Parental Attributions for Positive Behaviors in Children with Autism Spectrum Disorder

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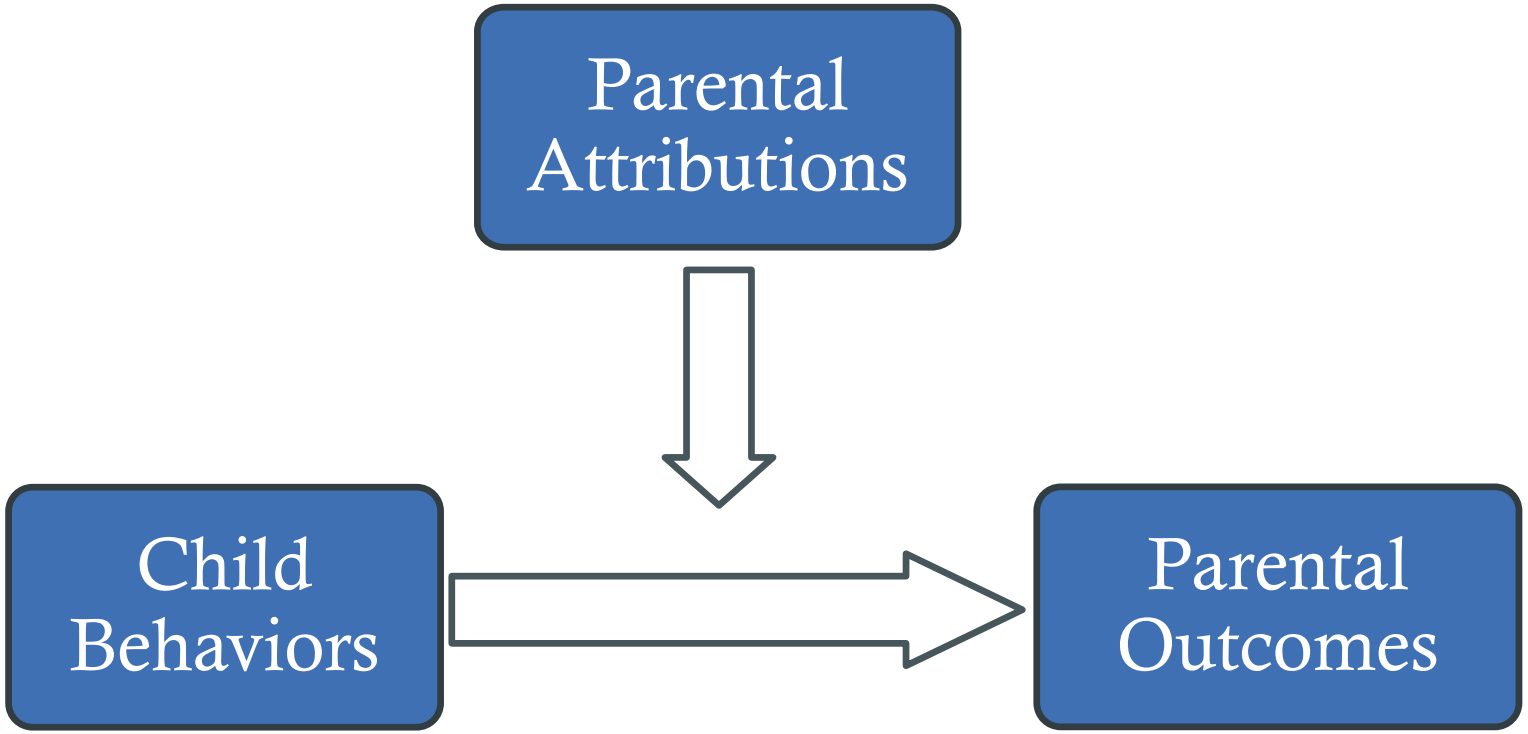
Focus on negative behaviors

