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The Role of Parental and Adolescent Attributions in Adjustment of Adolescent with Chronic Illness

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Abstract

Previous literature has demonstrated the separate contributions of parental attributions and adolescent attributions to psychosocial adjustment of adolescents with chronic illness. However, it is unknown whether parental attributions affect adolescents' mental health directly or indirectly by influencing the youths' attributional style. This study evaluated the direct and indirect (through adolescent attributions) effects of parental attributions on internalizing and externalizing problems of adolescents with chronic illness. Adolescents ($N=128$; $M=14.7$ yrs.) diagnosed with cystic fibrosis or diabetes and their caregivers completed measures of attributional style and adolescent adjustment. Parents' optimistic attributions were associated with fewer adolescent internalizing and externalizing problems. These effects were partly mediated by adolescent attributions. These results suggest that targeting both adolescent and parent attributions may be important for improving adolescents' adjustment to a chronic illness.

Keywords

chronic illness; attribution style; coping; adolescents; adjustment

Thousands of children are diagnosed each year with chronic illnesses that increase their risk for a variety of mental health problems (Wallander, Thompson, & Alriksson-Schmidt, 2003; Wallander & Varni, 1998). The risk-resistance model of coping with chronic illness specifies a variety of parent and child factors, coping processes, disease characteristics, and demographic factors that interact to influence children's adjustment to chronic illness and resulting mental health (Wallander et al., 1992). In order to improve the mental health outcomes of these children, it is critical to target those factors that are modifiable and have a demonstrated and significant influence on mental health outcomes. One such factor is families' attributional style. The current study examined the role of parents' attributional style in adolescents' attributions and resulting adolescents' adjustment to chronic illness.

Attributional style refers to the way that people explain negative or positive events in their life. It is defined by three dimensions describing the cognitive appraisal of the event: internal-external, global-specific, and stable-unstable. Seligman's theory (Seligman, Abramson, Semmel, & von Baeyer, 1979) posits that specific patterns of attributions that reflect learned helplessness increase the risk for depression and other mental health problems. In particular, internal, global, and stable attributions for negative events are considered maladaptive, or pessimistic, while the same attributions related to positive events

are considered adaptive or optimistic (Peterson et al., 1982). A pessimistic pattern of attributions reflects the cognitive belief that one is not in control of his or her environment, resulting in hopelessness, diminished self-esteem and self-efficacy, and depression (Gotlib & Abramson, 1999; Sweeney, Anderson, & Bailey, 1986). Attributional style is considered an important aspect of coping, as evidenced by its impact on medical and psychological adjustment in chronically ill children and adolescents. As in non-pediatric samples, chronically ill children with pessimistic attributional styles are more likely to develop depression, anxiety, and distress than those who utilize optimistic attributional styles (Frank, Blount, & Brown, 1997; Maurice-Stam, Grootenhuys, Brons, Caron, & Last, 2007; Maurice-Stam et al., 2009). Although the majority of studies on attributions and adjustment have addressed internalizing outcomes, clinically significant levels of externalizing symptoms have also been demonstrated in pediatric patients with more negative attributions (Schoenherr et al., 1992).

A unique aspect of studying pediatric populations is the fact that parents play an important role in the functioning of children with a chronic illness (Wallander & Varni, 1998). Developmental literature demonstrates the importance of parents in the development of children's coping and adjustment (Power, 2004). In fact, many family-based psychological interventions in medical settings focus on parents' coping with the premise that parents provide important modeling and guidance for their children's coping (Johnson, Kent, & Leather, 2005). Additionally, parenting style has been related to adolescents' attribution style in a normative sample, demonstrating the important role parents play in the development of their children's attributions (Li & Qian, 2000). However, the more specific influence of parental attributions on chronically ill children's attributional style and outcomes has rarely been examined. In one study with a normative sample of preadolescent children, parents' attributional style was related to children's attributions (Gibb et al., 2006). Another study examined attributions of children with PKU and their parents, finding moderate to high correlations ($r = .57-.87$) between parent and child attributional styles (Antshel, Brewster, & Waisbren, 2004). However, these studies did not link parent and child attributions to youths' psychosocial outcomes.

