

# A Community Based Participatory Research Partnership: Perceptions of Children's Adaptive Behaviors in Tribal Head Start Programs

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# WIBA ANUNG

A collaborative of [Michigan State University](#), the [Inter-Tribal Council of Michigan](#), the Grand Traverse Band of Ottawa & Chippewa Indians, the Sault Saint Marie Tribe of Chippewa Indians, and Bay Mills Community College

- A long-term community-based participatory research and program development partnership
- To improve outcomes for children enrolled in Michigan-based American Indian Head Start/Early Head Start programs

Fitzgerald, H.E., Farrell, P., Barnes, J. V., Belleau, A., Gerde, H., Thompson, N., Lee, K.S., Calcaterra, M., & Parish, A. (2013). Wiba Anung: Transformation change in Tribal Head Start. In H. E., Fitzgerald & J. Primavera (eds). *Going Public: Civic and community-engagement (pp 137-161)*. East Lansing: MI: Michigan State University Press.

# Locations of Tribal Head Start Programs in Michigan



# Behavior Assessment System for Children, Second Edition (BASC-2)

- Behavioral and emotional risks of children.
- Each item is rated on a 4-point Likert scale
  - 1=Never, 2=Sometimes, 3=Often, 4=Almost Always
- Two forms for preschool children
  - Parent Form (100 out of 134 items)
  - Teacher Form (93 out of 100 items)

# BASC-2: Composite & Primary Scales

Composite Scales	Primary Scales
Externalizing Problems	Aggression and Hyperactivity
Internalizing Problems	Anxiety, Depression, and Somatization
Adaptive Skills	Adaptability and Social Skills Functional Communication Activities of Daily Living*
Behavioral Symptoms Index – Overall level of problem behavior	Attention Problems, Atypicality, Withdrawal Aggression, Hyperactivity Depression, and Somatization

# BASC-2 Definitions: Problem Behaviors

## Externalizing Problems:

**Aggression.** Refers the tendency to do **physical or emotional harm** to others or their property.

**Hyperactivity.** Includes fiddling with things, **interrupting** others, being overactive, having **poor self-control**, being **impulsive** or acting without thinking, being **unable to wait** for other's turn in a group activity.

## Internalizing Problems:

**Anxiety.** Refers to the tendency to be **nervous, fearful, or worried** about real or imagined problems.

**Depression.** Refers to feelings of **unhappiness, sadness**, and **stress** that may result in an inability to carry out everyday activities or may bring on thoughts of suicide.

**Somatization.** Refers to the tendency to be **overly sensitive** to and **complain about** relatively minor physical problems and discomforts.

## Behavioral Symptoms Index (plus Externalizing & Internalizing Problems)

**Attention Problems.** Refers to the tendency to be easily distracted and unable to concentrate more than momentarily.

**Atypicality.** Refers to the tendency to behave in ways that are considered “odd”, “strange” or commonly associated with psychosis

**Withdrawal.** Refers to the tendency to evade others to avoid social contact and to lack interest in making contact in social settings

### Adaptive Skills

**Adaptability.** Refers to the ability to adapt readily (a) to changes in routine and teacher assignment, (b) to shift from one task to another, and (c) to share toys or possessions with other children.

**Social Skills.** Refers to the skills necessary for interacting successfully with peers and adults in home, school, and community settings.

# Goal of this Study

To determine if the normative structures of the Behavior Assessment System for Children (BASC-2 Parent and teacher form) replicate when used to assess a sample of American Indian children



# Background

- Parent-BASC-2 CFA presentation
  - The findings indicated the normative factor structure did not fit well and only fit when excluding specific items within various BASC-2 scales.
  - Parent-BASC-2: Single-level data structure
- Teacher-BASC-2 CFA
  - **Did not replicate the original published structure**
  - **Teacher-BASC-2: Multi-level data structure**
- The results support continued study of the properties of standardized measures that are well-validated and ready for use with populations with markedly different cultural traditions

# Why We Test Factor Structure Existing Measures?

- To be sure that the instrument we are using provides a reliable and valid assessment within the context of American Indian cultures
  - Whitesell, et al.'s study - Survey of Well-Being in Young Children (SWYC)
- To enhance program quality for children enrolled in Tribal Head Start Pre-K programs.

Whitesell, N. R., Sarche, M., Truckess, D., & the Tribal Early Childhood Research Center SWYC Community of Learning. (2015). The Survey of Well-being of Young Children: Results of a feasibility study with American Indian and Alaska Native Communities. *Infant Mental Health Journal*. 36(5), 483-505.

# How do we do it?

## Multilevel Factor Analysis

- Multilevel Exploratory Factor Analysis
- Multilevel Confirmatory Factor Analysis

# Steps for Multilevel Factor Analysis

## Step 1:

- A split-sample cross-validation approach
  - Wave 1 data from Cohorts 1 and 2
  - 93 items (1 = never, 2 = sometimes, 3 = often, 4 = always)
- Review the BASC-2 items theoretically (content basis) and empirically (data basis)
  - Choose core items
  - A culturally and contextually aligned BASC-2 factor structure
  - No perfect correlation between items ( $r=1.00$ )

## Step 2:

- Run Multilevel Exploratory Factor Analysis
  - EFA results suggesting we should delete some items.

# Steps for Multilevel Factor Analysis – Cont.

## Step 3:

- Run Multilevel Confirmatory Factor Analysis with Wave 2 data
- Run single CFA with parent Wave 1 data

## Step 4:

- Measurement invariance for both teacher- and parent-BASC-2
  - By time
  - By gender

# CFA for Parent rated BASC-2

By Wave 1 and Wave 2

# Aggression

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P12	Breaks other children's things.	0.670***	0.059	0.683***	0.059
P46	Annoys others on purpose.	0.612***	0.055	0.626***	0.051
P68	Hits other children.	0.874***	0.04	0.882***	0.04
P74	Bullies others.	0.842***	0.048	0.850***	0.045
P77	Loses temper too easily.	0.645***	0.055	0.659***	0.053