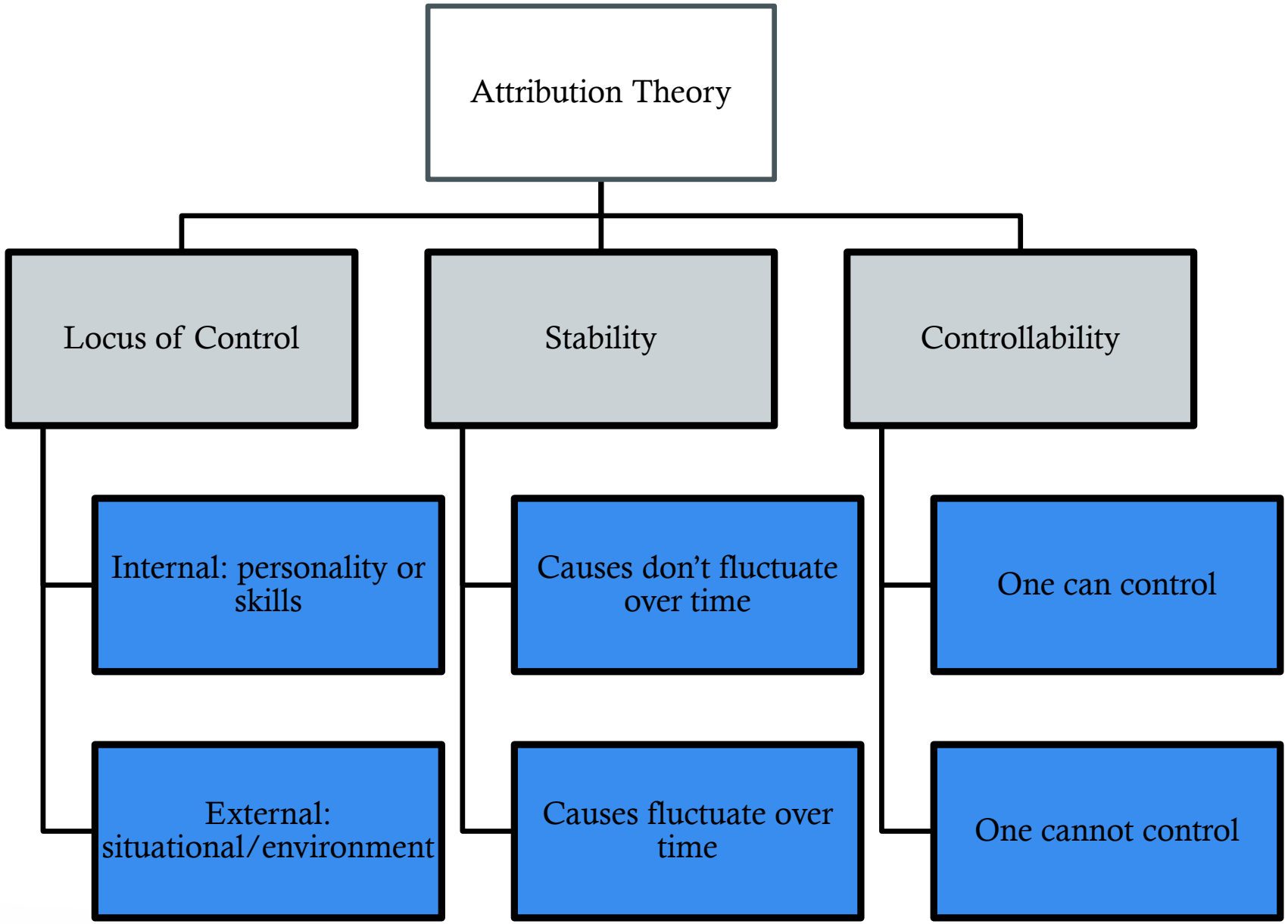
- Research has focused on negative or problematic behaviors of children with ASD and their negative impact on parents
- Children with ASD exhibit positive behaviors
- Positive behaviors shape parenting experiences

A Shift in Focus

Parental Attributions



White & Barrowclough, 1998



Weiner, 1985; Whittingham, Sofronoff, Sheffield, & Sanders, 2008

Goals of the Present Study

1) Compare parental attributions for positive child behavior in parents who have a child with ASD vs. parents who have a typically developing (TD) child

