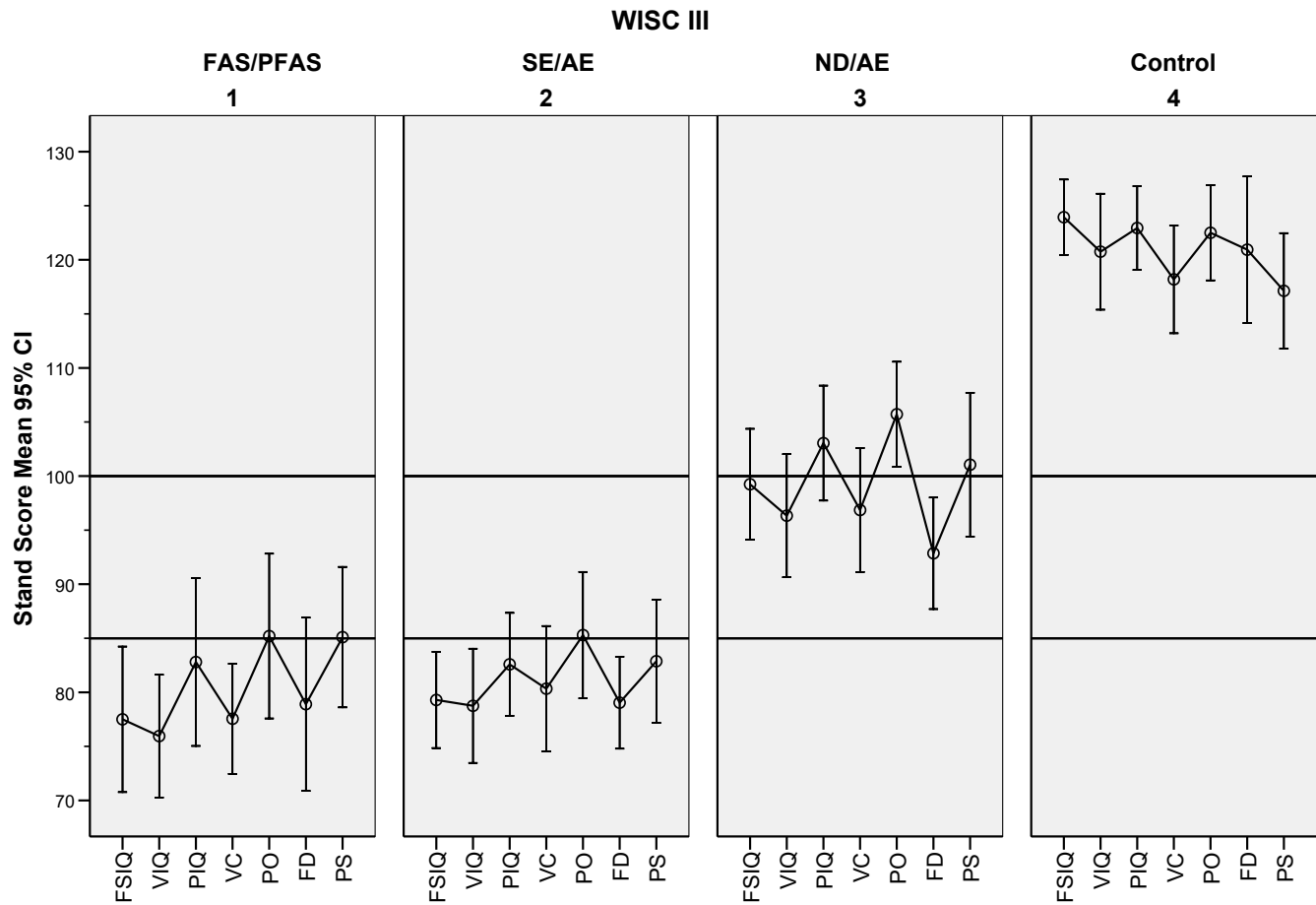


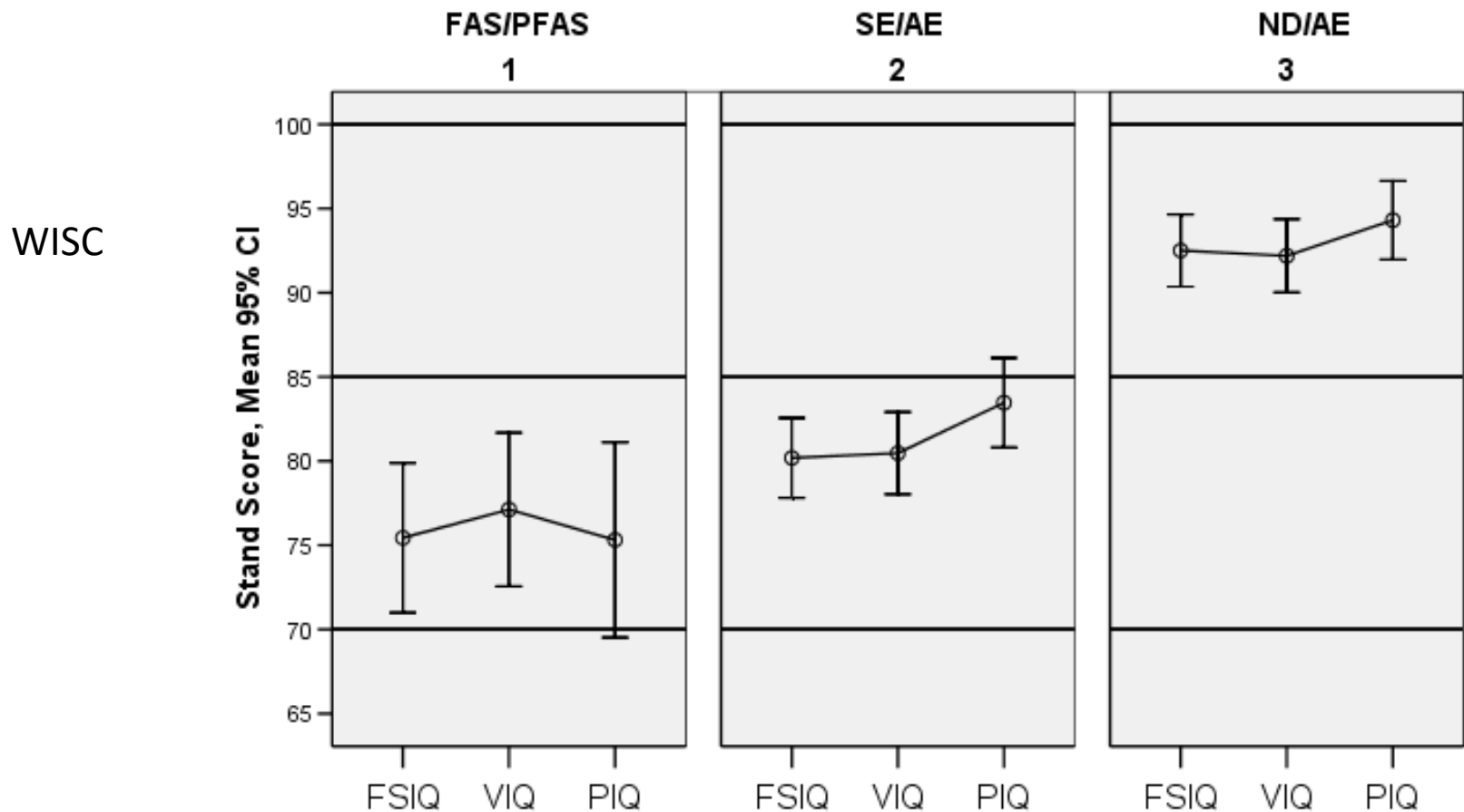
Cognitive/Behavioral Profiles of FASD: MRI Study