Parental attributional style may affect adjustment of chronically ill adolescents in several ways. First, parents may overtly or subtly model attributions through their own appraisal of situations or coaching their children through stressful events. Adolescents may then learn and utilize a similar pattern of appraisal, which may directly affect their adjustment. In this case, parents' attributions would have an indirect effect on adolescent adjustment via adolescents' attributions. Alternatively, parents' attributional style may have a more direct impact on their children's functioning. Since parents are frequently responsible for maintaining their child's treatment regimen, parent attributional style is likely to affect their own behavior and subsequently children's outcomes.

The current study evaluates the relationships between parental and child attributional style and mental health of chronically ill adolescents. We hypothesized that pessimistic parent attributional style would be associated with adolescents' externalizing and internalizing problems, and that these relationships would be partly mediated by adolescents' own attributions. Thus, we expected both direct and indirect relationships between parents' attributions and adolescent adjustment. Examining parents' and adolescents' attributions as risk factors for poor psychosocial adjustment will help pediatric professionals identify adolescents at risk for mental health problems, while examining the direct and indirect effects of parental attributions will help clarify whether cognitive interventions should target parents, adolescents, or both.

Methods

Participants and Procedures

Participants included 128 adolescents diagnosed with type 1 diabetes ($n=82$) or cystic fibrosis (CF) ($n=46$) and their caregivers. The decision to include multiple disease groups was based on prior literature that demonstrated no differences in attributional styles based on disease (Schoenherr et al., 1992) and no consistent differences in adjustment among children with different chronic illnesses (Wallander et al., 2003). Combining two disease populations allowed us to recruit a larger sample size and increased power to test the hypotheses, and provided greater generalizability of the results to multiple pediatric populations.

All adolescents were recruited during routine outpatient medical visits at diabetes and cystic fibrosis clinics at a Children's Hospital in the southeast U.S. Inclusion criteria included fluency in English and no known diagnosis of a Pervasive Developmental Disorder, Psychosis, or Mental Retardation. Eligible adolescents ages 12–18 and one primary caregiver were recruited to participate. Out of 170 dyads that were approached, 128 agreed to participate (75% participation rate). Participants provided a written informed consent form in the clinic, and completed a 45-minute survey during their visit (62%) or mailed in the survey after completion at home (38%). Participants were provided with both written and verbal instructions for all measures during recruitment. Each adolescent/caregiver dyad was compensated for their time. All study procedures were approved by the University Institutional Review Board.

Adolescents (average age 14.7 years) included 53% males; 84% Caucasians, 13% African Americans, and 3% other ethnicities. Primary caregivers included 79% mothers, 11% fathers, and 10% grandparents or other family members. The median family income was \$50,000–80,000. A summary of demographic information is provided in Table 1. Diagnostic group differences were examined using t-tests and chi-squared tests. The diabetes group had a significantly lower time since diagnosis than the cystic fibrosis group (see Table 1), but there were no differences between the two groups on child age, ethnicity, or caregiver relationship to child.

Measures

Parent attributional style—Parent attributional style was measured using the Attribution Styles Questionnaire (ASQ; Peterson et al., 1982; Seligman et al., 1979). The ASQ includes 12 hypothetical situations of 6 positive and 6 negative events such as “You become very rich,” or “You have been looking for a job unsuccessfully for some time.” For each scenario, parents indicated a probable cause for the situation using an open-ended format and then rated the locus of control (myself vs. other people), stability (never vs. always will be present), and globality (general vs. specific to the situation) on a 7-point scale. Positive and negative attribution subscales were derived by calculating the average sum of the three ratings on the 6 items corresponding to each scale (positive and negative events). Higher scores on the positive and negative scales correspond to more internal, stable, and global ratings for positive and negative events, respectively. A composite score was then computed by subtracting the negative scale from the positive scale, so that higher total scores reflect more optimism, while lower scores reflect a more pessimistic attributional style. Consistent with previous research (Peterson & Seligman, 1984), the most consistent composite score was used. Internal reliability of the scale was adequate ($\alpha = .75$).