# Hyperactivity

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P5	Acts without thinking.	0.492***	0.058	0.604***	0.059
P17	Acts out of control.	0.722***	0.05	0.813***	0.041
P33	Has poor self-control.	0.719***	0.053	0.811***	0.044
P45	Interrupts others when they are speaking.	0.555***	0.057	0.666***	0.05
P55	Cannot wait to take turn.	0.421***	0.058	0.528***	0.058
P83	Is overly active.	0.666***	0.05	0.767***	0.042
P89*	Fiddles with things while at meals.	0.465***	0.056	0.576***	0.053



# Anxiety

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P23	Worries about parents.	0.470***	0.059	0.476***	0.061
P28	Is fearful.	0.541***	0.057	0.548***	0.059
P56	Is too serious.	0.518***	0.070	0.523***	0.067
P63	Worries about things that cannot be changed.	0.641***	0.060	0.648***	0.061
P76	Worries.	0.911***	0.041	0.913***	0.040
P132	Is nervous.	0.650***	0.061	0.657***	0.062

# Depression

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P14	Pouts.	0.672***	0.049	0.686***	0.047
P16	Says, "Nobody likes me."	0.530***	0.064	0.544***	0.065
P42	Is easily frustrated.	0.703***	0.042	0.716***	0.041
P44	Is sad.	0.625***	0.053	0.639***	0.052
P50	Whines.	0.823***	0.035	0.832***	0.034
P52	Cries easily.	0.829***	0.033	0.838***	0.031
P100	Is easily upset.	0.826***	0.036	0.836***	0.034
P128	Is negative about things.	0.445***	0.064	0.458***	0.065

# Somatization

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P25	Has headaches.	0.680***	0.072	0.709***	0.071
P38	Complains about health.	0.720***	0.064	0.748***	0.061
P41	Complains of being cold.	0.733***	0.063	0.761***	0.058
P94	Has stomach problems.	0.574***	0.07	0.606***	0.071
P109	Complains of pain.	0.610***	0.063	0.641***	0.063
P122	Has sore throats.	0.804***	0.054	0.827***	0.047

# Attention Problems

	Parent	Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P34r	(Does not) listen carefully.	0.824***	0.033	0.817***	0.034
P62r	(Does not) pay attention.	0.889***	0.028	0.884***	0.029
P80r	(Does not) Listen to directions.	0.892***	0.028	0.887***	0.029
P90	Is easily distracted.	0.545***	0.046	0.535***	0.045

# Atypicality

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P8	Seems unaware of others.	0.440***	0.069	0.473***	0.071
P73	Acts strangely.	0.742***	0.061	0.772***	0.056
P92	Acts confused.	0.815***	0.053	0.839***	0.049
P98	Show feelings that do not fit the situation.	0.557***	0.066	0.592***	0.065
P101	Says things that make no sense.	0.750***	0.052	0.779***	0.051

# Withdrawal

	Parent	Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P9	Has trouble making new friends.	0.799***	0.053	0.819***	0.051
P26	Avoids other children.	0.655***	0.062	0.681***	0.06
P54r	(DOES NOT) make friends easily.	0.722***	0.047	0.746***	0.045
P106	Refuses to join group activities.	0.624***	0.059	0.651***	0.057
P134r	(NOT) Quickly joins group activities.	0.715***	0.048	0.74***	0.046

# Adaptability

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P1	Shares toys or possessions with other children	0.298***	0.059	0.327***	0.062
P29	Recovers quickly after a setback.	0.489***	0.053	0.528***	0.054
P57	Adjusts well to new teachers or caregivers.	0.729***	0.040	0.764***	0.04
P85	Is easily soothed when angry.	0.461***	0.053	0.500***	0.055
P97	Adjust well to changes in routine.	0.724***	0.041	0.759***	0.039
P113	Adjusts well to changes in family plans.	0.675***	0.047	0.713***	0.042
P125	Adjusts easily to new surroundings.	0.795***	0.040	0.824***	0.034

# Social Skills

Parent		Wave 1		Wave 2	
		Estimate	Posterior S.D	Estimate	Posterior S.D
P4	Compliments others.	0.621***	0.05	0.681***	0.047
P19	Congratulates others when good things happen to them.	0.789***	0.047	0.833***	0.038
P47	Offers help to other children.	0.780***	0.045	0.825***	0.039
P75	Encourages others to do their best.	0.569***	0.053	0.630***	0.051
P88	Politely asks for help.	0.390***	0.057	0.445***	0.06



# Teacher and Parent BASC-2: Comparison by gender, Wave 1

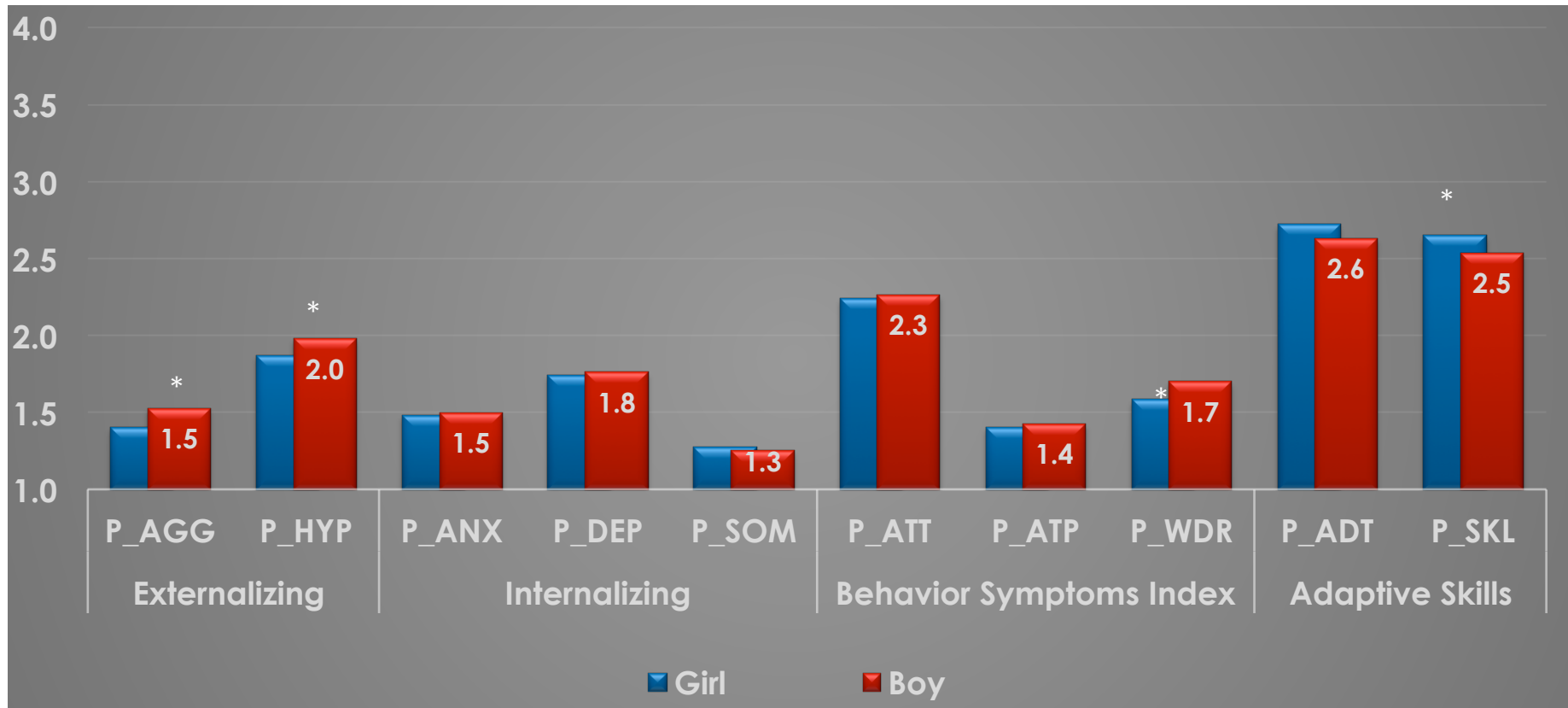
N=180 (Girl=97 and Boy=83)

