

The Relation Between Anxiety Disorder and Experiential Avoidance in Inpatient Adolescents

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The current study aimed to examine the relation between experiential avoidance and anxiety disorders, as well as the usefulness of the Avoidance and Fusion Questionnaire for Youth (AFQ-Y; Greco, Lambert, & Baer, 2008) in detecting anxiety disorder in a sample of adolescent inpatients. First, the relation between experiential avoidance and anxiety among inpatient adolescents was investigated from categorical and dimensional points of view, making use of self-report and parent report, as well as clinical interview, while controlling for depression and externalizing problems. Second, we sought to establish the clinical utility value of the AFQ-Y by determining the sensitivity, specificity, and clinical cutoff score of this measure in predicting anxiety disorder. To this end, a sample of inpatient adolescents ($N = 111$) with a mean age of 16.14 ($SD = 1.39$) years completed the AFQ-Y, alongside interview- and questionnaire-based measures of psychopathology. Results showed a significant relation between anxiety disorder and experiential avoidance, independent of depression. Receiver operating characteristics analysis revealed that the AFQ-Y has moderate accuracy (area under the curve = .815, $SE = .047$, $p < .001$) in discriminating adolescents with a diagnosis of any anxiety disorder (cutoff score 26.5; sensitivity = .74, specificity = .76). Given the comorbidity of anxiety and depression in this sample, this cutoff is not indicative of pure anxiety disorder but may be helpful in predicting those with emotional disorders in general.

Keywords: adolescents, anxiety, experiential avoidance, psychological inflexibility

Anxiety symptoms are highly prevalent among adolescents and often interfere significantly with their daily lives (Ollendick & Hirshfeld-Becker, 2002; Verhulst, Van Der Ende, Ferdinand, & Kasius, 1997). A number of important previous studies have shown evidence that anxiety disorders in childhood predict the development of new anxiety disorders and other psychiatric conditions in adolescence and adulthood (Bittner et al., 2007; Brückl et al., 2007; Ferdinand & Verhulst, 1995; Gregory et al., 2007; Lewinsohn, Holm-Denoma, Small, Seeley, & Joiner, 2008; Olino, Klein, Lewinsohn, Rohde, & Seeley, 2010; Pine, Cohen, Gurley, Brook, & Ma, 1998). These studies indicate that anxiety symptoms persist throughout adolescence and that the severity of the symptoms predicts whether anxiety disorders will extend into adulthood (Dadds et al., 1999; Manassis & Hood, 1998).

Several risk factors—including family environment, early life events, and temperament—have been identified in the development of anxiety disorders. Barlow (2000) has theorized that anxious apprehension is a major underlying factor of anxiety disorders. Anxious apprehension is characterized by elevated negative

affect, increased self-focused attention, hypervigilance, and attentional and memory biases toward threat. As a result, maladaptive coping—consisting of both cognitive and behavioral strategies aimed at reducing and avoiding negative experience—is developed, which, in turn, manifests in an anxiety disorder. The relation between psychopathology and the avoidance of negative affect has gained considerable attention in recent years. Experiential avoidance, the attempt to control the form or frequency of aversive private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioral predispositions; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), is a maladaptive coping strategy that encompasses the avoidance of negative affect and has been associated with a wide range of psychopathology, including the development and maintenance of anxiety-related conditions in adults (Begotka, Woods, & Wetterneck, 2004; Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Kashdan, Breen, Afram, & Terhar, 2010; Twohig, 2008).

Experiential avoidance is defined as the “phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences and takes steps to alter the form or frequency of these events and the contexts that occasion them” (Hayes et al., 1996; p. 1154). Furthermore, experiential avoidance has been construed to result from learned associations connecting internal experiences with appraisal patterns concerning threat and danger (Hayes et al., 1996). The role of experiential avoidance in psychopathology is assumed to be most salient when experiential avoidance is applied rigidly and inflexibly and an individual spends excessive time, effort, and energy managing, controlling, or struggling with unwanted internal events. As a result of this strategy, the individual becomes less motivated to maintain contact

This article was published Online First September 5, 2011.

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This research was supported by grants from the Child and Family Program of the Menninger Clinic. We wish to thank the adolescents and their parents who participated in the research.