Adolescent attributional style—Adolescents' attributional style was assessed with the Children's Attributional Styles Questionnaire Revised (CASQ-R; Kaslow & Nolen-Hoeksema, 1991). The CASQ-R contains 24 hypothetical situations (e.g., “A team that you

are on losses a game,” or “You make your friends happy.”) about which children make forced-choice ratings of locus of control, stability, and globality similar to the adult measure. As with the parent measure, positive attribution style and negative attribution style scales were computed, and then a composite was derived as positive minus negative attribution. As with the adult measure, high scores on the positive and negative scales of the CASQ-R indicate more internal, global, and stable attributions for positive and negative events, respectively, and higher composite scores indicate more optimistic attributions. Although internal consistencies of both subscales were low ($\alpha = .53$ and $.52$), they were consistent with those reported in previous psychometric research using this measure (Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998). Despite its low reliability, the scale has good predictive validity for depressive symptoms and anxiety in pediatric populations (Frank, et al., 1997; Thompson et al., 1998).

Adolescent adjustment—Adolescent externalizing and internalizing problems were measured with parent and adolescent report using the Behavioral Assessment System for Children-Second Edition (BASC-2; Reynolds & Kamphaus, 2004). Four clinical scales were used to measure externalizing problems: parent-reported hyperactivity (8 items; $\alpha = .80$), conduct problems (14 items; $\alpha = .87$), and aggression (10 items; $\alpha = .82$); and child-reported hyperactivity (7 items; $\alpha = .78$). Unfortunately, the child version of BASC does not include conduct problems and aggression subscales. Internalizing problems were assessed with parent-reported depression and anxiety scales (13 and 11 items; $\alpha = .84$ and $.77$, respectively), and adolescent-reported depression and anxiety scales (12 and 13 items; $\alpha = .84$ and $.85$, respectively). On the parent form, all items were rated on a 4-point Likert scale (never, sometimes, often, always). On the adolescent form, some items were rated on the same 4-point scale used in the parent version, but other items utilized dichotomous (true/false) response format. Standardized T-scores ($M=50$, $SD=10$) were utilized for each subscale.

Demographics—An additional questionnaire asked caregivers to report on basic demographic information, including the child’s ethnicity, gender, and age, and family income. Due to the small number of respondents who indicated another ethnicity besides White or African American, ethnicity was recoded into two categories, White and Other. The two diagnostic groups were coded as two dichotomous indicators for analyses. Youth from these groups did not differ on most demographic variables (age, gender, race, relationship to caregiver).

Results

Preliminary Analyses

For scales used as independent variables that were missing fewer than 50% items, the missing items were imputed using the complete items from the same scale. The Expectation-Maximization (EM) algorithm in SPSS was used. Overall, 0.9% of items were imputed. After these imputations, 15 cases had missing data on parent attributions, two cases were missing parent report of externalizing problems, and five cases were missing adolescent report for both internalizing and externalizing problems. In the main analyses, this missingness was handled with full-information-maximum-likelihood methods in Mplus. Participants with missing data did not differ from those with complete data on any variables.

Table 2 contains descriptive information for all independent and dependent variables. Disease group differences were examined with independent samples *t*-tests. No group differences emerged on any variables. Although all analyses utilized standardized BASC T-scores as continuous variables, we also examined clinically significant adjustment problems

in the sample categorically. As detailed in Table 2, the percentage of the sample with clinically significant or at-risk scores (T-scores ≥ 60) ranged from 10% for aggression and conduct problems to 24% for self-reported hyperactivity. It should be noted that the standardized anxiety scales include some somatic problems, thus possibly overestimating the rates of clinically significant levels of anxiety.