# Parent Perceptions of Children's Behavior (Revised BASC-2, Wave 1)

	Girl Mean (SD)	Boy Mean (SD)	P-value
<b>Externalizing Behaviors</b>			
Aggression	1.40 (.38)	1.53 (.39)	p=0.018
Hyperactivity	1.87 (.38)	1.98 (.41)	p=0.045
<b>Internalizing Behaviors</b>			
Anxiety	1.48 (.34)	1.50 (.34)	ns
Depression	1.74 (.40)	1.76 (.33)	ns
Somatization	1.27 (.31)	1.25 (.26)	ns
<b>Behavior Symptom Index*</b>			
Attention Problem	2.24 (.53)	2.26 (.56)	ns
Atypicality	1.40 (.39)	1.42 (.38)	ns
Withdrawal	1.58 (.37)	1.70 (.45)	p=0.039
<b>Adaptive skills</b>			
Adaptability	2.72 (.48)	2.63 (.42)	ns
Social Skills	2.65 (.42)	2.53 (.47)	p=0.036

Behavior Symptom Index=Behavioral symptom indicators, plus EP, depression and somatization

# Parent Revised BASC-2: Gender Difference, Wave 1



Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

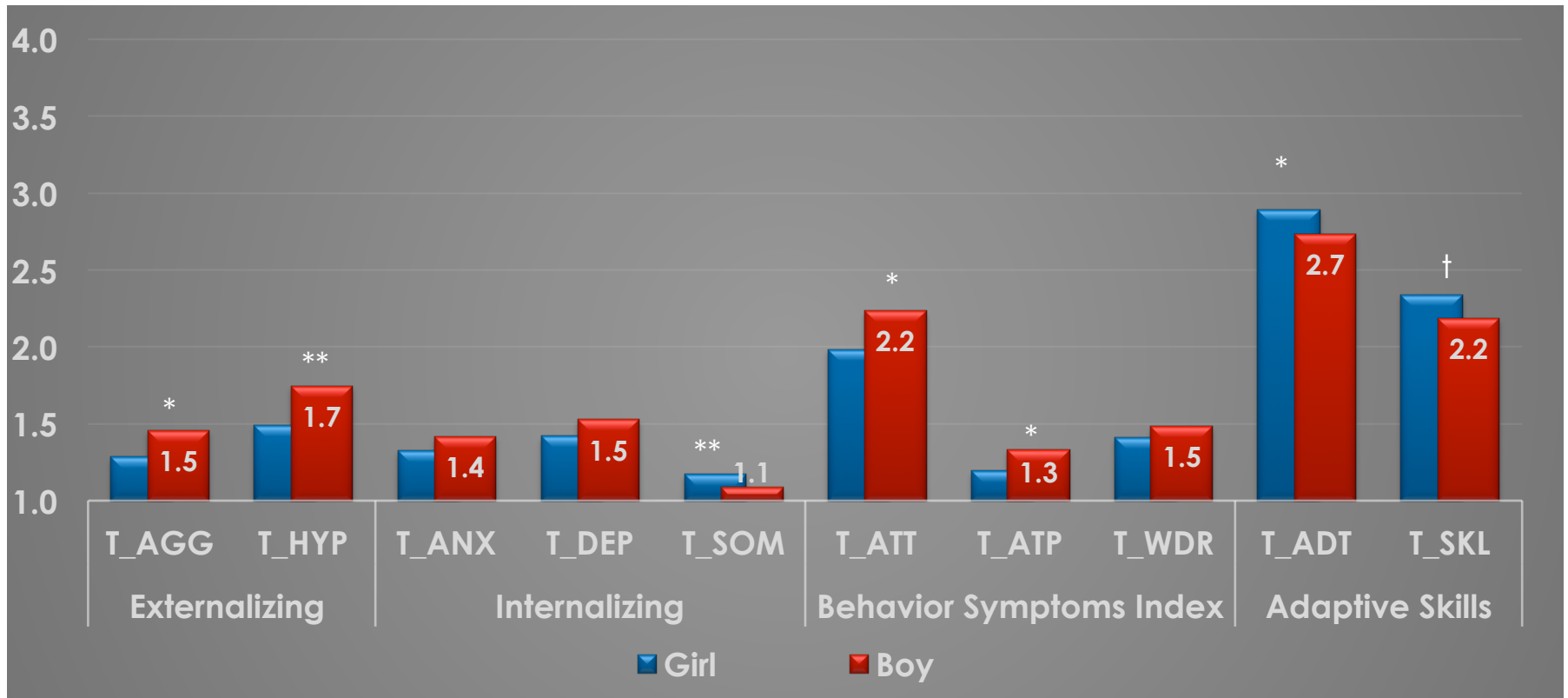
† p<0.1; \* p<0.05; \*\* p<0.01; \*\*\* p<0.001; **1=never; 2=sometimes; 3=often; 4=always**