WISC III



Cognitive/Behavioral Profiles of FASD: Clinic Sample

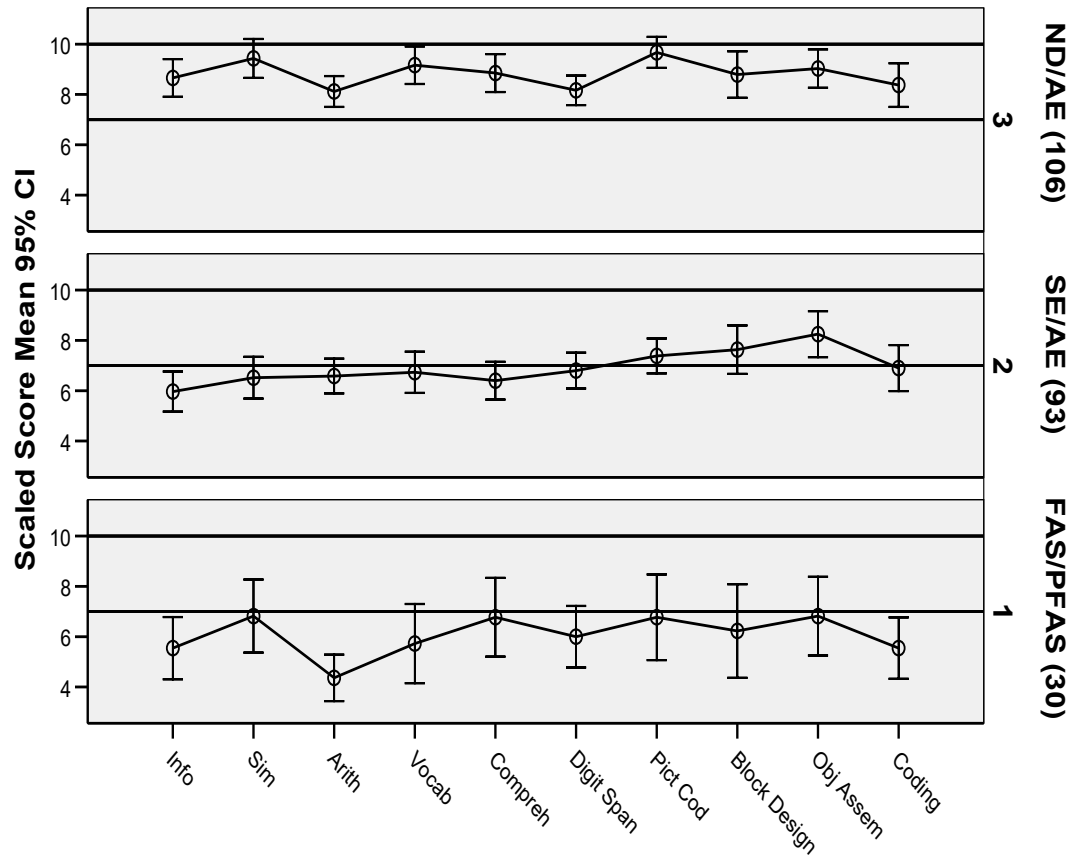
WISC Clinic Sample (8-15.9 yr)



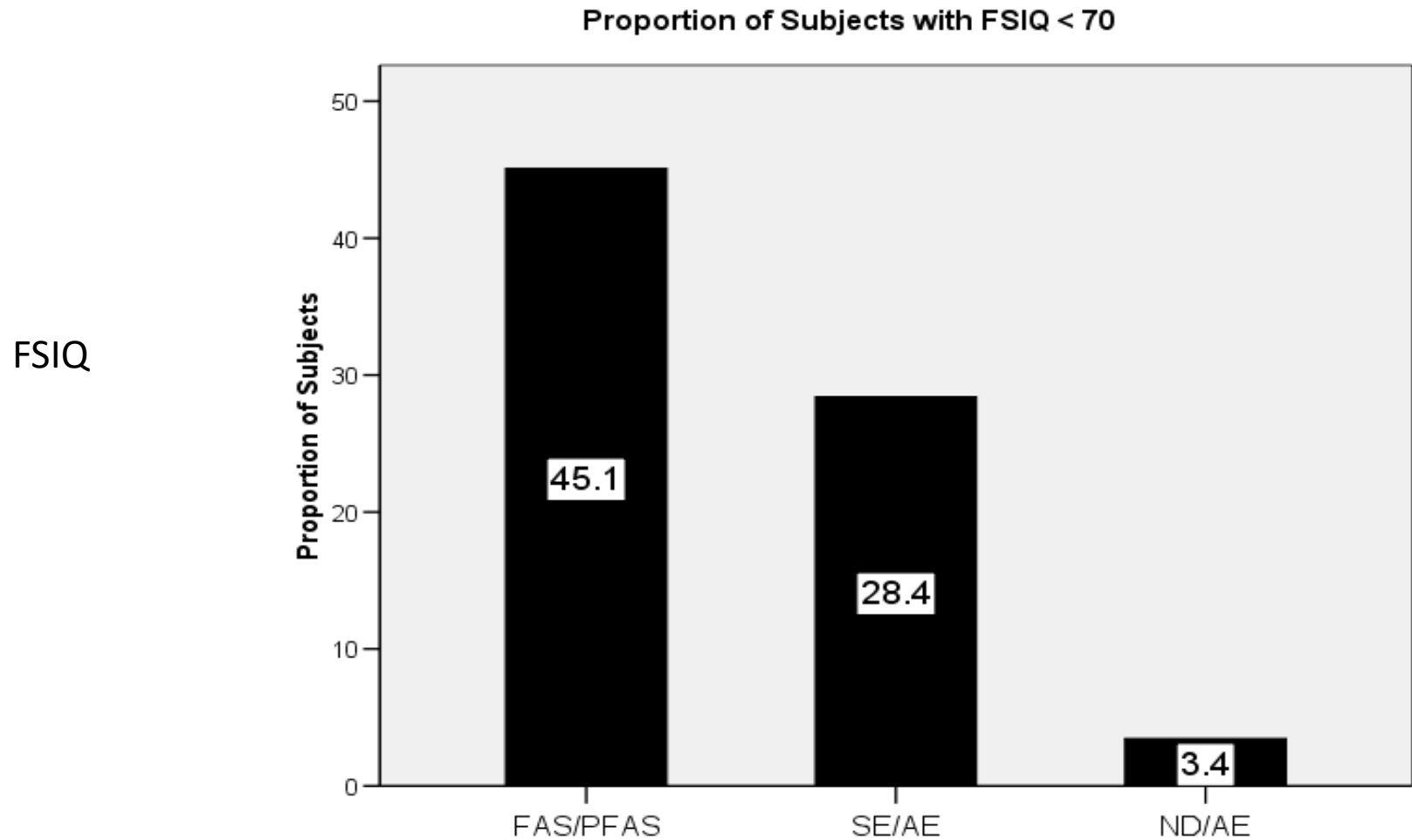
Cognitive/Behavioral Profiles of FASD: Clinic Sample

WISC: Clinic Sample (8-15.9 yrs)