Correlations among all variables are presented in Table 3. Males were perceived by caregivers as displaying more hyperactivity and fewer depressive and anxiety symptoms. Older adolescents had been diagnosed with their disorder longer, reported more symptoms of hyperactivity, anxiety and depression, and were rated by parents as exhibiting more hyperactivity, conduct problems, and anxiety. White caregivers had higher family income and less positive attributions than minority caregivers. Longer time since diagnosis was associated with lower family income and greater parent-reported adolescent anxiety. More optimistic caregiver attributions were linked with more optimistic adolescent attributions and lower caregiver (but not adolescent) reports of adolescent externalizing and internalizing problems. Similarly, more optimistic adolescent attributions were associated with fewer internalizing and externalizing problems per both adolescent and caregiver report. All caregiver and adolescent reports of externalizing and internalizing problems were interrelated, with the exceptions of nonsignificant correlations of adolescent-reported depression with parent-reported anxiety and adolescent-reported anxiety with parent-reported hyperactivity and aggression.

Effects of Parent and Adolescent Attributional Style on Adolescent Outcomes

We hypothesized that parental optimistic attributions would be related to fewer internalizing and externalizing symptoms in adolescents, and that these effects would be partly mediated by adolescent attributions. These direct and mediation effects were tested with Structural Equation Modeling (SEM) in Mplus 6. Adolescent internalizing and externalizing problems were modeled as latent factors. This approach allowed for a parsimonious use of multiple variables measuring the same constructs, as well as modeling of the constructs without measurement error and measure-specific variance. The internalizing latent factor was derived from adolescent and parent reports of anxiety and depression, and the externalizing latent factor was indicated by adolescent-reported hyperactivity and parent-reported hyperactivity, aggression, and conduct problems. All paths were adjusted for demographic variables that were related to any predictor or outcome variables (gender, age, time since diagnosis, and disorder group). Theoretically meaningful covariances between specific pairs of adolescent adjustment variables which were suggested by modification indices were added to each model (e.g., between parent and adolescent reports of hyperactivity; see Figure 1).

The direct model of caregiver attributions predicting adolescent adjustment had an excellent fit [$\chi^2(45) = 55.21, p = .14$; CFI = 0.98; RMSEA = 0.04]. In general, a good fit of an SEM model is indicated by a χ^2/df ratio of less than 2, CFI values of 0.95 or above, and RMSEA values equal to or lower than 0.06 (Hu & Bentler, 1999). More optimistic parental attributions were associated with both fewer internalizing ($\beta = -.29, p < .001$) and externalizing ($\beta = -.40, p < .001$) problems in the adolescent. The mediation model (see Figure 1) had a good fit to the data [$\chi^2(51) = 72.80, p = .02$; CFI = 0.96; RMSEA = 0.06]. Path estimates indicated that optimistic parental attributions were related to better adolescent adjustment both directly, as well as indirectly through more positive adolescent attributions. These results suggest partial mediation, with the indirect effect through adolescent attributions accounting for 15% of the total effect of parent attributions on externalizing problems and 23% of the total effect on internalizing problems.

Discussion

Current results provide interesting insights about the relationships between parent and adolescents attributions and psychosocial adjustment of youth with chronic illness. As hypothesized, both parental and adolescents' attributions were associated with adolescents' internalizing and externalizing problems. Additionally, the effects of parents' attributions could be partly explained by adolescents' attributions. Specifically, parents who made more internal, stable, and global attributions for positive events and more external, unstable, and specific attributions for negative events had adolescents who tended to use the same attributional style. Additionally, these more optimistic attributions in both parents and adolescents were related to fewer externalizing and internalizing problems experienced by the youth.