# Teacher Perceptions of Children's Behavior (Revised BASC-2, Wave 1)

	Girl Mean (SD)	Boy Mean (SD)	P-value
<b>Externalizing Behaviors</b>			
Aggression	1.28 (.44)	1.45 (.60)	p=0.023
Hyperactivity	1.49 (.53)	1.75 (.66)	p=0.003
<b>Internalizing Behaviors</b>			
Anxiety	1.33 (.38)	1.42 (.43)	ns
Depression	1.42 (.42)	1.53 (.54)	ns
Somatization	1.17 (.26)	1.09 (.17)	p=0.006
<b>Behavior Symptom Index*</b>			
Attention Problem	1.98 (.71)	2.23 (.73)	p=0.018
Atypicality	1.19 (.35)	1.33 (.49)	p=0.030
Withdrawal	1.41 (.39)	1.48 (.40)	ns
<b>Adaptive skills</b>			
Adaptability	2.89 (.63)	2.73 (.60)	p=0.049
Social Skills	2.34 (.66)	2.18 (.63)	p=0.077

Behavior Symptom Index=Behavioral symptom indicators, plus EP, depression and somatization

# Teacher Revised BASC-2: Gender Difference, Wave 1



Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

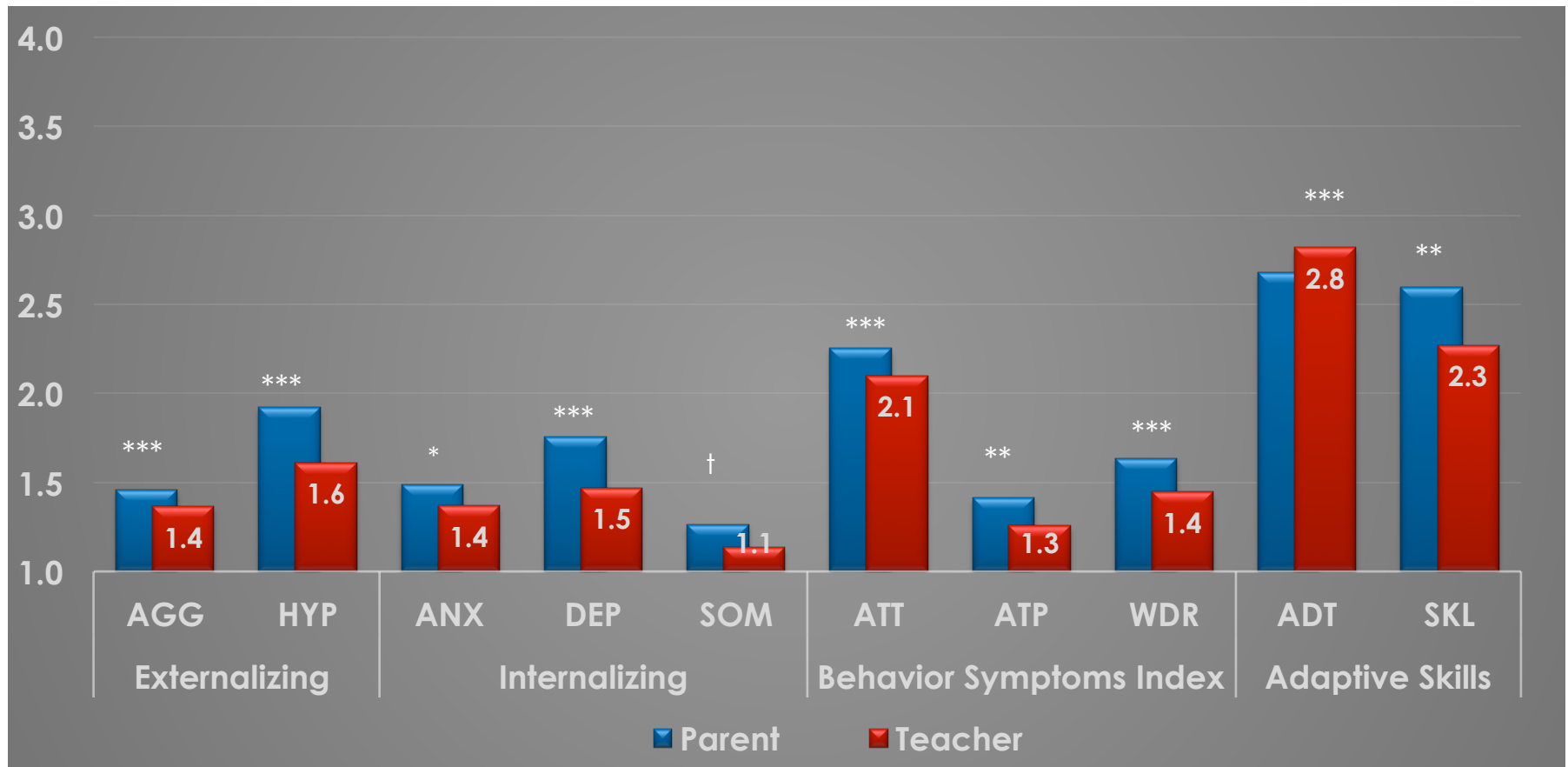
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# Parent-Teacher Perceptions of Children's Behavior (Revised BASC-2, Wave 1)

	Parent Mean (SD)	Teacher Mean (SD)	P-value
<b>Externalizing Behaviors</b>			
Aggression	1.46 (.39)	1.36 (.53)	p=0.000
Hyperactivity	1.92 (.39)	1.61 (.60)	p=0.000
<b>Internalizing Behaviors</b>			
Anxiety	1.49 (.34)	1.37 (.41)	p=0.052
Depression	1.75 (.37)	1.47 (.48)	p=0.000
Somatization	1.26 (.29)	1.13 (.23)	p=0.078
<b>Behavior Symptom Index*</b>			
Attention Problem	2.25 (.54)	2.10 (.73)	p=0.000
Atypicality	1.41 (.38)	1.26 (.43)	p=0.007
Withdrawal	1.63 (.41)	1.44 (.39)	p=0.000
<b>Adaptive skills</b>			
Adaptability	2.68 (.45)	2.82 (.62)	p=0.000
Social Skills	2.59 (.45)	2.27 (.65)	p=0.003