WISC

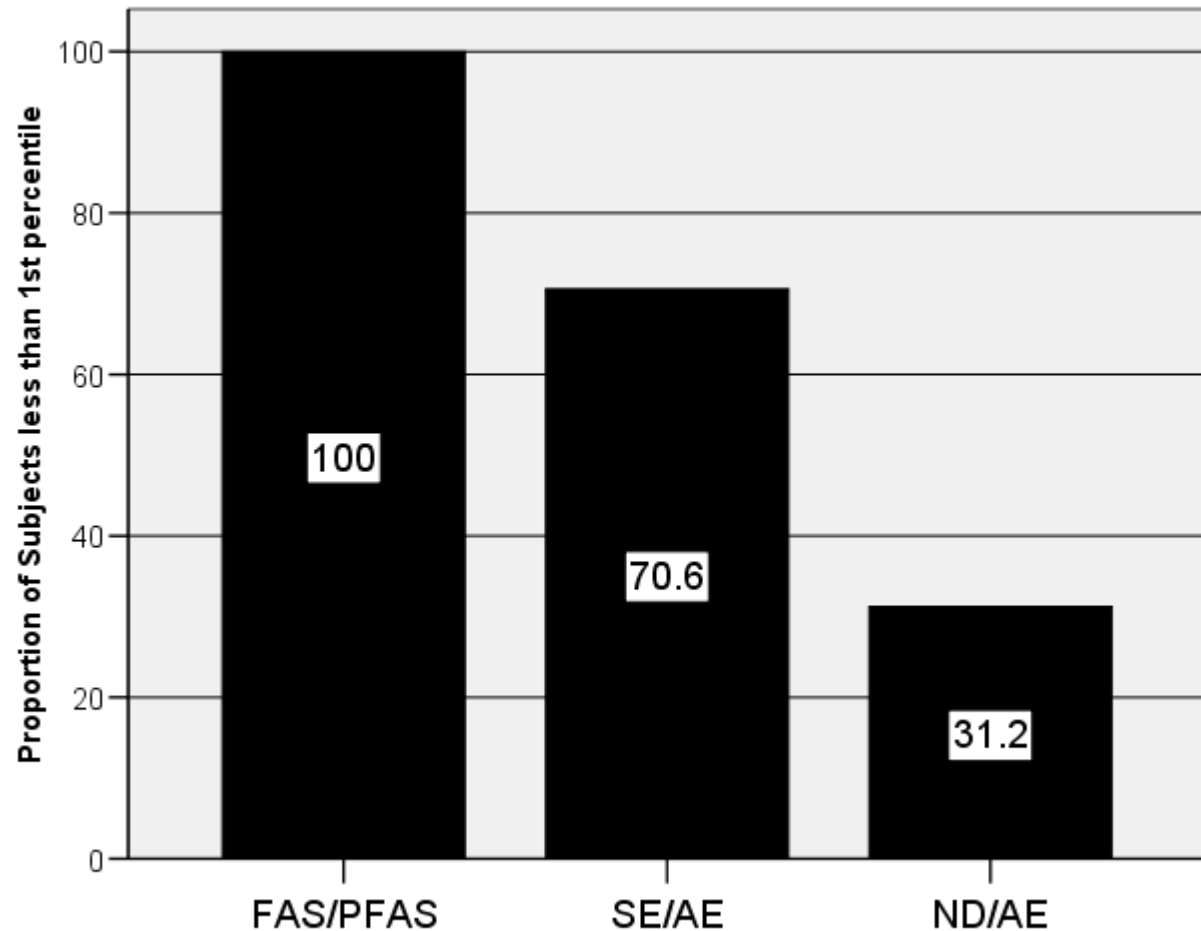


Cognitive/Behavioral Profiles of FASD: Clinic Sample



Cognitive/Behavioral Profiles of FASD: Clinic Sample

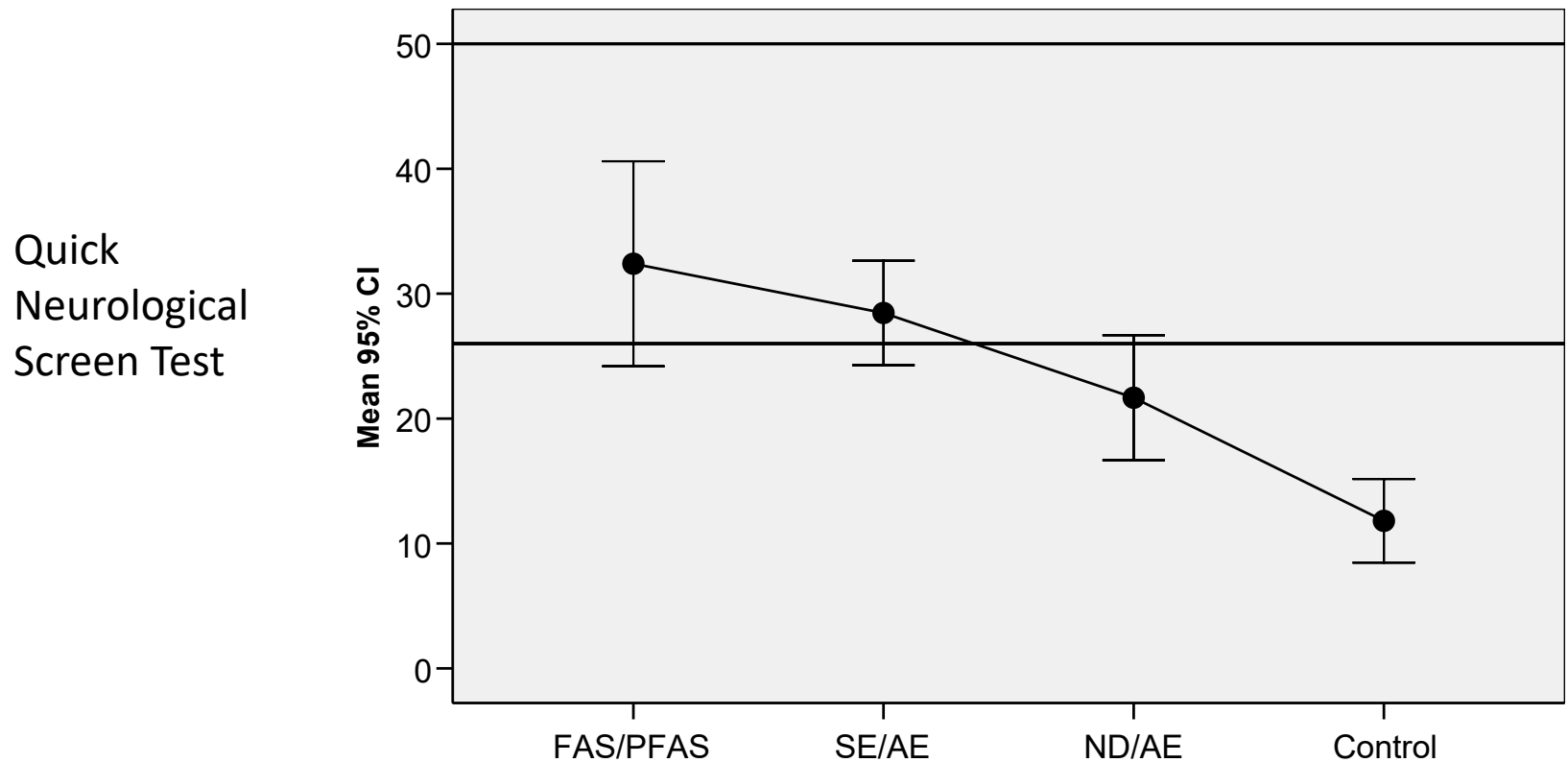
RCFT: Copy (Clinic Sample)



Rey
Complex
Figure
Test

Cognitive/Behavioral Profiles of FASD: MRI Study

QNST Total Score (26-50 borderline, >50 clinical)