2) Examine the association between parental attributions for the child with ASD's positive behavior and parent affect and closeness in the parent-child relationship

3) Evaluate the association between child and parent factors and parental attributions for the child with ASD's positive behavior

Sample

Table 1.
Socio-Demographic Characteristics of the Autism Spectrum Disorder (ASD) and Comparison groups

	ASD (n = 175)	Comparison (n = 170)	t value or χ^2, p value
Mother			
Age in years (M [SD])	38.89 (5.68)	39.04 (5.74)	t (342) = -0.24, p = .80
Race/Ethnicity (N [%])			
White, Non-Hispanic	159 (90.8%)	149 (88.2%)	χ^2 (2, N = 344) =1.73, p = .42
Other	16 (9.1%)	20 (11.8%)	
Education (N [%])			
No HS Degree	1 (1.1%)	3 (1.7%)	χ^2 (5, N = 344)=14.13, p = .02
HS Degree or equivalency	10 (5.7%)	9 (5.3%)	
Some college	33 (18.9%)	16 (9.5%)	
College degree	82 (46.9%)	66 (39.1%)	
Some Graduate school	11 (6.3%)	15 (8.9%)	
Graduate degree	38 (21.7%)	60 (35.5%)	
Father			
Age in years (M [SD])	40.87 (6.08)	40.82 (6.61)	t (342) = 0.08, p = .93
Race/Ethnicity (N [%])			
White, Non-Hispanic	155 (88.6%)	147 (87.0%)	χ^2 (2, N = 344)= 0.20, p = .65
Other	20 (11.4%)	22 (13.0%)	
Education (N [%]))			
No HS Degree	8 (4.6%)	3 (1.8%)	χ^2 (5, N = 344)= 10.02, p = .08
HS Degree or equivalency	19 (10.9%)	11 (6.5%)	
Some college	30 (17.4%)	21 (12.4%)	
College degree	76 (43.4%)	78 (46.2%)	
Some Graduate school	10 (5.7%)	7 (4.1%)	
Graduate degree	32 (18.3%)	49 (29.0%)	
Relationship Length (M [SD])	14.55 (5.49)	15.31 (5.11)	t (339) = 1.35 p = <.18
Household income (M [SD])	9.15 (3.05)	10.74 (2.72)	t (340) = -5.08 p <.01
Number of Children (M [SD])	2.37 (1.06)	2.56 (1.07)	t (341) = -1.59, p = .11
Target Child			
Male (N [%])	149 (85.1%)	143 (84.6%)	χ^2 (2, N = 344) = .02 p = .89
Age in years (M [SD])	7.95 (2.28)	7.98 (2.38)	t (342) = -.13, p = .89
ID (N [%])	63 (36.0%)	0 (0%)	χ^2 (2, N = 344) = 74.48, p < .01
SRS (M [SD])	78.05 (8.73)	51.10 (8.64)	t (341) = 9.30, p <.01
CBCL (M [SD])	64.90 (8.46)	48.74 (8.59)	t (341) = 17.56, p <.01
GAC (M [SD])	64.53 (17.73)	98.15 (15.92)	t (337) = -18.33, p <.01

Note. HS = High school; ID = intellectual disability; SRS = Social Responsiveness Scale Second Edition Total T-score; CBCL = Child Behavioural Checklist total T-score, GAC = General Adaptive Behaviour Composite, Adaptive Behaviour Assessment System.

Methods

- Parental Attributions
  - Parental Attribution Questionnaire (PAQ; Whittingham et al., 2008)
- Parent-Child Relationship
  - Bengtson Positive Affect Scale (PAI; Roberts & Bengtson, 1991)
- Parental Affect
  - Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988)
- Child Behavior Problems
  - Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000; Achenbach & Rescorla, 2001)
- Severity of Child Autism Symptoms
  - Social Responsiveness Scale- Second Edition (SRS2; Constantino & Gruber, 2012)
- Functional Skills
  - Adaptive Behavior Assessment System- 2nd Edition. (ABAS-2; Harrison & Oakland, 2003)

Parental Attribution Questionnaire

In the following questionnaire we are interested in *your opinion* about the causes of your child's behavior. Simply give your own opinion to the best of your ability.