Behavior Symptom Index=Behavioral symptom indicators, plus EP, depression and somatization

# Parent - Teacher Differences at Wave 1



Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

† p<0.1; \* p<0.05 ; \*\* p<0.01; \*\*\* p<0.001; **1=never; 2=sometimes; 3=often; 4=always**

# Teacher and Parent BASC-2: Comparison by gender, Wave 2

N=201 (girl=109 and boy=92)

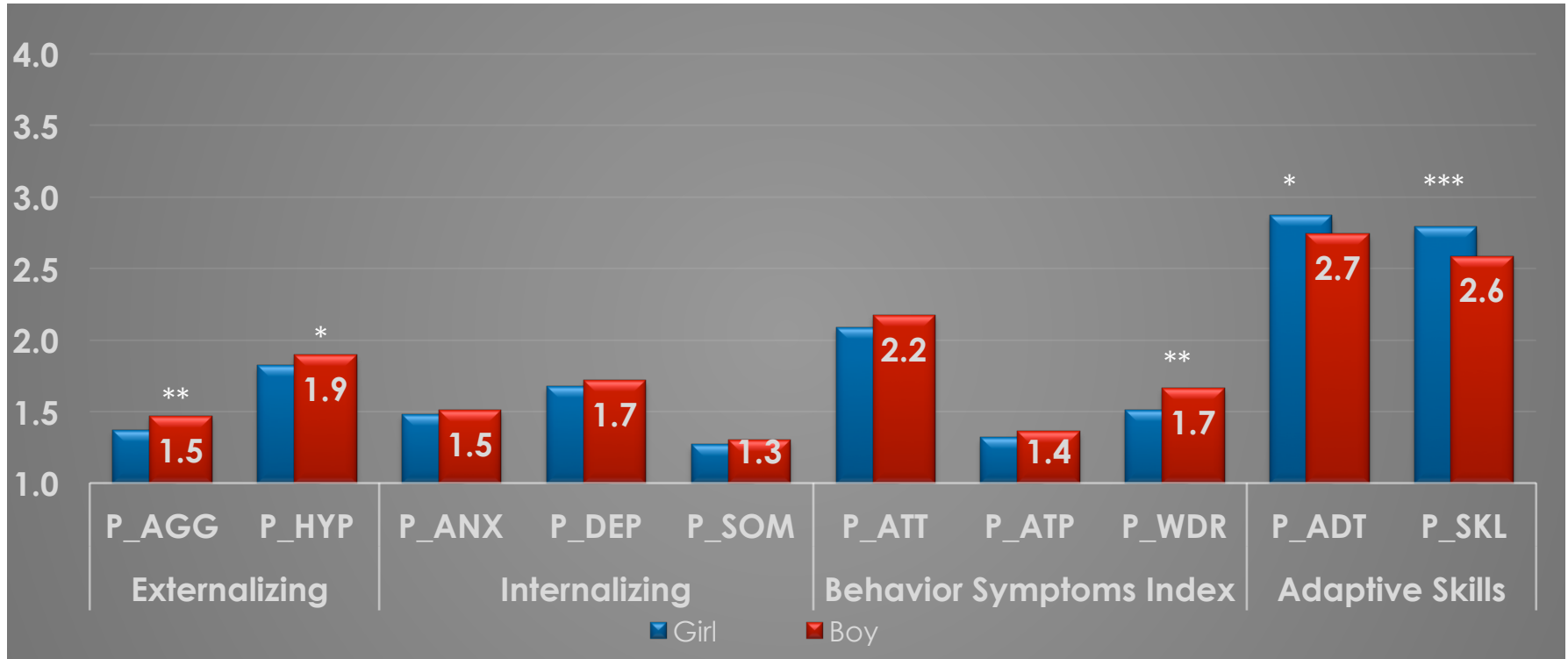


# Parent Perceptions of Children's Behavior (Revised BASC-2, Wave 2)

	Girl Mean (SD)	Boy Mean (SD)	P-value
<b>Externalizing Behaviors</b>			
Aggression	1.37 (.40)	1.46 (.36)	p=0.010
Hyperactivity	1.82 (.44)	1.89 (.43)	p=0.052
<b>Internalizing Behaviors</b>			
Anxiety	1.48 (.32)	1.51 (.37)	ns
Depression	1.67 (.37)	1.72 (.38)	ns
Somatization	1.26 (.30)	1.30 (.30)	ns
<b>Behavior Symptoms Index*</b>			
Attention Problem	2.09 (.55)	2.17 (.47)	ns
Atypicality	1.31 (.35)	1.36 (.34)	ns
Withdrawal	1.51 (.41)	1.66 (.40)	p=0.006
<b>Adaptive skills</b>			
Adaptability	2.87 (.49)	2.74 (.46)	p=0.024
Social Skills	2.79 (.49)	2.59 (.48)	p=0.001

Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

# Parent Revised BASC-2: Gender Difference, Wave 2



Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

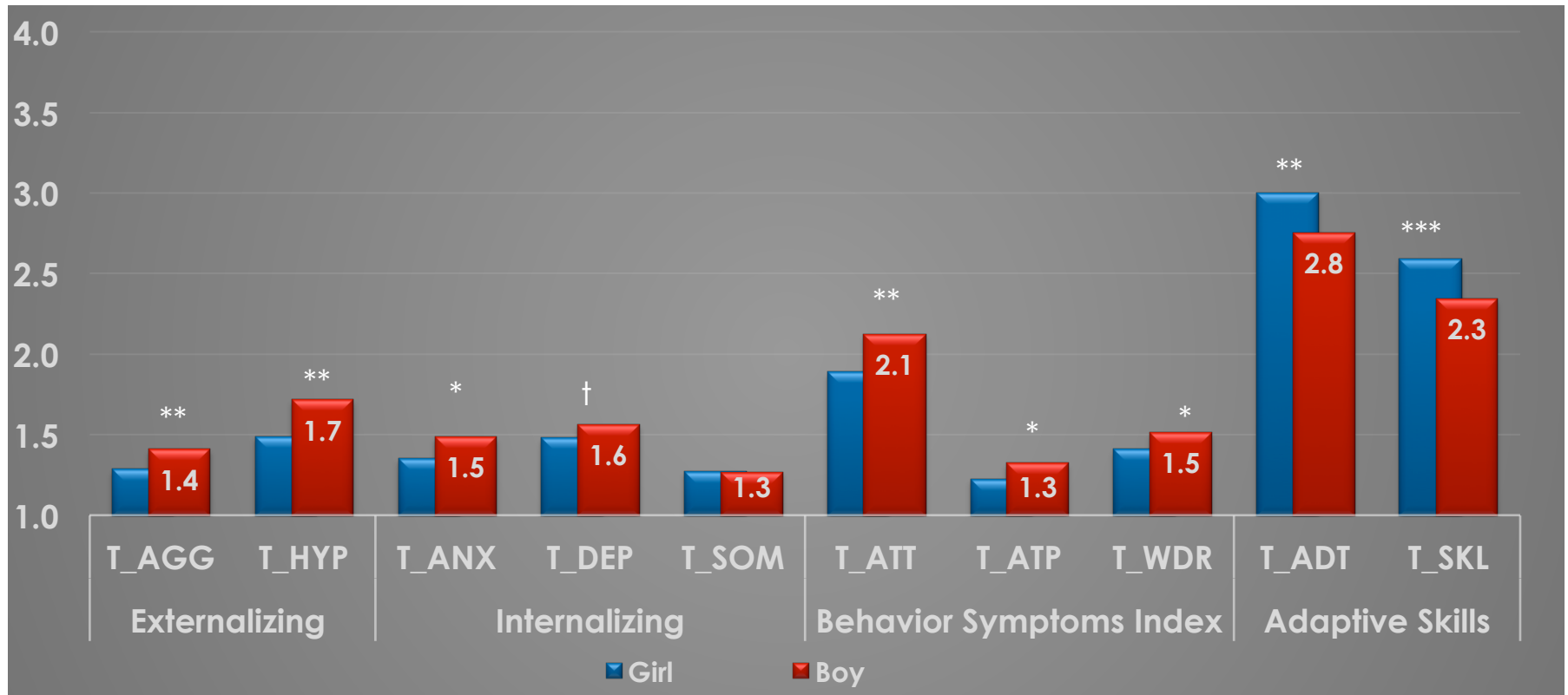
t p<0.1; \* p<0.05 ; \*\* p<0.01; \*\*\* p<0.001; **1=never; 2=sometimes; 3=often; 4=always**

# Teacher Perceptions of Children's Behavior (Revised BASC-2-2, Wave 2)

	Girl Mean (SD)	Boy Mean (SD)	P-value
<b>Externalizing Behaviors</b>			
Aggression	1.28 (.54)	1.41 (.52)	p=0.013
Hyperactivity	1.49 (.55)	1.72 (.64)	p=0.004
<b>Internalizing Behaviors</b>			
Anxiety	1.35 (.39)	1.49 (.46)	p=0.016
Depression	1.48 (.45)	1.56 (.53)	p=0.083
Somatization	1.27 (.38)	1.27 (.32)	ns
<b>Behavior Symptoms Index*</b>			
Attention Problem	1.89 (.71)	2.12 (.69)	p=0.011
Atypicality	1.23 (.40)	1.32 (.46)	p=0.028
Withdrawal	1.41 (.43)	1.51 (.45)	p=0.045
<b>Adaptive skills</b>			
Adaptability	3.00 (.61)	2.75 (.60)	p=0.003
Social Skills	2.59 (.74)	2.34 (.67)	p=0.013

Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

# Teacher Revised BASC-2: Gender Difference, Wave 2



Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

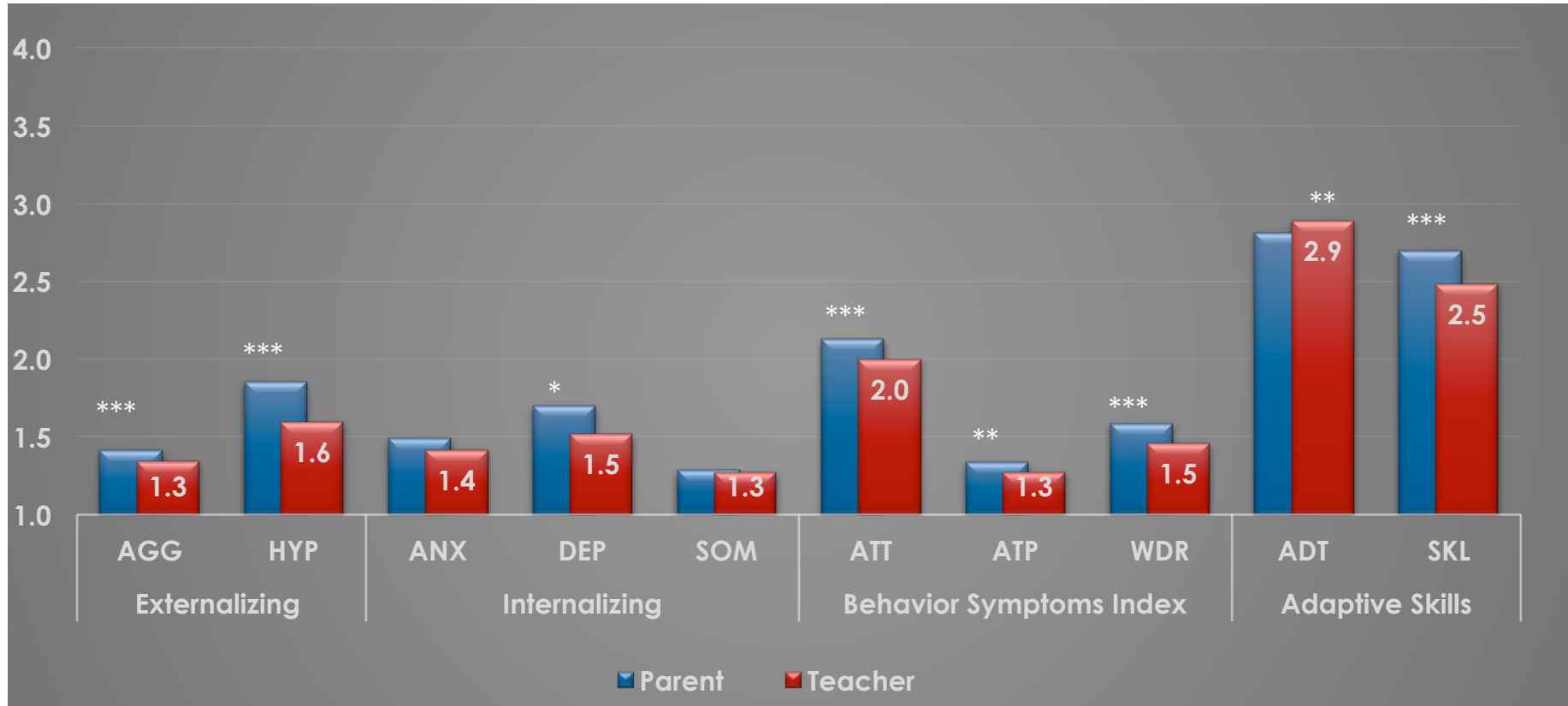
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# Parent-Teacher Perceptions of Children's Behavior (Revised BASC-2, Wave 2)