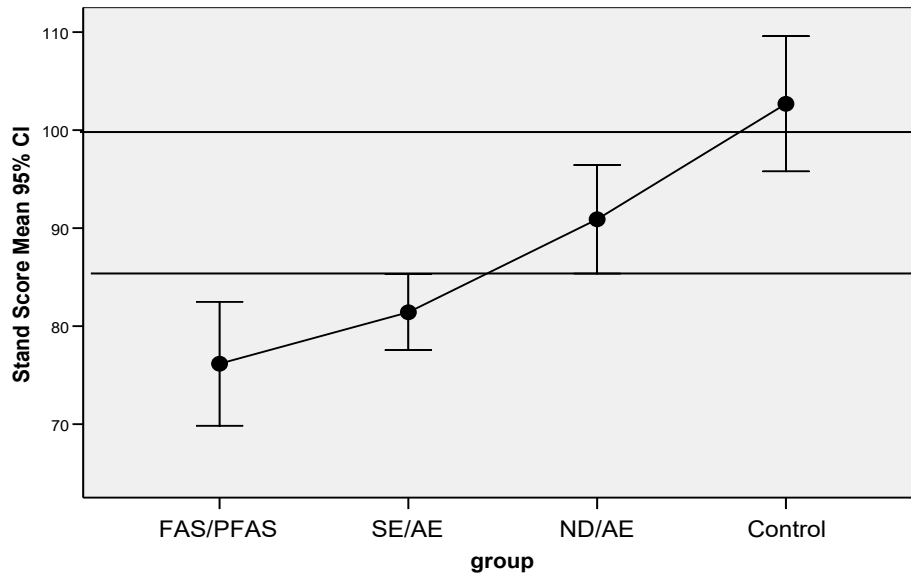


Cognitive/Behavioral Profiles of FASD

Visual Motor Integration

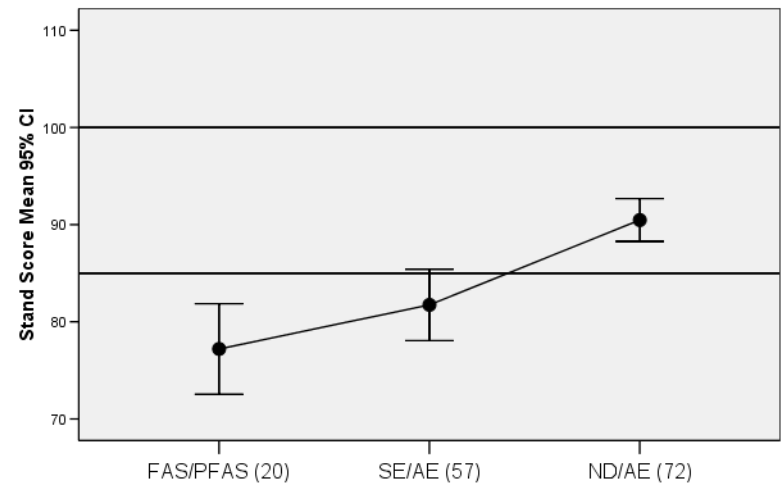
MRI Study

VMI

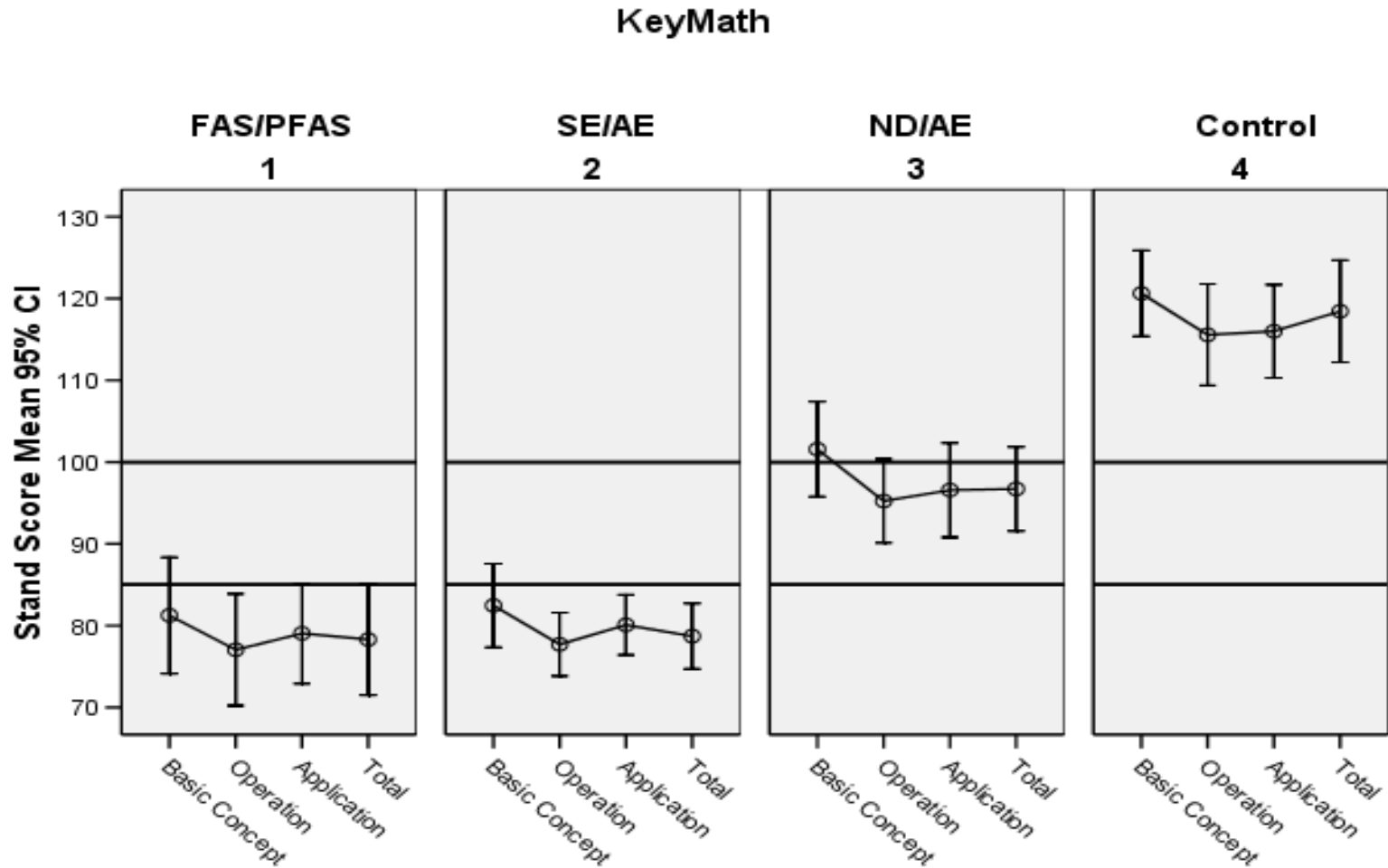


Clinic Sample

VMI: Clinic Sample

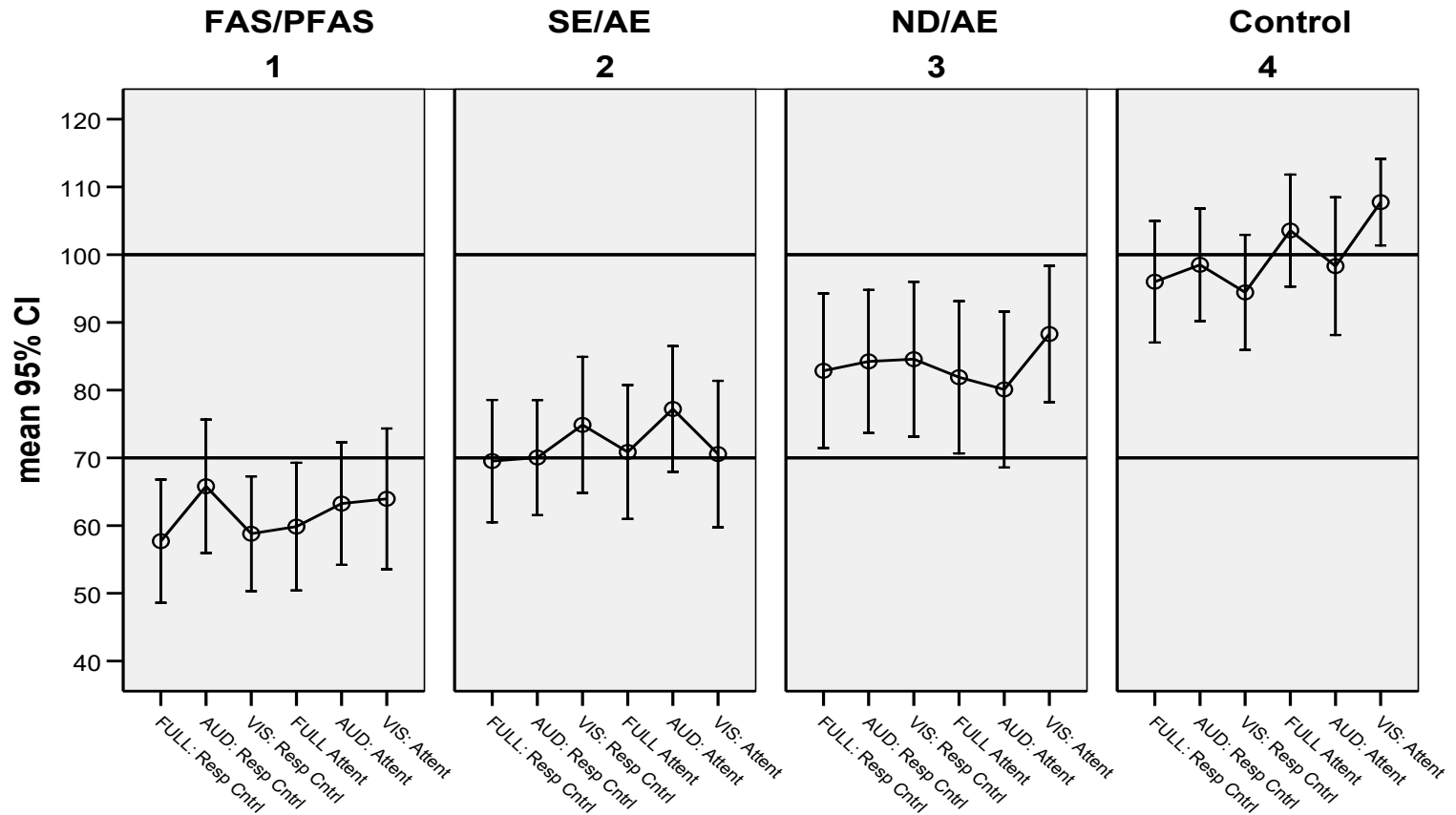


Cognitive/Behavioral Profiles of FASD: MRI Study