Parent and Adolescent Attribution Style and Adolescent Adjustment

The finding of a positive relationship between parental and adolescent attributions is consistent with existing studies of healthy children (Gibb et al., 2006) and youth with PKU (Antshel et al., 2004). The magnitude of the relationship was small, but consistent with previous research using similar measures (Gibb et al., 2006). The similarity between adolescents' and parents' attributions likely arises from multiple sources, including parental modeling of attributions, as well as shared biological (e.g., temperament) and environmental (e.g., financial hardship) factors. Although the present results cannot determine causality behind this relationship, it is likely that parents at least partly shape their children's attributions by providing explanations for positive and negative events occurring in their own and their child's lives, and providing positive reinforcement for children's attributions that are consistent with their own. It will be important to determine whether interventions targeting parental attributions lead to changes in children's attributions as well.

More optimistic attributions made by both parents and adolescents were related to fewer internalizing and externalizing problems in the adolescents. The direct relationship between adolescent attributions and internalizing problems is consistent with a large body of literature demonstrating that internal, global, and stable appraisals of negative situations are associated with higher rates of depression and anxiety (Gotlib & Abramson, 1999). More specifically, when adolescents believe that a negative event (e.g., poor blood-glucose levels among youth with diabetes) is internally driven and unlikely to change, they are more likely to experience internalizing symptoms. Fewer studies have examined attribution style in relation to externalizing problems (Schoenherr et al., 1992), but the current results indicate that similar relationship exists between attributions and externalizing problems. For example, adolescents who blame negative events on internal, stable, and global causes may become frustrated and engage in more externalizing problems. However, it is also possible that feeling anxious or depressed or having behavior problems may lead adolescents to develop more pessimistic attributional style. It should also be noted that externalizing and internalizing problems were moderately intercorrelated in the present sample. Thus, adolescents who experienced more internalizing problems also exhibited more externalizing behaviors. It is possible that this co-occurrence of internalizing and externalizing problems contributed to attributions being predictive of both types of problems. It will be important for future research to examine the relationships between attributions and internalizing and externalizing symptomatology over time to determine their directionality. It would also be helpful to explore possible reasons for the comorbidity of externalizing and internalizing problems, and what role, if any, attributions play in this comorbidity.

Interestingly, parental attributions remained directly associated with adolescent adjustment even after accounting for the indirect effects through adolescent attributions. This suggests that parental attributions may contribute to adolescents' behavior and emotions directly

(e.g., by blaming the adolescent for a negative event) or indirectly through other mediating factors, such as general parenting behaviors or parental behaviors related to medical compliance. For instance, parents with more optimistic attributions may encourage their child to work harder on various tasks (e.g., homework, friendships, medical management), leading to a more successful performance and fewer internalizing and externalizing problems. Similarly, parents who explain deterioration in their child's health by unstable and specific factors (e.g., we forgot to keep track of medications last week because of traveling) may be more likely to increase their medical compliance compared with parents who attribute the deterioration to factors that are more stable and global (e.g., we can never keep track of the treatment regimens). However, it is also possible that better psychosocial adjustment in adolescents contributes to more optimistic attributions in the parents. Clearly, it would be important for future studies to address these relationships longitudinally and explicitly assess different ways through which parental attributions may relate to adolescent adjustment.

Diagnostic Group Similarities and Differences

This report included adolescents from two disorder groups – diabetes and cystic fibrosis. Youth from these groups did not differ on any demographic variables, including age, gender, race, family income, and relationship to caregiver. The only difference emerged on time since diagnosis – adolescents with cystic fibrosis have been diagnosed on average longer than youth with diabetes. Importantly, no group differences were observed in parent or adolescent attributions or in adolescent adjustment, based on both parent and adolescent report. This lack of differences suggests that both groups had similar demographic make-up and similar levels of psychosocial functioning, and supports the inclusion of both disorder groups in this investigation.