	Parent Mean (SD)	Teacher Mean (SD)	P-value
<b>Externalizing Behaviors</b>			
Aggression	1.46 (0.39)	1.36 (0.53)	p=0.000
Hyperactivity	1.92 (0.39)	1.61 (0.60)	p=0.000
<b>Internalizing Behaviors</b>			
Anxiety	1.49 (0.34)	1.37 (0.41)	ns
Depression	1.75 (0.37)	1.47 (0.48)	p=0.016
Somatization	1.26 (0.29)	1.13 (0.23)	ns
<b>Behavior Symptoms Index*</b>			
Attention Problem	2.25 (0.54)	2.10 (0.73)	p=0.000
Atypicality	1.41 (0.38)	1.26 (0.43)	p=0.005
Withdrawal	1.63 (0.41)	1.44 (0.39)	p=0.000
<b>Adaptive skills</b>			
Adaptability	2.68 (0.45)	2.82 (0.62)	p=0.010
Social Skills	2.59 (0.45)	2.27 (0.65)	p=0.001

Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

# Parent-Teacher Differences, Wave 2

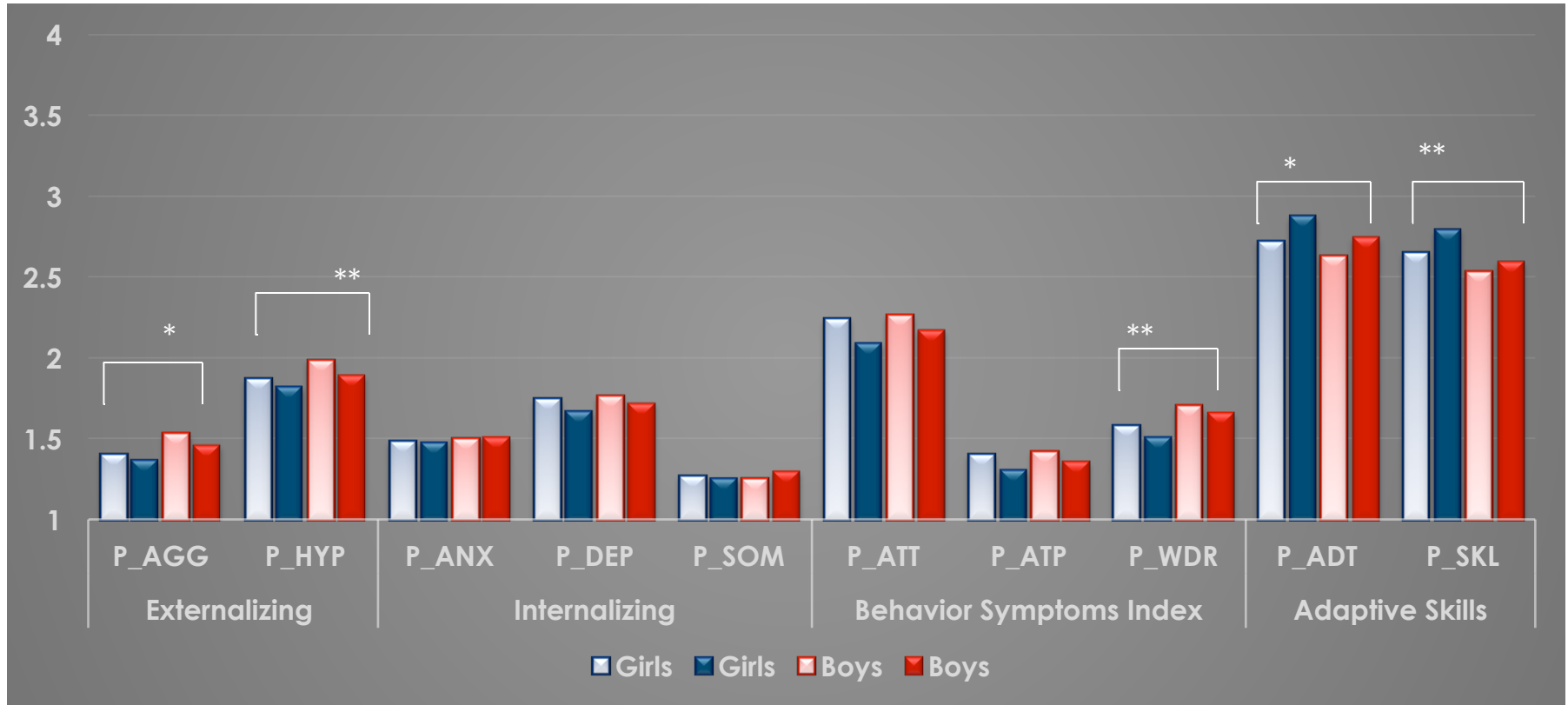


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# Teacher and Parent BASC-2 Comparison by Wave and Gender