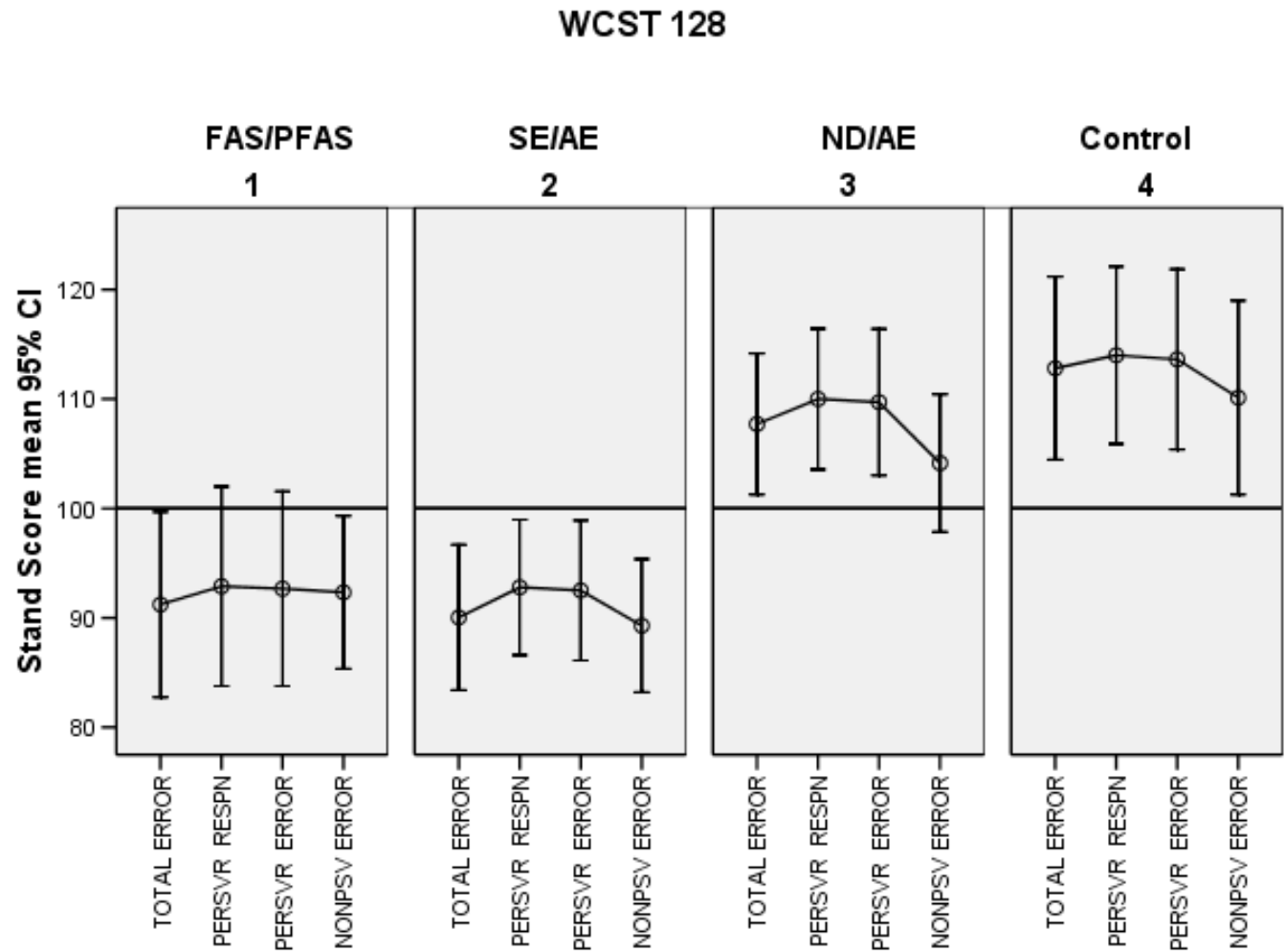
Cognitive/Behavioral Profiles of FASD: MRI Study

IVA: Auditory and Visual, Attention and Response Control Quotients



Cognitive/Behavioral Profiles of FASD: MRI Study

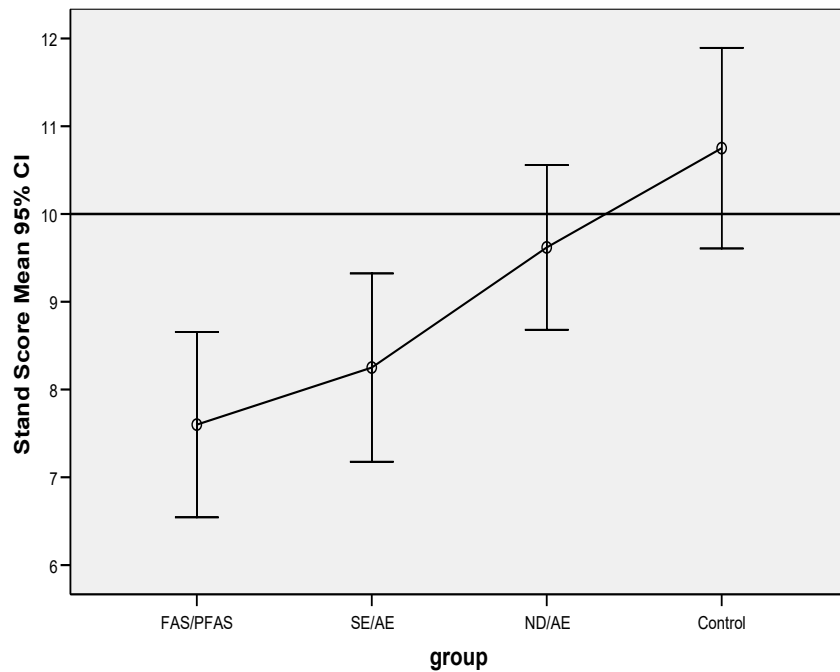
Wisconsin
Card Sort
Test



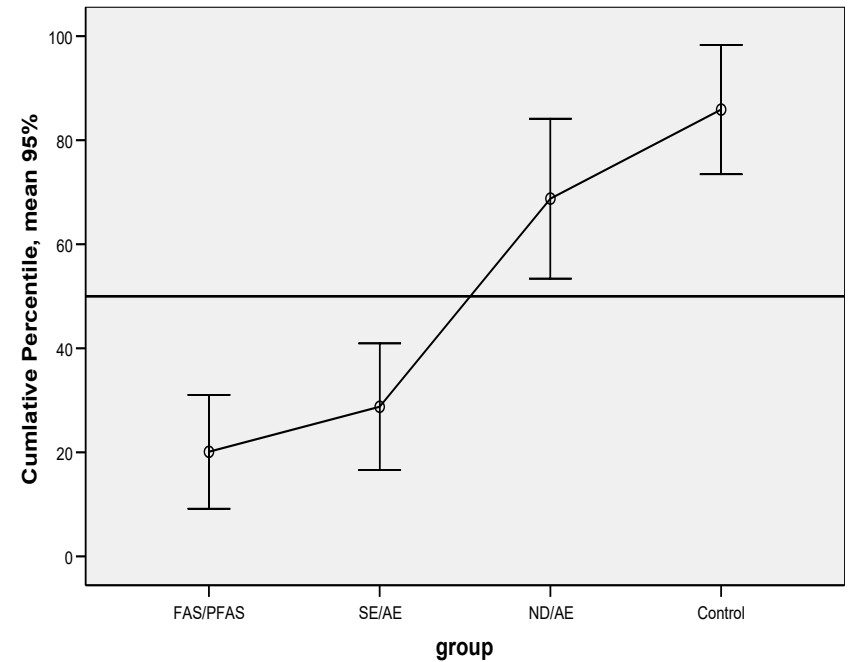
Cognitive/Behavioral Profiles of FASD: MRI Study

