

# Predictors of Independence, Functional and Adaptive Skills in Adolescents and Adults with Fragile X Syndrome



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# Adaptive Behavior

- \* An individual's ability to demonstrate effective and appropriate interactions with his or her environment
- \* Trajectory in FXS
  - \* Reports of plateau or decline with increasing age
  - \* Unable to keep pace with typically developing peers (as opposed to actually losing skill)
  - \* Childhood is critical

# Aberrant Behavior

- \* Individuals with FXS may display problem behavior similar to individuals with autism, and often are diagnosed as such.
- \* Social withdrawal is one of the most prominent aberrant behaviors associated with FXS.
  - \* Seeking isolation or solitary activities, resistance or negative reaction to physical contact, and averted eye gaze

# Aberrant Behavior

- \* Promising new research:
  - \* Seemingly inevitable syndrome-specific behavior (like social withdrawal) might be amenable to intervention
  - \* Example: Hall, Maynes, & Reiss, 2009
    - \* Shaped increased durations of eye contact in 5 out of 6 individuals with FXS using a reinforcement procedure
  - \* Emphasis on early detection and intervention

# Adult Life in FXS

- \* Bailey et al., 2009
  - \* Characteristics associated with functional skills:
    - \* Overall thinking, reasoning, and learning ability
    - \* Adaptability
    - \* Ability to pay attention
    - \* Total number of co-occurring conditions
  
- \* Hartley et al., 2011
  - \* Strongest correlates of independence:
    - \* Level of functional skills (adaptive behavior)
    - \* Ability to interact appropriately
    - \* Autistic symptoms

# Current Study

- \* 59 individuals with fragile X syndrome
  - \* 36 males, 23 females
- \* Participants seen at two points in time:
  - \* Time one: **childhood/early adolescence**
  - \* Time two: **late adolescence/young adulthood**

# Current Study

- \* Time 1 (T1):
  - \* Participants aged 6 to 15 years  
(mean = 11.7 for males, 11.9 for females)
  - \* Adaptive skills and aberrant behavior assessed
  
- \* Time 2 (T2):
  - \* Participants aged 16 to 26 years  
(mean = 20.4 for males, 20.5 females)
  - \* Independent, adaptive, and functional academic skills assessed

# Measures

- \* Vineland Adaptive Behavior Scales (VABS) First and Second Editions
- \* Aberrant Behavior Checklist-Community (ABC-C)
- \* Independent Living Scales (ILS)
- \* Kaufman Functional Academics Skills Test (KFAST)



# Vineland Adaptive Behavior Scales (VABS)

- \* Widely used caregiver interview
- \* Measures social and personal sufficiency
- \* Comprised of questions relating to competency in:
  - \* Communication
    - \* Receptive, expressive, and written
  - \* Daily Living Skills
    - \* Personal, domestic, and community
  - \* Socialization
    - \* Interpersonal relationships, play and leisure time, and coping skills

# Aberrant Behavior Checklist-Community (ABC-C)

- \* 58-item questionnaire
- \* Five problem behavior factors:
  - \* Irritability/Agitation/Crying
  - \* **Lethargy/Social Withdrawal**
  - \* Stereotypic Behavior
  - \* Hyperactivity/Noncompliance
  - \* Inappropriate Speech

# Independent Living Scales (ILS)

- \* 70 items across five subscales:
  - \* memory/orientation
  - \* money management
  - \* managing a home and transportation
  - \* health and safety
  - \* social adjustment
  
- \* "What is your address?" "Why is it important to pay your bills?" "What information can you get from a bus schedule" etc.
  
- \* Demonstrate the use of a telephone, count change, address an envelope, write out checks, etc.

# Kaufman Functional Academics Skills Test (KFAST)

- \* Two domains:
  - \* Functional Reading
    - \* Interpreting rebuses, abbreviations, or words, phrases, sentences, and paragraphs that are seen frequently in commonplace situations
  - \* Functional Mathematics
    - \* Counting coins, using maps, telling time, etc.

