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Irritability and Anxiety Severity Among Youth With Anxiety

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Abstract

Objective—Most research on irritability and child psychopathology has focused on depressive disorders, bipolar disorder, and/or oppositional defiant disorder (ODD). Less is known about relationships between child anxiety and irritability and moderators of such associations.

Method—Structural equation modeling (SEM) examined associations between anxiety severity and irritability in a large sample of treatment-seeking youth with anxiety disorders (N=663, ages 7–19 years, M=12.25), after accounting for comorbid depressive disorders and ODD. Additional analyses examined whether associations were moderated by child gender, age, and generalized anxiety disorder (GAD) status.

Results—There was a direct link between child anxiety and irritability even after accounting for comorbid depressive disorders and ODD. Links between child anxiety and irritability were robust across child gender and age. Further, relationships between child anxiety and irritability were comparable across youth with and without GAD, suggesting that the anxiety–irritability link is relevant across child anxiety disorders and not circumscribed to youth with GAD.

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Conclusion—Findings add to an increasing body of evidence linking child irritability to a range of internalizing and externalizing psychopathologies, and suggest that child anxiety assessment should systematically incorporate irritability evaluations. Further, youth in clinical settings displaying irritability should be assessed for the presence of anxiety. Moreover, treatments for childhood anxiety may do well to incorporate new treatment modules as needed that specifically target problems of irritability.

Keywords

anxiety; irritability; child; SEM; tantrums

INTRODUCTION

Serious irritability—characterized by increased reactivity to negative emotional stimuli, commonly accompanied by anger and temper outbursts¹—affects roughly 3-5% of the general population.²⁻⁴ Empirical advances in recent years have clarified the very heavy burdens associated with chronic irritability, which include prospective and cross-sectional links with both externalizing and internalizing psychopathologies and elevated risk for a range of functional impairments.^{3,5-8} Research has linked irritability with the affective disorders, impulse control and conduct disorders, and the most recent *DSM* iteration added a new depressive disorder category—disruptive mood dysregulation disorder (DMDD)^{9,10}—that places chronic irritability and developmentally inappropriate temper outbursts at the core of its definition. Longitudinal work shows that even after controlling for psychiatric disorders, irritability prospectively predicts lower income, less educational attainment⁸ and suicidality,¹¹ underscoring the need to better understand irritability and its links with psychopathology in affected clinical populations.

The majority of research on irritability and child psychopathology has focused on depression, bipolar disorder, and/or oppositional defiant disorder (ODD),¹²⁻¹⁵ although a small but growing body of research is finding that irritability may also be linked with anxiety disorders. Stringaris and Goodman¹⁶ found irritability to prospectively predict internalizing disorders broadly beyond just depression, although they did not further break down their analyses to examine irritability associations with anxiety disorders specifically. Irritability is included in the *DSM-5* as a qualifying associated symptom of generalized anxiety disorder (GAD), and a recent study found roughly 90% of a sample of treatment-seeking youth with GAD showed persistent irritability.¹⁷ Although irritability is specifically mentioned in the definition of GAD and research has most commonly found irritability to be predictive of GAD diagnosis among youth with anxiety,¹⁷⁻²⁰ research on adult populations and emerging research on child populations have found irritability may be associated with a range of anxiety disorders.^{21,22}

In community samples, episodic irritability has been prospectively linked with GAD and specific phobias.⁷ In a more recent analysis, Stoddard et al²¹ found irritability to be greater among a heterogeneous group of youth with anxiety than among healthy controls. Further, across the anxiety disorders, social anxiety disorder and separation anxiety disorder (but not

GAD) uniquely predicted parent-reported irritability. In contrast, the reverse was true with regard to child-reported irritability.

Importantly, child anxiety disorders are highly comorbid with depressive disorders^{23,24} and with ODD,^{25,26} which in turn are classes of disorder shown to be robustly linked with irritability themselves.^{12,14} As such, the extent to which irritability is directly related to anxiety, or whether significant anxiety–irritability associations are simply artifacts of anxiety co-presentations with depression and ODD, remains unclear. Research considering links between anxiety and irritability must control for the co-occurring depression and ODD symptoms. Moreover, much of the limited work specifically examining the link between anxiety disorders and irritability²¹ has focused on between-group comparisons of anxious versus healthy controls. Between-group comparison cannot inform the extent to which linear relationships exist between anxiety and irritability, such that increased anxiety severity is associated with greater irritability. Examinations of such relationships are critical for identifying children at greatest risk and for optimally informing treatment.