Delis-Kaplan Executive Function System: Tower Test

DKEF Tower: Total Achievement (dk54)



DKEF Tower: Total Rule Violations (dk55)



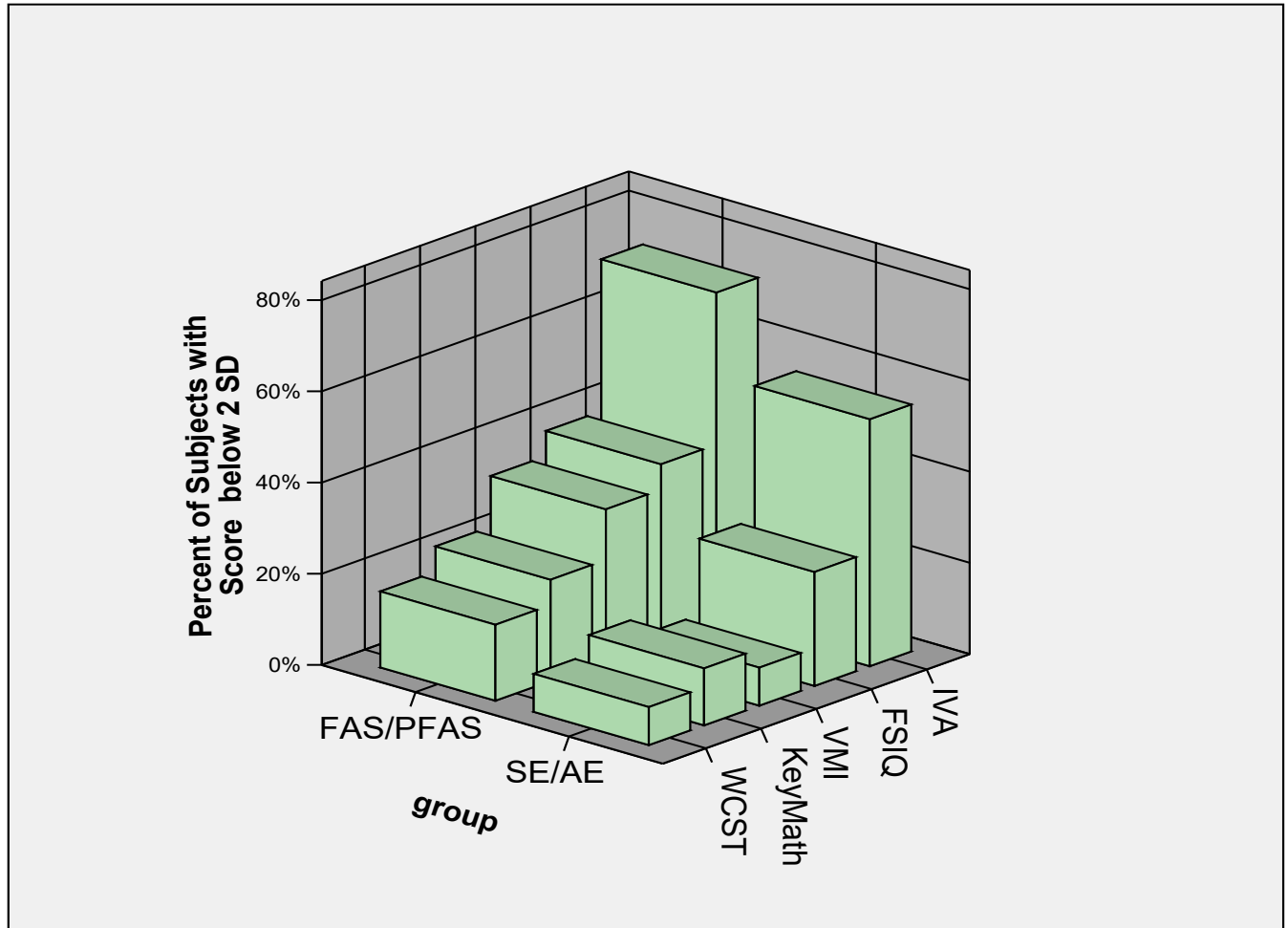
Significant Differences between FAS/PFAS and SE/AE

	FAS/PFAS	SE/AE
FAS Face	Yes	No
Alcohol: More days/week	6 days / week	4 days / week
Alcohol: All 3 trimesters	77%	59%
Smaller OFC	30 th percentile	43 rd percentile
Microcephalic	49% of subjects	27% of subjects
Frontal lobe	Disproportionately smaller	
Choline: Frontal/Parietal	Significantly lower	
WISC PIQ	76	82
WISC Arith	4	6
WISC mazes	2.8	6.5
Key Math estimation	5	6.4
VMI	77	89
RCFT Copy (raw)	11	18
IVA Full Response Quot.	58	70