Clinical Implications

Clarifying the contributions of adolescents' and parents' attributions to mental health outcomes provides important information for planning interventions and could potentially aid in reducing the prevalence of psychopathology in adolescents with chronic illness. The present results show that adolescents with chronic illness who rely on more pessimistic attributions, or whose parents make more pessimistic attributions, are at risk for behavioral and emotional problems. These findings suggest that targeting both parental and adolescent attributions may be helpful for improving mental health of youth with chronic illness. Addressing only adolescents' coping may not be sufficient, as parental attributions were uniquely associated with adolescent adjustment even after accounting for adolescents' attributions. Parental attributions may have a direct effect on adolescent functioning through general or treatment-related parental behaviors. Thus, coping interventions with both parents and adolescents may be most effective. When this is not possible, intervening with parents only may be more helpful than working only with adolescents, since changes in parental attributions may translate into changes in adolescent attributions. However, more research is needed to support these causal speculations.

Strengths, Limitations, and Future Directions

This study examined an understudied topic in pediatric literature regarding the relationships between parental and adolescent attributions and adolescent adjustment. Measures of adjustment were gathered from two informants and used to derive latent factors, thus increasing precision of the modeling of each construct and eliminating redundancy and increased type I error that occur when multiple related outcomes are analyzed separately. The inclusion of two disease groups allowed a larger sample size and more complex statistical analyses, and might also support generalizability of the results to multiple disease conditions. However, although only one disease group difference emerged on time since

diagnosis, it is possible that some of the studied relationships are weaker or stronger in youth with specific health conditions. A larger sample of youth with multiple different disorders would allow such comparisons, and, if differences emerged, promote tailoring interventions to specific populations. The cross-sectional design of the current study precludes causal interpretations of the obtained relationships. Longitudinal and intervention designs would be necessary to determine the causal links between parental and adolescent attributions and adolescents' mental health outcomes.

Another limitation of the current study is the low reliability of the child attribution measure (CASQ-R), which replicates similar findings from previous research (Thompson et al., 1998). Future research may benefit from utilizing alternative measures of cognitive coping and further development of developmentally appropriate measures of adolescents' attributions. Although several measures related to attribution style in children exist (e.g., Connell, 1985; Crandall, Katkovsky, & Crandall, 1965), only the CASQ and CASQ-R have scales that correspond to the adult measure. In addition, there are a limited number of pediatric-specific measures of attribution style. Developing disease-specific measures of children's and parents' attributions would be especially helpful in research with pediatric populations, and work in this area has already begun (Phipps, 2007; Wu, et al., 2011).

Despite these limitations, the present results offer interesting and clinically relevant findings about the role of adolescent and parent attributions in adjustment of youth with chronic illness. Specifically, the results suggest that more optimistic attributions in both parents and adolescents with chronic illness are associated with fewer internalizing and externalizing problems exhibited by the adolescents. Moreover, parent attributions relate to adolescent adjustment directly, as well as indirectly through an association with adolescent attributions. Future research should evaluate the applicability of the present results to youth with other chronic health conditions and test alternative causal explanations of the relationships between attributions and adjustment with longitudinal or intervention designs.

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Figure 1.

Standardized path estimates from a mediation model predicting externalizing and internalizing problems from parent and adolescent attributions.

Note: All structural paths are adjusted for adolescent gender, age, time since diagnosis, and disorder group. (P) – parent report; (A) – adolescent report. $^*p < .05$, $^{**}p < .01$.

Table 1

Sample Demographics

	Overall (N=128)	Range	Diabetes (N=82)	Cystic Fibrosis (N=46)	Test of Group Differences
Adolescent Age, <i>M</i> (<i>SD</i>)	14.7 (1.8)	12–18	14.7 (1.7)	14.7 (1.9)	$t(126)=0.12$
Years since diagnosis, <i>M</i> (<i>SD</i>)	8.5 (4.7)	0.3–17.8	6.4 (3.5)	12.3 (4.1)	$t(126)=8.54^{***}$
Family income, <i>M</i>	\$50–80K	<\$10–>\$100K	\$40–50K	\$35–40K	$t(126)=1.34$
Male, %	53.1%		54.9%	50.0%	$\chi^2(1)=0.60$
White, %	83.6%		81.7%	87.0%	$\chi^2(1)=0.44$
Caregiver relationship					$\chi^2(2)=0.45$
Mother, %	78.9%		79.3%	78.3%	
Father, %	10.9%		9.8%	13.0%	