Moreover, the limited work examining irritability in relation to child anxiety has not sufficiently considered potential age and gender effects. Indeed, both anxiety and irritability show differential presentation patterns across age and gender. For example, among the anxiety disorders, GAD (which has been most commonly linked with irritability) shows the latest age of onset, whereas specific phobias and separation anxiety disorder typically show much earlier onsets,²⁷ and girls show higher rates of anxiety than boys.²⁸ As such, if irritability shows a greater association with GAD than with other anxiety disorders, it might follow that associations between anxiety severity and irritability become stronger with age. Regarding irritability, population-based research shows onset seems to occur on average in the early preschool years,⁵ and rates of episodic irritability increase with child age.⁷ Person-centered research evaluating intra-individual irritability trajectories between ages 3 and 9 find the most common trajectories are associated with low or moderate irritability at age 3 that declines through age 9.²⁹ In contrast, 11% of youth follow trajectories associated with high irritability at age 3 that remains steady through age 9, and another 2% show high irritability at age 3 that significantly increases through age 9.²⁹ Analyses of individual trajectories among adolescents suggests that irritability is relatively stable in later childhood, although a considerable proportion of children with moderate chronic irritability show declines with age through adolescence and young adulthood.^{7, 30}

As with anxiety, girls show higher rates of irritability than boys.⁷ Given population-based research showing irritability to be intricately linked with negative affect,¹² and given higher rates of negative affect in females, it is possible that the anxiety–irritability link is stronger in females than in males. Accordingly, given these developmental and gender-based variations in anxiety and in irritability, links between anxiety and irritability may be more complex than previous research has identified.

Much remains to be learned about the relationships between anxiety and irritability, including: (a) the extent to which increased anxiety severity is linked with increased irritability (going beyond simple between-group differences of controls with and without anxiety); (b) the extent to which anxiety–irritability links are simply artifacts of anxiety co-

presentations with depression and ODD; (c) the extent to which anxiety–irritability links are just concentrated among youth with GAD; and (d) the extent to which anxiety–irritability links are robust across age and gender, or whether such demographic factors moderate associations.

Moreover, research to date examining anxiety–irritability links has relied exclusively on single indicators to capture child anxiety (most commonly structured diagnostic interviews) or has examined parent and child reports in separate models. Given the limitations and measurement error inherent in relying on a single indicator to measure child anxiety,³¹ continued work in this area would be best served by analyses that incorporate multiple observed indicators of child anxiety that can collectively isolate measurement error from the latent construct of child anxiety severity when modeling associations with irritability. Theoretically, such an approach would offer a more accurate assessment of the structural relationships between anxiety and irritability among youth with anxiety disorders, after accounting for comorbid depressive disorders and ODD. Additional analyses examined whether associations between anxiety severity and irritability were moderated by child gender, age, and GAD status.

METHOD

Participants

Participants were 663 consecutive children between the ages of 7 and 19 ($M=12.25$, $SD=3.11$; 54.1% female; 82.2% self-identified as non-Hispanic White or Caucasian) and their parents presenting between 2004 and 2013 for child assessment and/or treatment services at a large, university-affiliated outpatient clinic for anxiety disorders in New England. All youth met diagnostic criteria for a *DSM-IV-TR* anxiety disorder as determined by structured diagnostic interview. Most participants' parents were married (78.1%). Families ranged in resources: 19.6% were at or below 300% of the national poverty line for their year (e.g., in 2007 \$63,609 for a family of four; \$75,240 for a family of five) whereas 11.3% of households earned at least 600% of the national poverty line at their year of assessment (e.g., in 2007 \$127,218 for a family of four; \$150,480 for a family of five).

Regarding diagnosis, 19.3% of youth had a principal diagnosis of GAD, 13.2% had a principal diagnosis of social phobia, 10.2% had a principal diagnosis of obsessive-compulsive disorder (OCD), 10.3% had a principal diagnosis of separation anxiety disorder, 9.6% had a principal diagnosis of specific phobia, 8.7% had a principal diagnosis of anxiety disorder not otherwise specified, and 7.4% had a principal diagnosis of panic disorder with agoraphobia.