Significant Differences between FAS/PFAS and SE/AE

Percent of Subjects with Scores below 2 SDs

MRI Study

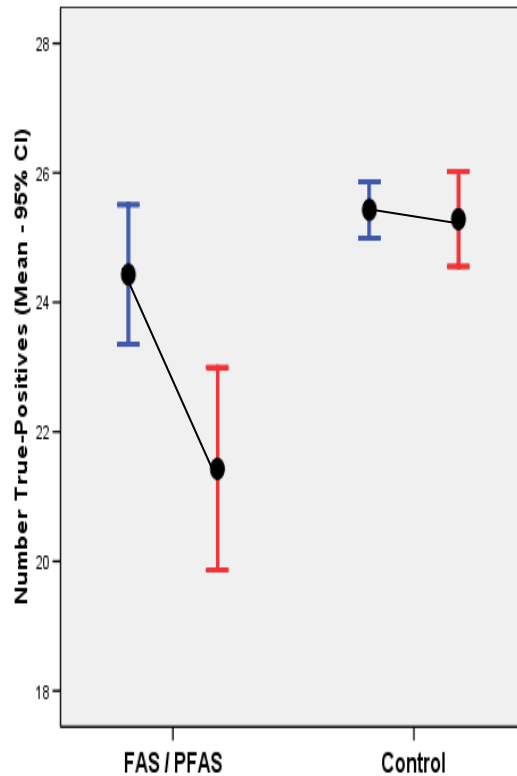


MRI Study: Proportion of subjects with scores 2 SDs below the mean

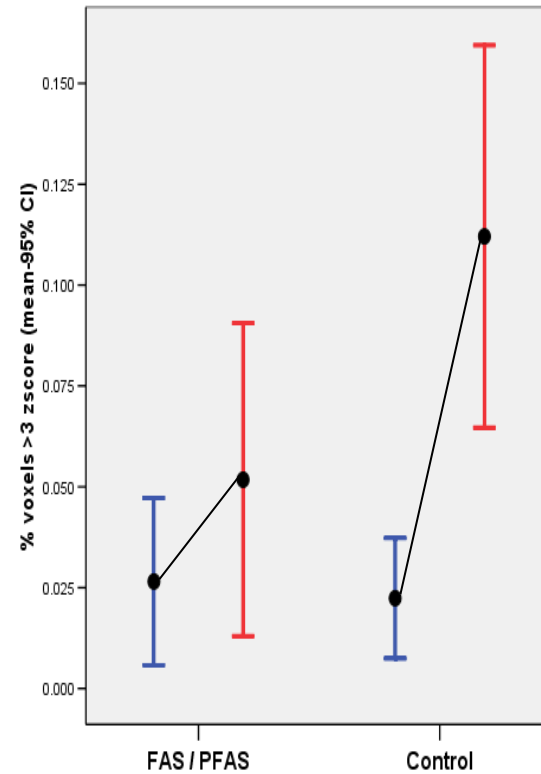
Selected Psychological Outcomes	FAS/PFAS	SE/AE	ND/AE	Control
WISC FSIQ	20	25	0	0
WIAT Basic Reading	5	21	5	0
Key Math	20	13	0	0
VMI	33	8	0	0
Rey Complex Figure Test Copy	85	88	48	0
Rey Delayed Recall	55	54	29	0
D-KEFS: Tower, Total Rule Violation	25	21	0	0
CVLT-C, Total Trials # Correct	50	63	14	0
IVA Continuous Performance Test	75	54	29	0
TOWK: Conjunctions & Transitions	43	39	7	0
Vineland Adaptive Behavior, Composite	75	83	67	6
CBCL: Internalizing Problems	60	46	38	0
BRIEF: Gen Executive Composite	85	92	76	0
ADHD	63	71	67	0

fMRI: Activation and Working Memory

Number of Correct Responses on N-Back



Level of Activation in Dorsolateral Prefrontal



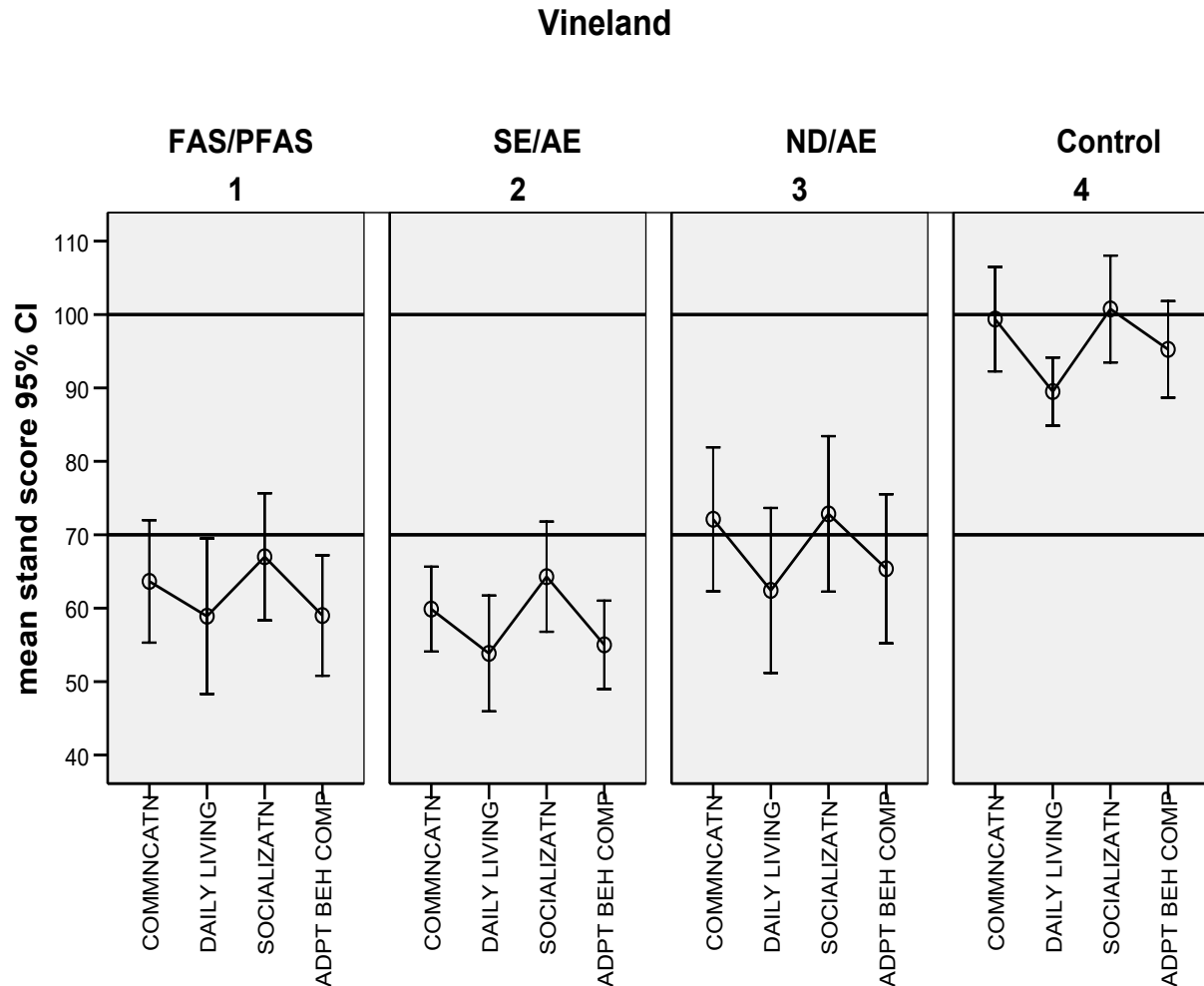
Key:

1-Back
(simple
task)

2-Back
(difficult
task)

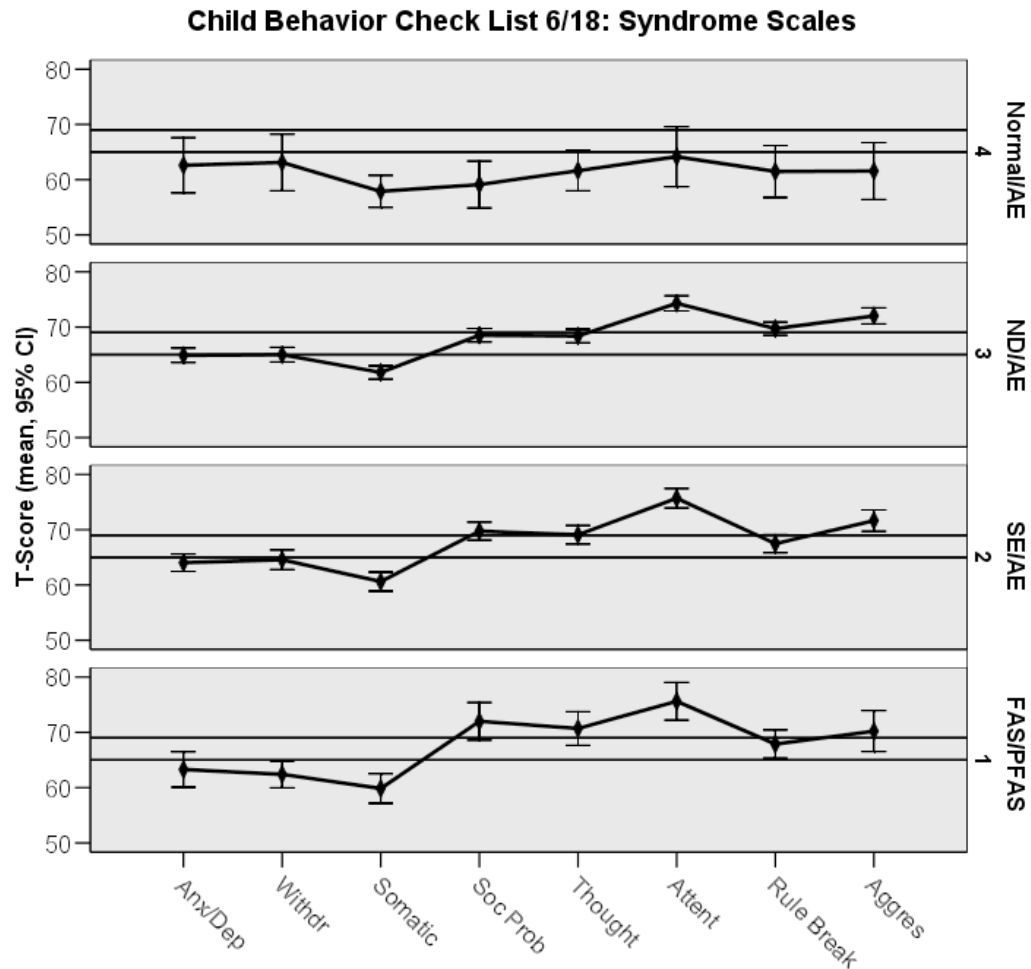
Cognitive/Behavioral Profiles of FASD: MRI Study