Note:

 $p < .01$

Table 2

Descriptive Information for Predictor and Outcome Variables

	<i>M (SD)</i>	Range	Elevated BASC (T 60)	Diabetes (D)	Cystic Fibrosis (CF)	Test of Group Differences
Parent attributions ^a	3.6 (3.4)	-5.2–13.8		3.9 (3.3)	3.0 (3.6)	$t(111)=1.34$
Adolescent attributions ^a	6.0 (3.2)	-3.0–12.0		6.2 (3.1)	5.7 (3.4)	$t(126)=0.76$
Hyperactivity <i>b</i> - P	50.8 (10.4)	36–93	17.3%	50.0 (9.1)	52.4 (12.2)	$t(125)=-1.25$
Hyperactivity <i>b</i> - A	51.2 (11.3)	33–94	24.0%	51.1 (10.1)	51.4 (13.2)	$t(123)=-0.14$
Aggression <i>b</i> - P	48.3 (8.2)	38–77	10.2%	48.8 (8.7)	47.5 (7.3)	$t(125)=0.81$
Conduct Problems <i>b</i> - P	49.6 (9.0)	39–91	10.3%	49.6 (8.2)	49.7 (10.5)	$t(124)=-0.05$
Depression <i>b</i> - P	50.8 (10.0)	37–90	16.7%	50.5 (10.0)	51.3 (9.9)	$t(124)=-0.40$
Anxiety <i>b</i> - P	49.6 (9.4)	30–78	15.9%	49.1 (9.3)	50.6 (9.6)	$t(124)=-0.86$
Depression <i>b</i> - A	47.0 (8.2)	38–76	12.0%	47.2 (8.4)	46.8 (7.9)	$t(123)=0.28$
Anxiety <i>b</i> - A	50.1 (9.5)	33–72	17.7%	50.3 (9.3)	49.9 (9.8)	$t(122)=0.22$

Note:

^a Higher scores indicate more optimistic attributions;^b T scores; P - parent report; A - adolescent report

Table 3

Correlations between Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Male	1													
2. Age	-.05	1												
3. White	-.13	.00	1											
4. Years since diagnosis	-.14	.25*	-.03	1										
5. Family income	-.03	.01	.32*	-.30*	1									
6. Parent attributions	-.10	-.01	-.20*	-.07	-.09	1								
7. Adolescent attributions	-.07	-.10	.02	-.11	.11	.22*	1							
8. Hyperactivity - P	.18*	.22*	.09	.15	-.01	-.35*	-.34*	1						
9. Hyperactivity - A	.07	.22*	.08	.07	.07	-.06	-.26*	.42*	1					
10. Aggression - P	.15	.14	.05	.08	-.02	-.32*	-.32*	.69*	.25*	1				
11. Conduct problems - P	.05	.22*	.01	.05	.05	-.25*	-.38*	.71*	.24*	.66*	1			
12. Depression - P	-.24*	.17	-.05	.14	-.10	-.21*	-.36*	.49*	.21*	.57*	.54*	1		
13. Anxiety - P	-.20*	.20*	.00	.22*	.05	-.20*	-.24*	.28*	.21*	.38*	.28*	.57*	1	
14. Depression - A	.04	.32*	-.15	.07	-.04	-.09	-.44*	.27*	.32*	.20*	.38*	.31*	.15	1
15. Anxiety - A	-.13	.26*	-.13	.13	.04	.02	-.21*	.11	.47*	.04	.19*	.21*	.22*	.51*

Note: P - parent report; A - adolescent report ;

* $p < .05$ or lower.