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with valuable, worthwhile, and necessary approach-oriented experiences in favor of pathological avoidance-oriented experiences leading to impaired functioning. Furthermore, experiential avoidance is maintained primarily through negative reinforcement, in which individuals focus on the short-term effectiveness of alleviating discomfort through the avoidance of aversive stimuli with insufficient consideration of the implications of a pervasive avoidance strategy in the long term (Kashdan, Barrios, Forsyth, & Steger, 2006). As experiential avoidance functions to alleviate distress in the short term, its prolonged use is believed to underlie a variety of dysfunctional conditions in adults, including avoidant coping styles; excessive thought suppression; drug or alcohol use to escape from unwanted moods; and avoidance of feared objects, places, or situations (Chawla & Ostafin, 2007).

The downward extension of the construct of experiential avoidance to youths has been the focus of recent interest. The Avoidance and Fusion Questionnaire for Youth (AFQ-Y) is the first and only existing measure designed to assess psychological inflexibility, and the associated processes of cognitive fusion and experiential avoidance, in children and adolescents. Greco, Lambert, and Baer (2008) developed this self-report measure by modeling item content after the Acceptance and Action Questionnaire (Hayes et al., 2004), an established and widely accepted measure of psychological inflexibility in adults. Generally, item development followed Acceptance and Commitment Therapy's (ACT) model of human suffering and was based on the underlying assumption that psychological inflexibility is the result of cognitive fusion and experiential avoidance. The development and initial validation of the AFQ-Y included three phases. First, items were developed and piloted on a small sample of children, resulting in age-appropriate wording. For example, cognitive fusion is assessed with items like "My thoughts and feelings mess up my life" and "The bad things I think about myself must be true." Experiential avoidance is assessed with items like "I push away thoughts and feelings that I don't like" and "I stop doing things that are important to me whenever I feel bad" (Greco et al., 2008, p. 94). Next, initial item reduction was attained through exploratory factor analysis to remove items inconsistent with ACT theory. A single-dimensional factor structure was confirmed through confirmatory factor analysis. Finally, the external validity of the final version of the AFQ-Y was investigated in a sample of 1,188 children who also completed measures of psychopathology, adaptive functioning, and ACT processes (e.g., thought suppression; Greco et al., 2008).

Results showed that total AFQ-Y scores correlated in the expected directions with a measure of anxiety ($r = .58$), a measure of internalizing problems (including depression and anxiety) and externalizing problems (including hyperactivity and conduct problems; $r = .64$), somatic complaints ($r = .37$ to $.45$), and quality of life ($r = -.30$ to $-.39$). Additionally, the AFQ-Y correlated with overlapping ACT processes. Thus, results of this study provided support for the construct validity of the AFQ-Y and identified a relation between the AFQ-Y and anxiety (as well as depression and externalizing problems) in a community sample. No other studies have explored the AFQ-Y to date. Notably, the AFQ-Y has never been examined with a clinical sample, leaving the clinical utility value of the AFQ-Y in identifying adolescents with anxiety unknown. Moreover, clinical cutoffs do not currently exist.

Thus, the first aim of this study was to determine whether the relation between experiential avoidance and anxiety found by

Greco et al. (2008) in a community sample exists in a clinical sample, while controlling for other forms of psychopathology from categorical and dimensional points of view utilizing both parent and child report. In light of the aforementioned research linking experiential avoidance with various forms of psychopathology, we sought to explore the relation between anxiety and experiential avoidance in the context of other forms of psychopathology, by testing the hypothesis that anxiety and experiential avoidance would be related, independent of depression and externalizing problems. We expected, at the bivariate level of analyses, that the AFQ-Y would correlate positively with both internalizing and externalizing problems reported by youths, as established by Greco et al. in a community sample. Also, we predicted that parent-reported internalizing and externalizing problems would correlate with the child's total score on the AFQ-Y. Overall, the established relation between psychopathology and experiential avoidance also led us to expect the mean total score on the AFQ-Y to be higher in our sample than in the community samples used in the initial analysis of the measure.