# Parent Revised BASC-2: Wave and Gender Differences

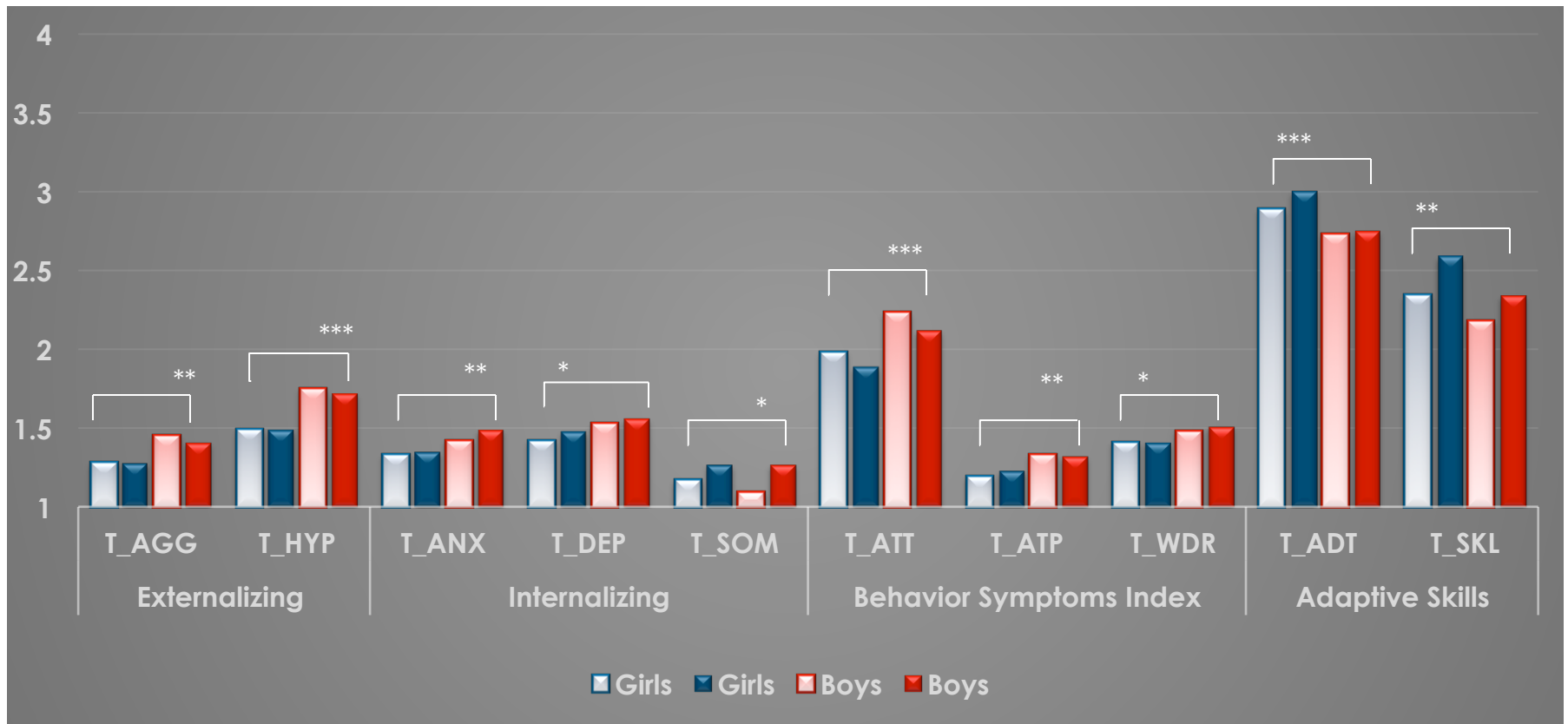


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# Teacher Revised BASC-2: Wave and Gender Differences



Behavior Symptoms Index=Behavioral Symptoms indicators, plus EP, depression and somatization

t p<0.1; \* p<0.05 ; \*\* p<0.01; \*\*\* p<0.001; **1=never; 2=sometimes; 3=often; 4=always**

# Summary of Findings

# Summary: Perceived Gender Differences, Wave 1

## Parents:

- Perceive girls to have better social skills than boys.
- Perceive boys to be more aggressive, hyperactive, and withdrawn than girls.

## Teachers:

- Perceive girls to have more somatization, but to also have better adaptive and social skills.
- Perceive boys to be more aggressive, hyperactive, inattentive, and atypical.

# Summary: Perceived Gender Differences, Wave 2

## Parents:

- Perceive girls to have better adaptive and social skills than boys.
- Perceive boys to be more aggressive, hyperactive, and withdrawn than girls.

## Teachers:

- Perceive girls to have better adaptive and social skills.
- Perceive boys to be more aggressive and hyperactive, and to have more anxiety, depression, and attention problems, and to be more atypical and withdrawn than girls.

# Summary: Parent-Teacher Differences, Wave 1

## Parents:

- Perceive children to have more difficulties with externalizing and internalizing behavior problems than do teachers.
- Perceive children to have better social skills than do teachers.

## Teachers:

- Perceive children to be more adaptive than do parents.

# Summary: Parent-Teacher Differences, Wave 2

## Parents:

- Perceive children to have more difficulties with externalizing and internalizing behavior problems than do teachers.
- Perceive children to have better social skills than do teachers.

## Teachers:

- Perceive children to be more adaptive than do parents.

# Summary: Changes from Wave 1 to Wave 2

## Parents:

- Perceive girls to become less withdrawn and to increase their adaptive and social skills more than boys do over time.
- Perceive boys to become less aggressive and hyperactive than girls do over time.

## Teachers:

- Perceive girls to have more increases in depression, atypical behaviors, adaptive and social skills, but to become less withdrawn than boys over time.
- Perceive boys to have more decreases in aggression, hyperactivity, and attention problems, but to have more increases in anxiety and somatization problems.

# Conclusions: Future Steps

## Parents and teachers perceptions of children's behaviors differ!

### Context:

- Parents ratings based on children's behavior in home context.
- Teacher ratings based on children's behavior in Head Start context.

### Children's Behavior:

- May actually be different in different contexts.

### Teacher Ethnicity:

- In Michigan Head Start programs, there are more non-Native teachers than Native teachers.
- Next analyses will examine whether there are differences in Native and Non-Native perceptions and the extent to which such differences align with parent perceptions.



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