1. Remember a recent incident in which your child did something you consider GOOD behavior. It is important that you take a moment to recall the incident fully. Briefly write the scenario here:

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2. Firstly, consider the following question. What were the MAIN causes of your child's good behavior in the incident above?

Data Analysis

Aim 1:
Level 1 Model: Attributions (Locus of Control, Stability, Controllability) = β_{1j} (mother) + β_{2j} (father)

Level 2 Model: $\beta_{1j} = \gamma 3$ (group) + γ_4 (household income) + γ_5 (mother education) + u_{1j}
$\beta_{2j} = \gamma_6$ (group) + γ_7 (household income) + γ_8 (father education) + u_{2j}

Aim 2:
Level 1 Model: Parent Outcomes (Positive and Negative Affect, Parent Child Relationship) = β_{1j} (mother) + β_{2j} (father)

Level 2 Model: $\beta_{1j} = \gamma_3$ (child ABAS) + γ_4 (child gender) + γ_5 (child age) + γ_6 (parent education) + γ_7 (parent ethnicity) + γ_8 (household income) + γ_9 (child CBCL) + γ_{10} (child SRS) + γ_{11} (locus of control) + γ_{12} (stability) + γ_{13} (controllability) + u_{1j}
$\beta_{1j} = \gamma_{14}$ (child ABAS) + γ_{15} (child gender) + γ_{16} (child age) + γ_{17} (parent education) + γ_{18} (parent ethnicity) + γ_{19} (household income) + γ_{20} (child CBCL) + γ_{21} (child SRS) + γ_{22} (locus of control) + γ_{23} (stability) + γ_{24} (controllability) + u_{2j}

Aim 3:
Level 1 Model: Attributions (Locus of Control, Stability, Controllability) = β_{1j} (mother) + β_{2j} (father)

Level 2 Model: $\beta_{1j} = \gamma_3$ (child ABAS) + γ_4 (child gender) + γ_5 (child age) + γ_6 (parent education) + γ_7 (parent ethnicity) + γ_8 (household income) + γ_9 (child CBCL) + γ_{10} (child SRS) + u_{1j}
$\beta_{1j} = \gamma_{14}$ (child ABAS) + γ_{15} (child gender) + γ_{16} (child age) + γ_{17} (parent education) + γ_{18} (parent ethnicity) + γ_{19} (household income) + γ_{20} (child CBCL) + γ_{21} (child SRS) + u_{2j}

Aim 1 Results

Table 1.
Dyadic Multilevel Models of Parental Attributions for Positive Child Behaviours by Group (Parents of Children with Autism Spectrum Disorder vs. Comparison Group.

	Locus of Control						Stability						Controllability					
	Mother			Father			Mother			Father			Mother			Father		
	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	T-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r
Level 1																		
Intercept	5.75 (0.08)**	75.70		5.66 (0.07)**	82.61		6.02 (0.08)**	80.33		5.94 (0.07)**	88.59		5.99 (0.07)**	85.41		5.83 (0.07)**	79.32	
Level 2																		
Group	-0.62(0.12)**	5.17	.27	-0.58 (0.11)**	5.13	.27	-0.44 (0.13)*	3.35	.18	-0.40 (0.11)**	3.61	.19	-0.49 (0.11)**	4.41	.23	-0.11 (0.11)	0.97	.05
Parent Education	-0.03 (0.05)	0.48	.03	0.01 (0.04)	0.01	.00	0.004 (0.06)	0.08	.00	0.04 (0.04)	0.88	.05	0.01 (0.05)	0.17	.01	0.08 (0.05)	1.79	.10
Income	-0.01 (0.03)	0.11	.01	-0.01 (0.02)	0.34	.02	0.02 (0.03)	0.16	.01	0.02 (0.02)	0.72	.04	0.01 (0.03)	0.30	.02	0.03 (0.03)	1.16	.06
	Standard Deviation (Variance)																	
Level-1 Intercept	1.28 (1.66)						1.23 (1.51)						1.33 (1.76)					