Overall, youth in the sample met criteria for the following comorbid *DSM-IV* disorders: GAD (38.5%), social anxiety disorder (32%), specific phobia (25.1%), separation anxiety disorder (19%), OCD (17.3%), anxiety disorder not otherwise specified (14.6%), panic disorder with agoraphobia (10%), attention-deficit/hyperactivity disorder (9.0%), major depressive disorder (MDD; 6.3%), dysthymic disorder (3.3%), depressive disorder not otherwise specified (3.2%), agoraphobia without a history of panic disorder (2.7%), trichotillomania (2.3%), enuresis (1.9%), selective mutism (1.4%), panic disorder without

agoraphobia (1.4%), posttraumatic stress disorder (.9%), and disruptive behavior disorder not otherwise specified (0.4%). In addition, 12.7% of the sample met criteria for a depressive disorder (MDD, dysthymic disorder, or depressive disorder not otherwise specified) and 3.3% of children met criteria for ODD. The mean number of diagnoses youth met criteria for is 3.36 (SD =1.63).

Measures/Model Indicators

Child diagnoses—The Anxiety Disorders Interview Schedule, Child and Parent Version (ADIS-IV-C/P)³² is a semi-structured diagnostic interview administered to parents and children to assess present-state internalizing and externalizing problems according to *DSM-IV-TR* criteria, with time frames for assessing current symptoms varying across diagnoses in accordance with the *DSM-IV-TR*. The ADIS-C/P is the most widely used interview for the assessment of child anxiety disorders and has demonstrated strong reliability, validity, and sensitivity to change.^{33,34} Symptom reports inform diagnoses in strict accordance with the *DSM-IV-TR*, and diagnoses are assigned a clinical severity rating (CSR) ranging from 0 (no symptoms) to 8 (extremely severe symptoms); CSRs >4 indicate that diagnostic criteria for the particular disorder has been met, and CSRs <3 indicate subthreshold diagnostic presentation. *DSM-IVTR* diagnoses are determined using child and parent reports; parent and child diagnostic profiles are integrated into a composite diagnostic profile using the “or” rule.³¹

Child anxiety severity—Anxiety severity was assessed via two indicators that included (1) an expert evaluator rating and (2) a child report. The first indicator was the ADIS-IV CSR (described above) assigned by the expert evaluator to characterize the severity of the child's principal anxiety disorder. The second indicator of anxiety severity was the total score from the Multidimensional Anxiety Scale for Children (MASC),³⁵ a 39-item self-report measure administered to children to assess symptoms of anxiety occurring “recently.” The MASC has demonstrated very strong psychometric properties across samples ($\alpha=.88$ in present sample).³⁴⁻³⁷

Child irritability—Consistent with previous research examining child irritability,^{29,38,39,40} we used three strategic items from the Child Behavior Checklist (CBCL), an established and well-supported parent-report of behavioral and emotional problems in children 6–18.⁴¹ Parents rate each of 120 items from 0 (not true) to 2 (very true or often true) about their child across the past 6 months. The three items (CBCL Irritability Item 1: “stubborn, sullen or irritable”; CBCL Irritability Item 2: “sudden changes in mood or feelings”; and CBCL Irritability Item 3: “temper tantrums or hot temper”) comprise an irritability scale that has been psychometrically supported in previous literature examining these three items with exploratory factor analysis.⁴⁰ Several studies in recent literature have used these items to measure irritability in youth.^{29,38,39,40} Internal consistency across these items was acceptable in the present sample ($\alpha=.74$).

Procedure

Families first completed a standardized phone screen as part of clinic procedures; youth were excluded who had current psychotic symptoms, suicidal or homicidal risk requiring

crisis intervention, two or more hospitalizations for severe psychopathology (e.g., psychosis) within the previous 5 years, or moderate to severe intellectual impairments. Youth on psychotropic medications were required to be stabilized on their current dosages for at least 1 month. After obtaining informed consent/assent, participating youth and their families were assessed via the ADIS-IV-C/P; youth and their mothers also completed the MASC and CBCL, respectively, as part of a prescreening battery for treatment. A diagnostician administered parent and child interviews (ADIS-IV-C/P) separately, and generated a composite diagnostic profile for each child by applying the “or” rule to integrate parent and child reports.³¹ Diagnostic decisions strictly adhered to *DSM-IV-TR* criteria. For each participant, the assessment materials for each informant were presented and reviewed at a weekly diagnostic meeting, where symptoms were reviewed and consensus from the diagnostic team was met. Diagnosticians included a team of 22 clinical psychologists, postdoctoral associates, and doctoral candidates specializing in the assessment and treatment of pediatric anxiety disorders. Diagnosticians met internal training and reliability criteria: participating in didactics (including training from one of the developers of the ADIS-IV-C/P), observing 3 completed interviews, collaboratively administering 3 interviews with a trained diagnostician, and conducting supervised interviews until achieving full diagnostic profile agreement on 3 of 5 consecutively supervised assessments. These criteria were developed in collaboration with an author of the ADIS-IV-C/P.