Second, we set out to determine the clinical utility and predictive ability of the AFQ-Y in detecting anxiety disorder by estimating the sensitivity and specificity of the measure and establishing a clinical cutoff score. In summary, given the particular relation between experiential avoidance and anxiety disorder described in the existing literature, we predicted that (a) a positive interview-based diagnosis of anxiety would make an independent contribution to the total score on the AFQ-Y when controlling for other psychopathology and (b) the AFQ-Y would demonstrate adequate sensitivity and specificity in detecting a positive Computerized Diagnostic Interview Schedule for Children (C-DISC) diagnosis of anxiety disorder.

Method

Participants

All consecutive admissions ($N = 159$) from a 16-bed adolescent inpatient unit that usually serves adolescents with severe treatment-refractory behavior, psychiatric disorders, and substance disorders were invited to participate. Of these, 12 declined participation in the study. While the unit was in principle open to all mental disorders, the study adopted the following exclusion criteria: (a) diagnosis of schizophrenia or any psychotic disorder and/or (b) diagnosis of mental retardation. Inclusion criteria were age between 12 and 17 years and English fluency. As a result, three additional participants were excluded from the study. Additionally, two participants revoked consent, leaving 142 adolescents in the sample. Any adolescent missing data was excluded from all analyses. The number of adolescents missing data on each measure included 13 (Child Behavior Checklist), 8 (Youth Self-Report), 5 (AFQ-Y), and 5 (diagnostic interviews). The remaining group consisted of 111 adolescents for whom we had complete data.

The mean age in the final sample was 16.14 ($SD = 1.39$) years. The sample contained 66 (59.5%) female and 45 (40.5%) male participants and had the following ethnic breakdown: 93.7% white, 2.7% Hispanic, 0.9% Asian, 0.9% black, 0.9% mixed, and 0.9% unreported. Table 1 summarizes the diagnostic characteristics of the sample, in which 53.2% of participants were diagnosed with an anxiety disorder, 46.8% with a depressive disorder, 18.9% with

Table 1
Comparison of Mean AFQ-Y Scores Relative to C-DISC Positive and Negative Diagnoses

Diagnosis	AFQ-Y total scores		<i>t</i>
	<i>M</i>	<i>SD</i>	
Anxiety			-5.51***
Any (<i>n</i> = 59)	33.47	12.23	
None (<i>n</i> = 52)	21.00	11.52	
Depression			-4.87***
Any (<i>n</i> = 52)	33.63	11.15	
None (<i>n</i> = 59)	22.34	13.05	
ADHD			-2.46*
Any (<i>n</i> = 21)	33.95	9.98	
None (<i>n</i> = 90)	26.16	13.71	
Externalizing			-1.26
Any (<i>n</i> = 34)	30.03	12.21	
None (<i>n</i> = 77)	26.57	13.84	

Note. Values are mean scores on a scale ranging from 0 to 68. AFQ-Y = Avoidance and Fusion Questionnaire for Youth; C-DISC = Computerized Diagnostic Interview Schedule for Children; ADHD = attention-deficit/hyperactivity disorder.

* $p < .05$. *** $p < .001$.

attention-deficit/hyperactivity disorder (ADHD), and 30.6% with an externalizing disorder. It is to be expected that a severe inpatient sample would display high diagnostic comorbidity. In this sample, the average number of Axis I diagnoses (American Psychiatric Association, 1994) was 2.41 ($SD = 2.21$). The two most commonly co-occurring diagnoses were any anxiety and any depressive disorders, with 64.4% of those with any anxiety disorder also having a depressive disorder.

Measures

Avoidance and Fusion Questionnaire for Youth (AFQ-Y). The AFQ-Y (Greco et al., 2008) is a 17-item self-report measure that assesses psychological inflexibility, comprised of cognitive fusion and experiential avoidance, in youths. It was adapted from the Acceptance and Action Questionnaire (Hayes et al., 2004), used to assess the same constructs in adults. Responses on the AFQ-Y are scored on a 5-point Likert scale, ranging from 0 (*not at all true*) to 4 (*very true*). It includes items like "My life won't be good until I feel happy" and "If I feel sad, or afraid, then something must be wrong with me." All 17 individual item scores are summed, yielding a total score ranging from 0 to 68. A higher total score indicates higher psychological inflexibility and higher experiential avoidance and cognitive fusion accordingly. In a previous study conducted by Greco et al. (2008), the AFQ-Y demonstrated adequate internal consistency ($\alpha = .90$). In the present sample, internal consistency of this measure was similar, with a Cronbach's alpha of .89.