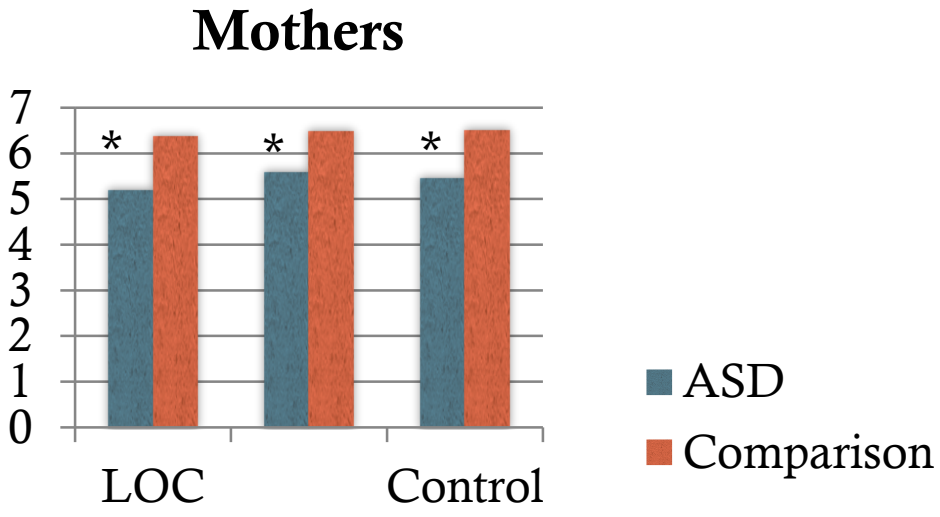
Note. Three multilevel models conducted – 1 = predicting locus of control for mothers and fathers, 2 = model predicting stability for mothers and fathers, 3 = predicting controllability for mothers and fathers. Coeff = coefficient. SE = Standard Error. *$p < .05$, ** $p < .01$. Group = Parents of Children with ASD (1) vs. Comparison group of parents of children without disabilities (-1). Effect size r = sqrt [t2/(t2 + df)].

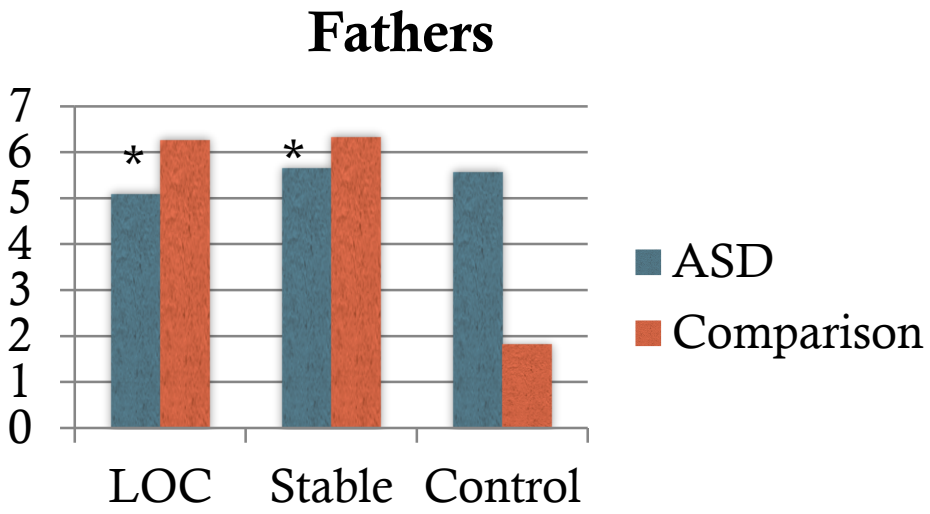
Aim 1 Key Results

Diminished positivity effect in ASD group

Negative societal view of ASD

Context of high parenting stress





Aim 2 Results

Table 2.