Vineland
Adaptive
Behavior
Scales



Parent's Report of Child's Behavior: CBCL

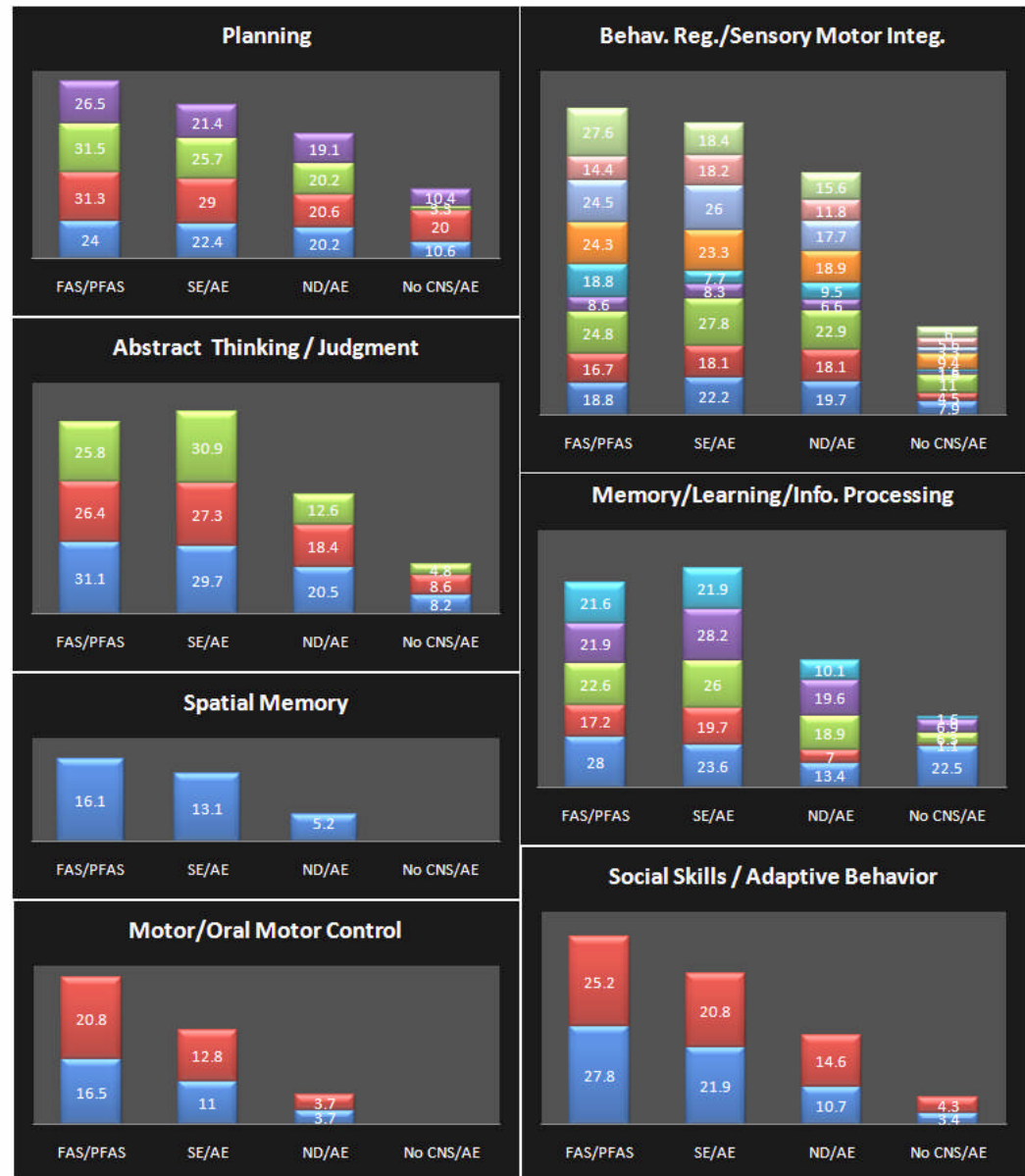
No difference between FASD groups
among FAS DPN clinical population 6-18 years of age.



Parent's Report of Child's Behavior via Parent Interview with Psychologist and MD

Note: this is before parent and clinicians know the child's FASD diagnostic outcome.

In contrast to CBCL, differences do exist between FASD groups



Prevalence of other Mental Health Disorders

Among the 1,064 FAS DPN patients 5 years of age or older:

- 82% had one or more MH disorders.
- 54% had ADD/ADHD

documented in their records.

MRIS Study				
Using Computerized-Diagnostic Interview Schedule for Children				
Proportion of Subjects with the Condition				
Condition	FAS/PFAS	SE/AE	ND/AE	Control
	N=20	N=24	N=21	N=16
AD/HD	63	71	67	0
ODD	47	58	52	13
CD	37	21	48	0
Generalized Anxiety	21	8	5	0
Separation Anxiety	16	8	14	0
OCD	11	4	14	0
PTSD	11	4	0	0
Social Phobia	11	4	10	0
Maj Depress / Dysthymic	5	8	5	0
Mania / Hypomania	5	0	0	0
Schizophrenia	5	0	0	0
Panic	0	0	5	0

Patient Satisfaction with Interdisciplinary FASD Evaluation Procedure in Seattle FAS DPN Clinic.

- 99% would recommend clinic to other families.
- 91% received information they were unable to obtain elsewhere.
- 86% found explanation of 4-Digit Code easy to understand.
- 82% were somewhat to very successful in finding recommended intervention services.
- 84% reported these services met some to all of their needs.
- Family's whose child received a diagnosis of SE/AE or ND/AE **were as likely** to report successfully accessing and benefiting from recommended intervention services as family's whose child received a diagnosis of FAS/PFAS.

WA State FAS DPN Patient Profile (n = 1,400)

- **In summary**, the existence of the WA FAS DPN diagnostic program and electronic database over the past 18 years confirms it is possible to establish and maintain a comprehensive statewide FASD diagnostic program and dataset.
- As demonstrated in this report, a broad array of clinical, research, and public health questions can be addressed with a FASD clinical dataset.

References

- Astley SJ. Profile of the first 1,400 patients receiving diagnostic evaluations for fetal alcohol spectrum disorder at the WA State Fetal Alcohol Syndrome Diagnostic & Prevention Network. *Can J Clin Pharmacol* .Vol 17(1) Winter 2010:e132-e164; March 26, 2010.
- Astley et al., Neuropsychological and behavioral outcomes from a comprehensive magnetic resonance study of children with FASD, *Canadian J Clinical Pharmacology*, 2009;16(1):e178-201.
- Astley et al., MRI outcomes from a comprehensive magnetic resonance study of children with FASD, *Alcoholism: Clinical Experimental Research* 2009;33(10).
- Astley et al., MRS outcomes from a comprehensive magnetic resonance study of children with FASD, *Magnetic Resonance Imaging Magnetic Resonance Imaging*, 2009;27:760-778.
- Astley et al., fMRI outcomes from a comprehensive magnetic resonance study of children with FASD, *J Neurodevelopmental Disorder* 2009;1:61-80.
- Astley SJ. *Diagnostic Guide for Fetal Alcohol Spectrum Disorders: The 4-Digit Diagnostic Code*, 3rd edition, University of Washington Publication Services, Seattle WA, 2004.
- Astley SJ. Graphic cognitive/behavioral/psychiatric profiles of FASD. Slide show presented to NIAAA/CDC in 2009.

All literature referenced in this presentation can be obtained at the following weblinks:
www.fasdpn.org/htmls/literature.htm
www.fasdpn.org/pdfs/astley-graphicprofile-2009secure.pdf