Child Behavior Checklist (CBCL). The CBCL (Achenbach & Rescorla, 2001) is a parent-report questionnaire in which parents rate their adolescent's problem behaviors. The measure contains 112 problem items, each scored on a 3-point scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very or often true*). The measure yields a number of scales, some empirically derived (the Syndrome Scales) and some theoretically based (the *DSM*-oriented

scales). The Total Problems scale yields a *t* score of general psychiatric functioning and two broad subscales of externalizing behavior problems and internalizing behavior problems. For the current study the *DSM*-oriented anxiety problems, affective problems, ADHD problems, and externalizing problems scales were used as continuous measures of parent-reported psychopathology. The externalizing problems subscale consists of the *DSM* conduct disorder, oppositional deviant disorder, and rule breaking subscales. The combined externalizing behavior subscale was used in lieu of separate subscales to more closely approximate the categorical assessments described later and for ease of presentation. However, all analyses using the combined subscale were rerun with the *DSM*-oriented conduct problem and oppositional deviant subscales to ensure equivalence in results.

Youth Self-Report (YSR). The YSR (Achenbach & Rescorla, 2001) is a self-report questionnaire modeled after the CBCL for use with adolescents between the ages of 11 and 18. It is organized similarly, and the same *DSM*-oriented subscale scores of anxiety problems, affective problems, ADHD problems, and externalizing problems were utilized in the current study as continuous measures of psychopathology. For both measures, the standardized *t* scores were used.

Computerized Diagnostic Interview Schedule for Children (C-DISC). The C-DISC (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) is a highly structured clinical interview used to diagnose psychiatric disorders in children and adolescents between the ages of 9 and 17. While the C-DISC is designed to be conducted by lay interviewers, all adolescents in this study were interviewed by doctoral psychology students or clinical research assistants who had completed training and several practice sessions administering the interview under the supervision of Carla Sharp. The interview is administered following computerized prompts that the interviewer reads out loud. The adolescents' answer is then inputted in the program and the program presents the next appropriate prompt. The interviews were always conducted in private with the interviewer and adolescent facing one another and with the computer monitor within viewing distance of the interviewer. For the purposes of this study, only positive diagnoses that met all *DSM* criteria on the clinical report of the C-DISC were considered. All positive diagnoses of anxiety (including social phobia, separation anxiety, specific phobia, panic disorder, agoraphobia, generalized anxiety disorder, posttraumatic stress disorder, and obsessive-compulsive disorder) were grouped together to form the "any anxiety" category. Similarly, dysthymia and major depressive disorder were grouped into the "any depression" category, and conduct and oppositional defiant disorders were grouped into the "externalizing" category. ADHD was a separate category.

Wechsler Adult Intelligence Scale III (WAIS-III) or IV (WAIS-IV) or Wechsler Intelligence Scale for Children IV (WISC-IV). Depending upon the adolescents' age, either the WAIS-III (Wechsler, 1997) or WAIS-IV (Wechsler, 2008) or else the WISC-IV (Wechsler, 2003) was administered by licensed clinical psychologists. In this study, only the Full Scale IQ of each participant was used. IQ was included to (a) describe the sample more fully and (b) to ensure that any positive relations between key study variables were not confounded by IQ. IQ is known to correlate with psychopathology in general (Goodman, 1995) and metacognitive capacity (Swanson, Christie, & Rubadeau, 1993).

Moreover, the nature of the relation between IQ and experiential avoidance in adolescence is not yet known.

Procedures

The study was approved by the appropriate institutional review board. All adolescents admitted to an inpatient psychiatric unit were approached on the day of admission about participating in this study. Informed consent from the parents was collected first, and if granted, assent from the adolescent was obtained in person. Adolescents were then consecutively assessed by doctoral-level clinical psychology students, licensed clinicians, and/or trained clinical research assistants. Diagnostic interviews were conducted independently and in private with the adolescents according to the standard procedures of the C-DISC previously described. Because this study was conducted in a naturalistic setting, the order of assessments was random in most cases. Similarly, the scheduling of assessments varied between participants, with some completing assessments and the diagnostic interview in the same day and some completing them on separate days. All adolescents were assessed within the first 2 weeks following admission. The average length of stay in this program is 5–7 weeks.