Dyadic Multilevel Models of Parental Attributions Predicting Positive Affect, Negative Affect, and Closeness in the Parent-Child Relationship

	Negative Affect						Positive Affect						Parent-Child relationship					
	Mother			Father			Mother			Father			Mother			Father		
	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r
Level 1																		
Intercept	22.16 (0.73)	30.41		24.01 (0.62)	38.59		9.83 (0.66)	14.96		8.44 (0.62)	13.52		45.13 (0.06)	75.31		45.54 (0.83)	55.00	
Level 2																		
Child Functional Skills	0.03 (0.03)	1.04	.08	0.03 (0.03)	0.99	.07	-0.02 (0.02)	0.70		-0.01 (0.02)	0.23	.02	0.06 (0.03)	2.28*	.17	0.04 (0.03)	1.29	.10
Child Gender	-1.23 (1.44)	0.95	.07	0.65 (1.17)	0.56	.04	0.15 (1.08)	0.14	.01	-0.56 (0.98)	0.57	.04	1.74 (1.22)	1.43	.10	1.24 (1.08)	1.15	.09
Child Age	0.14 (0.22)	0.63	.05	0.05 (0.20)	0.25	.02	-0.15 (0.18)	0.84	.06	-0.18 (0.17)	1.04	.08	0.46 (0.18)	2.57**	.19	0.09 (0.22)	0.42	.03
Parent Education	0.13 (0.47)	0.29	.02	0.01 (0.36)	0.99	.07	0.34 (0.31)	1.09	.08	0.31 (0.33)	0.94	.07	-0.48 (0.40)	1.20	.09	-0.39 (0.35)	1.14	.09
Parent Ethnicity	-0.76 (0.73)	1.03	.08	0.98 (0.58)	1.69	.13	-1.03 (0.69)	1.49	.11	-0.21 (0.65)	0.33	.02	-0.11 (0.62)	0.18	.02	0.69 (0.81)	0.84	.06
Parent Income	0.24 (0.17)	1.37	.10	-0.01 (0.15)	0.92	.07	-0.35 (0.15)	2.42*	.18	-0.13 (0.15)	0.88	.07	-0.12 (0.17)	0.69	.05	0.04 (0.16)	0.24	.02
Child Behaviour Problems	0.11 (0.07)	1.69	.13	0.13 (0.06)	2.13*	.16	0.08 (0.05)	1.51	.11	-0.17 (0.06)	2.86**	.21	-0.19 (0.07)	2.81**	.21	-0.26 (0.06)	4.03**	.29
Child Autism Symptoms	0.03 (0.08)	0.22	.02	0.03 (0.07)	0.42	.03	0.07 (0.05)	1.29	.10	0.05 (0.06)	0.98	.07	-0.06 (0.07)	0.91	.07	-0.01 (0.06)	0.13	.01
Locus of Control	-0.41 (0.36)	1.15	.09	-0.05 (0.28)	0.20	.02	0.04 (0.26)	0.15	.01	0.36 (0.27)	1.32	.10	-0.10 (0.28)	0.34	.03	0.12 (0.39)	0.29	.02
Stability	0.68 (0.38)	1.77	.13	0.33 (0.38)	0.88	.07	-0.22 (0.25)	0.88	.07	-0.28 (0.35)	0.80	.06	0.69 (0.27)	2.59**	.19	0.92 (0.44)	2.09*	.16
Controllability	0.16 (0.36)	0.44	.03	0.46 (0.31)	1.46	.11	-0.24 (0.32)	0.75	.06	-0.34 (0.37)	0.91	.07	0.30 (0.32)	0.95	.07	-0.28 (0.30)	0.94	.07
	Standard Deviation (Variance)																	
Level-1 Intercept	6.14 (37.73)						5.32 (28.35)						5.98 (35.75)					

Note. Three multilevel models conducted – 1 = predicting locus of control for mothers and fathers, 2 = predicting stability for mothers and fathers, 3 = predicting controllability for mothers and fathers. Coeff = coefficient. SE = Standard Error. *$p < .05$, ** $p \leq .01$. Effect size r = sqrt [t2/(t2 + df)].

Aim 2 Results

Negative Affect	Positive Affect	Parent-Child Relationship
• Father ratings of behavior problems (+)	• Mom income (-) • Father ratings of behavior problems (-)	• Mother and father ratings of stability (+) • Mother ratings of functional skills and child age (+) • Mother and Father ratings of behavior problems (-)

Aim 2 Key Results

- Closeness in the parent-child relationship
  - Sensitive and warm parenting behaviors

Aim 3 Results

Table 3.