# Procedure

- \* Statistical Analysis
  - \* Raw scores used to circumvent floor effects
    - \* Age did not account for a significant amount of the variance in scores on the ILS and KFAST ( $R^2 < .2$ )
  - \* Simple regression (correlation) analyses conducted
    - \* Examined the relationship between T1 variables and T2 variables

# Results

- \* **Females obtained significantly higher scores than males on all outcomes across all domains**
- \* Higher levels of adaptive skills in childhood predicted of higher levels of independent living skills and functional academic skills in late adolescence/adulthood
- \* Higher levels of social withdrawal in childhood predicted lower levels of adaptive skills in late adolescence/adulthood

Raw scores on the Independent Living Scales Assessment (ILS)

Subscale (*max)	Male N=36		Female N=23		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Memory and Orientation (16)	8.75	4.345	14	1.689	5.523	<.001
Managing Money (34)	5.94	4.763	19.04	10.052	6.745	<.001
Managing a Home and Transportation (30)	11.06	4.951	22.52	6.875	7.445	<.001
Health and Safety (40)	14.44	6.975	28.74	7.3	7.54	<.001
Social Adjustment (20)	13.42	3.138	16.39	3.34	3.463	0.001
<b>Factor</b>						
Problem Solving (66)	22.39	10.808	46.13	14.121	7.294	<.001
Performance/Information (42)	11.33	6.306	28.13	9.042	8.411	<.001
<b>Raw Total Score (140)</b>	<b>53.61</b>	20.19	<b>100.7</b>	26.102	7.786	<.001

\*maximum points possible per subtest

Raw scores on the Kaufman Functional Academic Skills Test (KFAST)

Subscale (*max)	Male N=36		Female N=23		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Reading (29)	5.83	4.954	15.39	6.148	6.575	<.001
Arithmetic (25)	1.91	1.687	8.83	6.8	5.893	<.001
<b>Raw Total Score (54)</b>	<b>7.69</b>	6.224	<b>24.22</b>	12.548	6.731	<.001

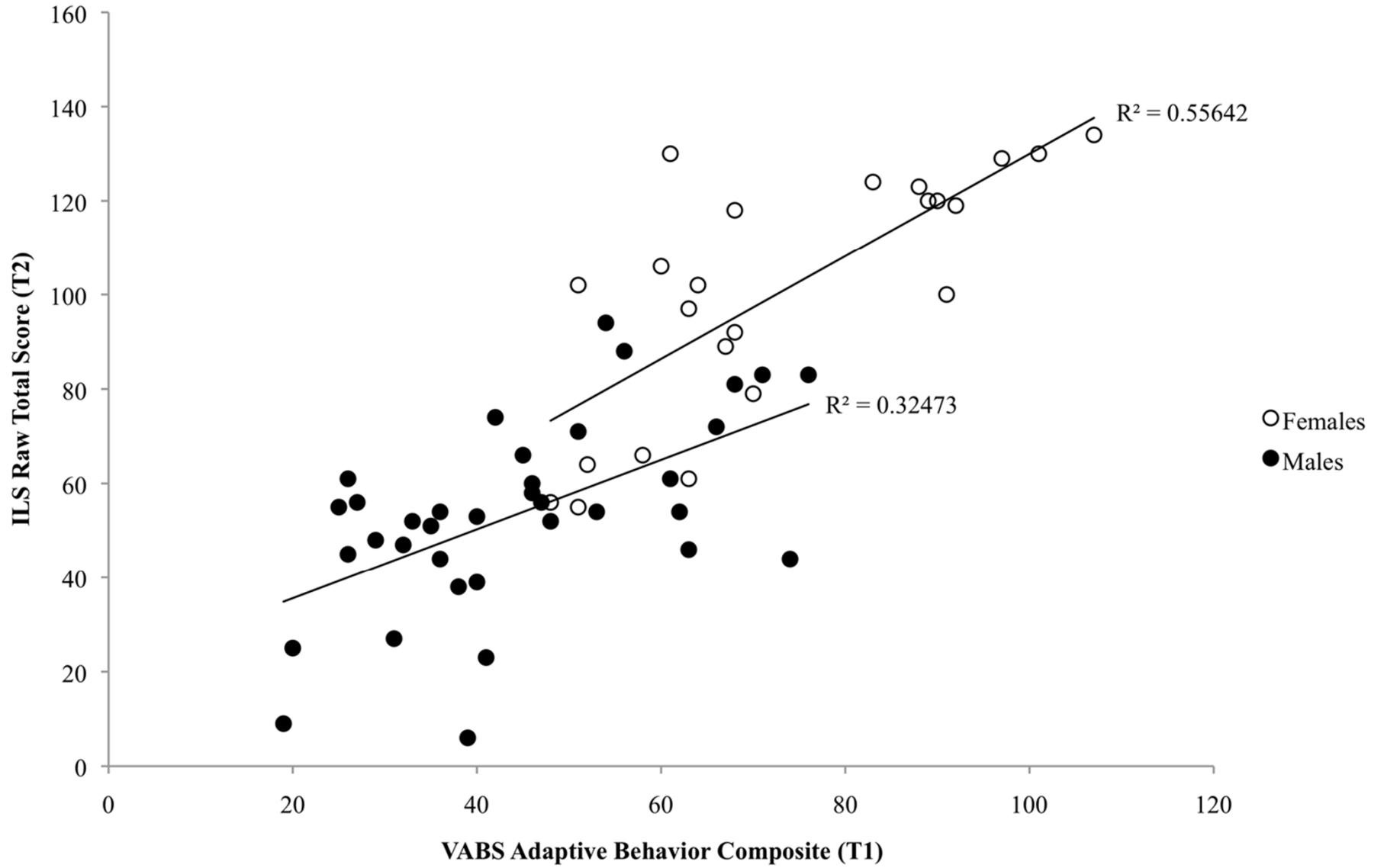
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# Results