Data Analysis

Structural equation modeling was used to examine relationships between the latent variables of anxiety severity and irritability. The ADIS-IV-C/P CSR of the child's principal anxiety disorder and the child-report MASC total score were used as indicators of anxiety severity. The three CBCL items detailed above were used as indicators of irritability. The highest depressive disorder (MDD, dysthymic disorder, or depressive disorder not otherwise specified) CSR and the ODD CSR, as assessed by the ADIS-IV-C/P, were added to the model as covariates (see Figure 1). As the use of a variety of model fit indices is recommended,⁴² model fit was evaluated using standard guidelines for the root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and comparative fit index (CFI). To examine the robustness of observed associations between anxiety severity and irritability, structural relations were examined across categorical moderating subgroups based on age, gender, and GAD status using the multi-group structural equation modeling approach. Specifically, we compared older (≥12 years; n=333) and younger (<12 years; n=330) children (12 was selected as the age cutoff based on research showing relatively stable trajectories of irritability after age 12³⁰ and varying trajectories of irritability in early to middle childhood²⁹), males (n=303) and females (n=359), and youth with (GAD CSR >4; n=255) and without GAD (GAD CSR ≤3; n=408) using multi-group or stacked models. This approach estimates an unconstrained model—in which all parameters are estimated separately for each group—as well as a constrained model in which specific paths (here, the relationship between the anxiety latent factor and the irritability latent factor) are required to be equal across groups; subsequently, the constrained and unconstrained models were compared using procedures set forth by Satorra and Bentler.⁴³ All analyses were conducted in MPlus 6.12⁴⁴ and used robust standard error estimates.

Missing values analysis—All models were estimated using full information maximum likelihood (FIML). To examine patterns of missing data, a missing values analysis⁴⁵ evaluated whether individuals included in the main analyses differed from excluded individuals (i.e., cases with missing data from any study variable). Child age was lower among those with missing MASC values (9.7% missing), CBCL Irritability Item 1 (14% missing), CBCL Irritability Item 2 (14% missing), and CBCL Irritability Item 3 (14% missing). Accordingly, age was included as an auxiliary variable in all models to account for missing values.⁴⁶ Age was not associated with missing CSR values (1% missing), and no other study variables were associated with missing data.

RESULTS

Table 1 presents the means, standard deviations, medians, and bivariate correlations across all study variables. Pairwise associations among the child irritability indicators were medium to large in magnitude, and pairwise associations among the child anxiety severity indicators were small to medium in magnitude.

Structural relationship between anxiety severity and irritability

The fit of the overall model in the full sample (see Figure 1) was statistically over-identified, allowing us to evaluate fit of the model. Collectively, fit indices indicated that this model provided a good fit to the data ($\chi^2[12] = 25.42, p < .05$; RMSEA = .04 [90% CI .02–.06], $p > .05$; CFI = .98, SRMR = .04). Residuals for each of the observed measures were generally low, suggesting that these measures were reasonable indicators of the latent anxiety severity and irritability constructs. Figure 1 presents the parameter estimates for the model. The standardized coefficient between the Anxiety Severity and Irritability latent variables was .42 after controlling for depressive disorder and ODD severity, indicating that increased anxiety was indeed directly associated with greater child irritability. The model collectively accounted for roughly 29% of the variance in child irritability ($R^2 = 0.29, SE = 0.09, p < .01$), with anxiety severity specifically accounting for roughly 16% of the variance in child irritability.