Dyadic Multilevel Models of Child and Parent Variables Predicting Parental Attributions of Locus of Control, Stability, and Controllability

	Locus of Control						Stability						Controllability					
	Mother			Father			Mother			Father			Mother			Father		
	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect size r	Coeff (SE)	t-ratio	Effect Size r
Level 1																		
Intercept	5.39 (0.16)	33.25**		4.98 (0.19)	25.74**		5.73 (0.15)	37.42**		5.82 (0.13)	43.26**		5.22 (0.22)	23.52		5.63 (0.16)	35.83	
Level 2																		
Child Functional Skills	0.01 (0.01)	1.00	.08	0.007 (0.01)	0.59	.04	0.01 (0.01)	1.98*	.15	-0.00 (0.01)	0.30	.02	0.004 (0.01)	0.56	.04	0.01 (0.01)	1.65	.12
Child Gender	0.06 (0.34)	0.16	.01	0.06 (0.26)	0.25	.02	0.44 (0.29)	1.48	.11	-0.17 (0.30)	0.57	.04	0.31 (0.31)	1.00	.08	0.19 (0.28)	0.66	.05
Child Age	0.13 (0.05)	2.56**	.19	0.01 (0.05)	0.11	.01	0.12 (0.05)	2.45*	.18	0.05 (0.05)	1.12	.08	0.06 (0.05)	1.13	.09	0.05 (0.04)	1.08	.08
Parent Education	0.04 (0.10)	0.40	.03	0.001 (0.10)	0.09	.01	0.04 (0.10)	0.38	.03	-0.09 (0.07)	1.30	.11	0.17 (0.10)	1.66	.13	0.21 (0.10)	2.12*	.16
Parent Ethnicity	0.25 (0.15)	1.67	.13	-0.15 (0.19)	0.77	.06	0.26 (0.15)	1.75	.13	0.22 (0.14)	1.58	.12	-0.26 (0.21)	1.21	.09	0.17 (0.16)	1.07	.08
Parent Income	-0.02 (0.05)	0.50	.04	-0.06 (0.04)	1.44	.11	-0.02 (0.04)	0.55	.04	-0.01 (0.03)	0.17	.01	-0.001 (0.04)	0.02	.00	0.03 (0.05)	0.71	.05
Child Behaviour Problems	-0.04 (0.02)	2.59**	.19	-0.02 (0.01)	1.45	.11	-0.02 (0.02)	0.99	.08	-0.02 (0.01)	1.82+	.14	-0.01 (0.02)	0.82	.06	-0.01 (0.01)	0.97	.08
Child Autism Symptoms	0.003 (0.02)	0.14	.01	-0.02 (0.01)	1.39	.10	0.001 (0.02)	0.02	.00	-0.02 (0.01)	1.43	.11	-0.02 (0.02)	0.98	.08	-0.01 (0.02)	0.44	.03
	Standard Deviation (Variance)																	
Level-1 Intercept	1.48 (2.19)						1.28 (1.65)						1.42 (2.00)					

Note. Three multilevel models conducted –1 = predicting locus of control for mothers and fathers, 2 = predicting stability for mothers and fathers, 3 = 1 predicting controllability for mothers and fathers. Coeff = coefficient. SE = Standard Error. SD = Standard deviation. *$p < .05$, ** $p \leq .01$. Effect size: r = sqrt [t2/(t2 + df)].

Aim 3 Results

Locus of Control	Stability	Controllability
• Mother ratings of behavior problems (-) and child age (+)	• Mother ratings of functional skills and child age (+) • Father ratings of behavior problems (-)	• Father education (+)

Aim 3 Key Results

- Aim 3: Child parent factors
  - Higher levels of child impairment
  - Older children

Implications

- Interventions altering parental attributions should focus on positive child behaviors, in addition to negative behavior problems.
- Altering parental attributions may lead to closer parent-child relationships in families of children with ASD

Strengths and Limitations

Strengths

- Mothers and fathers
- Comparison group
- Multilevel modeling
- Narrow child age range

Limitations

- Homogenous sample
- Positive event may not be representative of parental attributions broadly
- Shared method variance
- Cross-sectional

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The Hartley Lab

Questions?