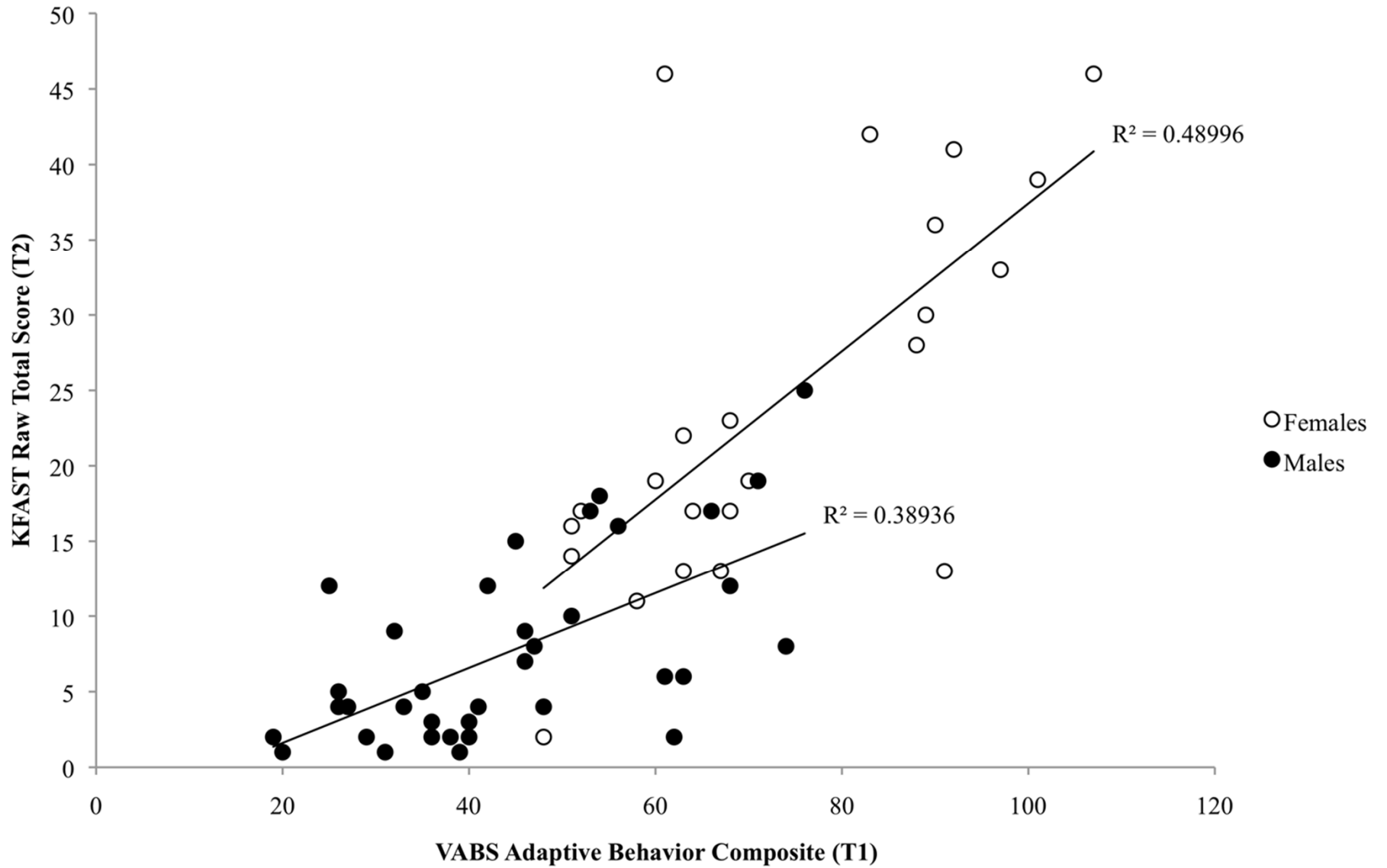
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### Independent Living Skills and Adaptive Skills