Evaluating the potential moderating roles of age, gender, and GAD status

To evaluate the potential moderating roles of age, gender, and GAD, multi-group structural equation modeling was used to compare males and females, older and younger youth, and youth with and without GAD. Chi-square statistics compared a model in which all parameters were allowed to be unequal across groups and a model with the anxiety to irritability path constrained to be equal across groups, using the scaling correction for robust standard errors.⁴³ A non-significant test indicates that the anxiety to irritability relationship is not different across the groups, i.e., the group variable does not moderate the effect. The model with all parameters freely estimated in male and female youth was not significantly different from the model with the anxiety to irritability path equal ($X^2[1] = .03, p > .05$). The model with all parameters freely estimated in older and younger youth was not significantly different from the model with the anxiety to irritability path equal ($X^2[1] = 2.56, p > .05$). The model with all parameters freely estimated in youth with and without GAD was not

significantly different from the model with the anxiety to irritability path equal ($X^2[1] = .16$, $p > .05$).

Further, subsequent analyses examined the relationship between anxiety and irritability as moderated by the presence of separation anxiety disorder, social anxiety disorder, and specific phobia. As with GAD, none of these anxiety disorders moderated the relationship (all p 's $> .05$) (data not shown).

DISCUSSION

The present findings add to an increasing body of evidence in recent years linking child irritability to a range of internalizing and externalizing psychopathologies¹²⁻¹⁵ by documenting a unique link between anxiety severity and irritability among youth with anxiety disorders. Whereas a small number of studies have begun exploring anxiety–irritability associations,^{7,17,21} the present study is the first to go beyond between-group differences of controls with and without anxiety to consider anxiety severity continuously and to examine the extent to which anxiety–irritability links are not simply artifacts of anxiety co-presentations with depressive disorders and ODD. Given the very serious clinical correlates of irritability across the lifespan,^{8,11} the present findings suggest that child anxiety assessment practices should systematically incorporate evaluations of irritability. Moreover, given the very negative life course associated with the anxiety disorders,^{23,47-50} youth displaying irritability should be assessed for the presence of anxiety. Indeed, child anxiety symptoms often go unnoticed,^{51,52} whereas problems of irritability may be more easily observable to the adults in children's lives. Given the robust association presently observed between irritability and anxiety, child irritability may prove to be a useful indicator that anxiety should also be assessed.

Importantly, we found the link between anxiety and irritability was not simply concentrated among youth with GAD, but rather presented across the full range of child anxiety disorders. At present, GAD is the only anxiety disorder for which irritability is formally included as part of its diagnostic criteria. The present finding that the anxiety–irritability link is not specific to GAD is consistent with previous research showing that social anxiety disorder, separation anxiety disorder, and specific phobias are also associated with irritability,^{7,21-22} and suggests that future iterations of the diagnostic nomenclature may do well to more broadly incorporate irritability across anxiety disorder definitions.

Future work is needed to examine prospective links between irritability and anxiety to examine issues of temporal precedence. The present design does not inform whether irritability plays a causal role in the development of anxiety, or whether anxiety has a causal role in the development of irritability. It is possible that early irritability is linked with broader temperamental characteristics and general negative affectivity that place children at risk for the development of anxiety disorders. It is also possible that anxiety symptoms and associated negative affect and distress intolerance increase the risk of irritable responding among affected youth. Interestingly, recent longitudinal work has found that irritability is more predictive of subsequent anxious/depressed symptoms than anxious/depressed symptoms are predictive of subsequent irritability.³⁹ Future longitudinal research is needed

in order to examine these potential trajectories further, as well as potential dynamic transactional pathways in which anxiety and irritability mutually influence one another across time.

Genetically informed research suggests that irritability is a heritable characteristic, and one strongly linked genetically with depression.^{38,39} Further, both genetic and (to a lesser extent) environmental factors appear to play a role in cross-sectional and longitudinal associations between irritability and internalizing symptoms more broadly.^{38,39} In addition to continuing to examine genetic influences associated with the co-variation of irritability and anxiety, research is needed to consider environmental influences—such as family factors and parenting experiences—that may affect the expression of concomitant irritability and anxiety among genetically vulnerable youth. For example, parents with depression are known to show elevated hostility and less warmth relative to parents without depression. Given that the offspring of the former are more likely to show child anxiety, and given that child anxiety disorders are associated with considerable family dysfunction,^{48,53-55} research would do well to examine whether family environment experiences, such as parental hostility and low warmth, influence trajectories of irritability and child anxiety among children of parents with depression.