References

Achenbach, T. M., & Rescorla, L. A. (2000). Manual for the ASEBA Preschool Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.

Achenbach, T. M., & Rescorla, L. A. (2001). Manual for the ASEBA School-Age Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth, and Families.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

Bar-Tal, Y., Shrira, A., Keinan, G. (2013). The effect of stress on cognitive structuring: A cognitive motivational model. *Personality and Social Psychology Review, 17*, 87-99.

Centers for Disease Control and Prevention (2014). *Prevalence of autism spectrum disorders – autism and developmental disabilities monitoring network*, United States, 2010. *Morbidity and Mortality Weekly Report, 63*:1-21.

Constantino, J. N., Gruber, C. P. (2012). *Social Responsiveness Scale*, *Second Edition* (SRS-2). Torrance, CA: Western Psychological Services.

Foody, C., James, J. E., & Leader, G. (2015). Parenting stress, salivary biomarkers, and ambulatory blood pressure: A comparison between mothers and fathers of children with autism spectrum disorders. *Journal Of Autism And Developmental Disorders*, *45*(4), 1084-1095.

Gau, S. S., Chou, M. C., Chiang, H. L., Lee, J. C., Wong, C. C., Chou, W. J., & Wu, Y. Y. (2012). Parental adjustment, marital relationship, and family function in families of children with autism. Research in Autism Spectrum Disorders, 6, 263–270.

Geller J., & Johnston C. (1995). Depressed mood and child conduct problems: relationships to mothers' attributions for their own and their children's experiences. *Child and Family Behaviour Therapy,* 17,19–34.

Harrison, P.L., & Oakland, T. (2003). *Adaptive Behaviour Assessment – Second Edition Manual (ABAS II).* San Antonio, TX: Harcourt Assessment.

Hartley, S. L., Barker, E. T., Seltzer, M. M., Floyd, F., Greenberg, J., Orsmond, G., & Bolt, D. (2010). The relative risk and timing of divorce in families of children with an autism spectrum disorder. Journal of Family Psychology, 24, 449–457.

Hartley, S. L., Schaidle, E. M., & Burnson, C. F. (2013). Parental attributions for the behaviour problems of children and adolescents with autism spectrum disorders. *Journal of Developmental and Behavioural Pediatrics*, *34*(9).

Hayes, S. A., & Watson, S. L. (2013). The impact of parenting stress: A meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders, 43,* 629-642.

Johnston, C., Reynolds, S., Freeman, W. S., & Geller, J. (1998). Assessing parent attributions for child behaviour using open-ended questions. *Journal of Clinical Child Psychology*,

Lai, W. W., Goh, T. J., Oei, T. S., & Sung, M. (2015). Coping and well-being in parents of children with autism spectrum disorders (ASD). *Journal Of Autism And Developmental Disorders*, *45*(8), 2582-2593.

Livneh, H. (2012). On the origins of negative attitudes toward people with disabilities. *The Psychological and Social Impact of Physical Disability, supra note*, *70*.

Roberts, R. L., & Bengtson, V. L. (1993). Relationships with parents, self-esteem, and psychological well-being in young adulthood. *Social Psychology Quarterly*, *56*, 263-277. doi:10.2307/2786663

Smith A. M., & O'Leary S. G. (1995). Attributions and arousal as predictors of maternal discipline. *Cognitive Therapy Research, 19*, 459–71

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063-1070.

Weiner, B. (1985). 'Spontaneous' causal thinking. *Psychological Bulletin*, *97*(1), 74-84.

White, C., & Barrowclough, C. (1998). Depressed and non-depressed mothers with problematic preschoolers: Attributions for child behaviours. *British Journal of Clinical Psychology*, *37*(4), 385-398.

Whittingham, K., Sofronoff, K., Sheffield, J., & Sanders, M. R. (2008). An exploration of parental attributions within the autism spectrum disorders population. *Behaviour Change*, *25*, 201-214.