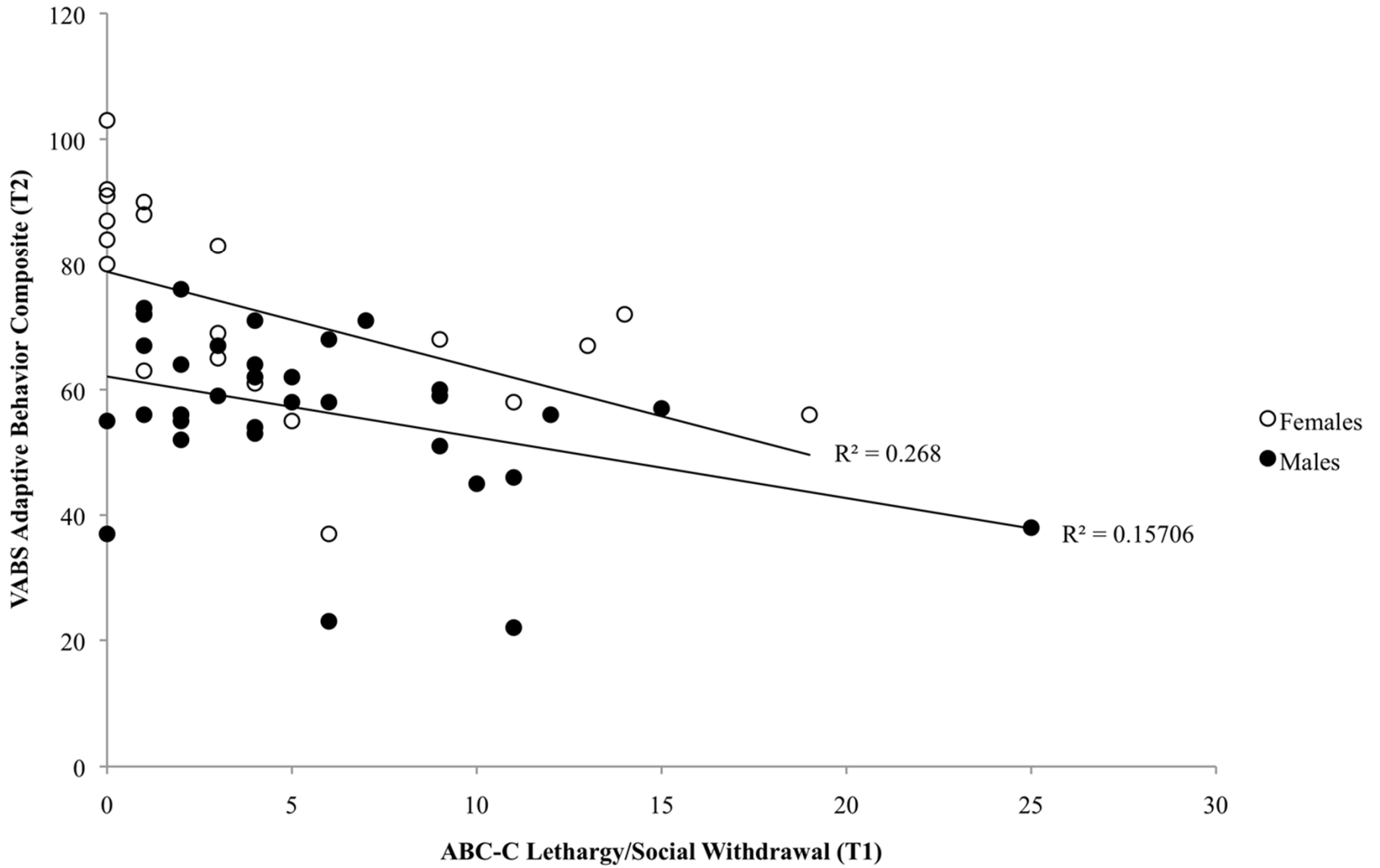
### Functional Academic Skills and Adaptive Skills



# Results

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### Social Withdrawal Symptoms and Adaptive Skills



# Discussion

- \* First direct assessment of independence in FXS
- \* Suggest that relatively strong adaptive skills and little social withdrawal behavior during childhood and early adolescence have better outcomes in adult life
- \* Limitations & future research:
  - \* Employ more direct measures
  - \* More directly assess relationship via treatment evaluations

# Thank you!

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