The observed links between irritability and anxiety may help to explain, in part, the increasingly prominent role that second-generation antipsychotic medications have assumed in the management of anxiety disorders across the lifespan.⁵⁶ Despite the absence of controlled trials establishing the safety and efficacy of antipsychotic medications for treating anxiety disorders, between 1996 and 2007, there was a roughly twofold increase among psychiatrists in the rate of antipsychotic prescribing for anxiety disorders, with the proportion of anxiety disorder visits in which an antipsychotic medication was prescribed increasing from one in every ten visits to one in every five visits.⁵⁶ Although off-label prescribing is not inherently cause for concern, the serious metabolic, endocrine, and cerebrovascular risks associated with second-generation antipsychotic medications,⁵⁷ as well as the concerning absence of supporting evidence for their role in reducing anxiety disorders, have raised increasing concerns over quality of anxiety disorder care in practice settings. Given the present findings linking irritability with anxiety, and given controlled evaluations supporting the use of antipsychotic medications to treat irritability in youth with autism spectrum disorders,^{58,59} it is possible that some of the rising antipsychotic prescribing practices for patients with anxiety reflect practitioners targeting irritability associated with anxiety rather than core anxiety symptoms themselves. Although epidemiologic research documents rising trends in the antipsychotic management of anxiety disorders, such work offers no insight into clinical decision making at the individual level. Future work is needed to examine the extent to which practitioners prescribing antipsychotic medications to treat anxiety disorders may be specifically targeting irritability associated with anxiety, and the extent to which such practices are yielding clinical benefit with regard to irritability associated with anxiety.

To date, no treatments directly target irritability presenting within anxious youth. Although selective serotonin reuptake inhibitors (SSRIs) can be effective in reducing irritability in adults,⁶² the literature is mixed regarding the performance of SSRIs for treating youth with

irritability.^{4,63-65} Cognitive-behavioral therapy (CBT) can be an effective psychotherapeutic approach to treating severe irritability and associated mood dysregulation,⁶⁶ but established CBT for child anxiety does not directly target irritability.⁶⁷ Accordingly, much remains to be learned about the pharmacologic and psychotherapeutic management of irritability in youth with anxiety.

Several study limitations warrant comment. First, this study was conducted in a university-based, urban clinic specializing in anxiety disorders in a predominantly Caucasian New England sample. Findings may not generalize to youth in other clinical settings or to the general population of youth with anxiety. Second, the assessments used did not permit examination of different types of child irritability. Given research documenting the usefulness of distinguishing chronic from episodic irritability,^{4,7} future work incorporating alternative assessment methods would do well to test whether anxiety–irritability relationships differ as a function of chronic versus episodic irritability. Third, as noted, the present analyses were cross-sectional. Future work incorporating longitudinal designs is needed to examine issues of temporal precedence in the links between anxiety and irritability, and to inform pathways of influence between anxiety and irritability across development. In addition, although all of the measures included assess current symptoms, the specific time frames vary somewhat across measures. For example, the CBCL assesses symptoms “now or within the past 6 months,” whereas the MASC assesses how the child has been feeling “recently.” It is thus possible that observed associations do not reflect contemporaneous relations. Finally, although a multi-informant approach was utilized—including collecting reports from children, mothers, and clinicians—and although SEM used multiple indicators of study variables to collectively isolate measurement error from the latent constructs, future work incorporating psychophysiological and other biological data is critical for considering neurodevelopmental mechanisms that may underlie associations between child anxiety and irritability.

Despite these limitations, the present study offers a rare statistical portrait of the unique association between irritability and anxiety severity among children with anxiety disorders, and adds to a growing body of research linking child irritability to a range of internalizing and externalizing psychopathologies. Given the robust association between irritability and child anxiety presently observed, child anxiety assessment practices would do well to incorporate evaluations of child irritability. As there are several evidence-based treatment options for childhood anxiety disorders⁶⁷ research is needed to examine whether irritability moderates treatment outcomes such that the presence of irritability indicates some treatment options are preferable over others. Moreover, treatments for childhood anxiety disorders may do well to incorporate new treatment modules as needed that specifically target problems of irritability.

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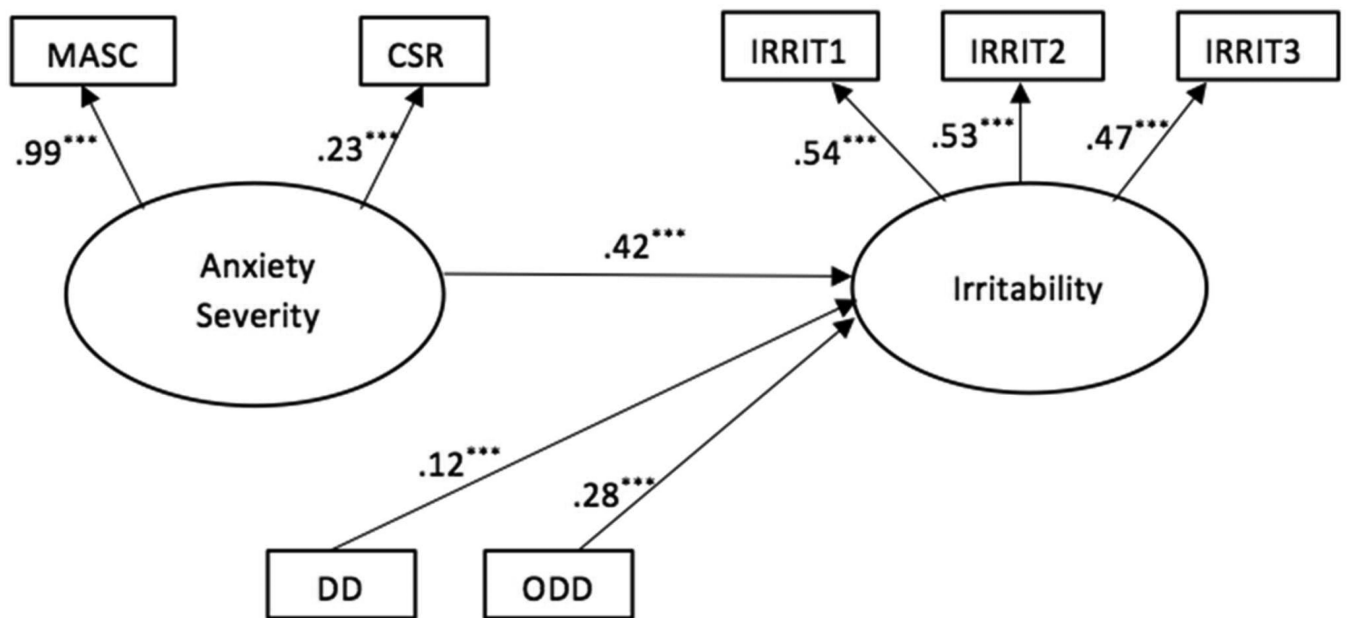


Figure 1.

Parameter estimates for base model. Note: Endogenous variables are correlated, although these correlations are omitted from this figure for ease of interpretation. CSR = Clinical severity rating of principal *DSM-IV-TR* anxiety diagnosis, as determined by the Anxiety Disorders Interview Schedule for Children (ADIS-IV-C/P); DD = Depressive disorder CSR; IRRIT1, IRRIT2, IRRIT3 = Child Behavior Checklist items 86, 87, and 95 (respectively); MASC = Multidimensional Anxiety Scale for Children (Child Report) Total Score; ODD = Oppositional defiant disorder CSR. *** $p < .001$

Table 1

Correlations Between Variables

	M (SD)	median	1.	2.	3.	4.	5.	6.
1. Child-reported anxiety severity ^a	48.7 (18.4)	48	-					
2. Clinician-rated anxiety severity ^b	5.5 (.9)	5.0	.15***	-				
3. Irritability item 1 ^c	0.9 (0.7)	1	.07	.19***	-			
4. Irritability Item 2 ^d	0.8 (0.7)	1	.11**	.10*	.55***	-		
5. Irritability Item 3 ^e	0.6 (0.8)	0	.04	.07	.49***	.44***	-	
6. Depressive disorder severity ^f	.74 (1.7)	0	.12**	.30***	.19***	.19***	.07	-
7. ODD severity ^g	.25 (.98)	0	-.06	.10*	.19***	.18**	.22***	.00

^aMultidimensional Anxiety Scale for Children Total Score.

^bPrincipal anxiety diagnosis clinical severity rating (CSR) assessed via the Anxiety Disorders Interview Schedule for Children.

^cItem 86 on the Child Behavior Checklist (CBCL; “stubborn, sullen, or irritable”).

^dItem 87 on the CBCL (“sudden changes in mood or feelings”).

^eItem 95 on the CBCL (“temper tantrums or hot temper”).

^fDepressive disorder CSR.

^gOppositional defiant disorder (ODD) CSR.

* $p < .05$

** $p < .01$

*** $p < .001$