Results

The Relation Between Anxiety and Experiential Avoidance, Controlling for Other Psychopathology

Before investigating the main study hypotheses, it was necessary to establish the nature of the relation between key study variables at the bivariate level. We first conducted Pearson correlation analyses between AFQ-Y total scores and age; Full Scale IQ; YSR anxiety, affective, ADHD, and externalizing problems; and CBCL anxiety, affective, ADHD, and externalizing problems. The Pearson correlations for the relation between total AFQ-Y score and Full Scale IQ ($r = -.15, p = .19$) and age ($r = -.11, p = .24$) were not significant, and thus, these variables were excluded from multivariate analysis. We also conducted an independent-sample *t* test in order to test the relation between sex and AFQ-Y scores ($t = 2.10, p = .04$). Since this relation proved significant, with male participants ($M = 24.44, SD = 11.32$) demonstrating significantly less experiential avoidance than female participants ($M = 29.80, SD = 14.33$), sex was controlled for in multivariate analyses. Not surprisingly, mean AFQ-Y total scores in our sample were greater than those reported in a community sample explored by Greco et al. (2008). In that sample, female and male participants had mean AFQ-Y total scores of 23.55 ($SD = 13.15$) and 20.51 ($SD = 12.76$), respectively.

Independent-sample *t* tests were also used to compare mean AFQ-Y scores for groups who did and did not have a positive C-DISC diagnosis of any anxiety, any depression, ADHD, and externalizing problems (see Table 1). For each of these comparisons, the mean AFQ-Y score was higher for the group with a positive diagnosis. This difference was significant for any anxiety, any depression, and ADHD but not for any externalizing. Thus, any anxiety, any depression, and ADHD were included in multivariate analyses.

Additionally, Pearson’s correlations were calculated between AFQ-Y scores and continuous measures of anxiety, depression,

ADHD, and externalizing problems as reported by youths and their parents (see Table 2). The correlations were significant for YSR anxiety, affective, ADHD, and externalizing problems and for CBCL anxiety and affective problems. As a result, these were included in multivariate analyses.

To determine the relation between anxiety and experiential avoidance, while controlling for other psychopathology, from a categorical point of view, a linear regression was conducted, using variables with significant relations to the AFQ-Y at the bivariate level as predictors. Specifically, any anxiety disorder diagnosis, any depressive disorder diagnosis, ADHD diagnosis, and sex were entered as categorical predictor variables, and AFQ-Y total score was entered as the outcome variable. All predictor variables were entered into the model simultaneously using the standard enter method. Predictor variables together accounted for 30% (adjusted $r^2, R^2 = .33, F = 12.78, p < .001$) of the variation in AFQ-Y scores. Only any anxiety disorder diagnosis ($B = 0.34, t = 3.88, p < .001$) and any depressive disorder diagnosis ($B = 0.26, t = 3.01, p = .003$) retained significance.

We also examined this relation using continuous predictor variables. Analyses on parent and child report were conducted separately because it is well known by now that parents and children often disagree on the presence and severity of problem behaviors (Verhulst & Van der Ende, 1992). Different informants may therefore validly contribute different information (Achenbach, McConaughy, & Howell, 1987), and multiple informants are needed to obtain a comprehensive picture of an individual’s functioning (Verhulst & Van der Ende, 1992). First, we conducted a linear regression with sex and YSR (self-report) affective, anxiety, ADHD, and externalizing problems as predictor variables and AFQ-Y total score as the outcome variable. Again, the predictor variables were entered into the model simultaneously and together accounted for 58% (adjusted $r^2, R^2 = .60, F = 31.33, p < .001$) of the variance in AFQ-Y scores. In this analysis, only YSR affective problems ($B = 0.31, t = 3.89, p < .001$), anxiety problems ($B = 0.39, t = 5.28, p < .001$), and ADHD problems ($B = 0.23, t = 2.65, p = .009$) retained significance.

Finally, we conducted similar analyses using continuous parent-report variables. A linear regression with sex and CBCL anxiety and affective problems entered simultaneously as predictor vari-

Table 2
Correlation Between the AFQ-Y and Other Self- and Parent-Report Measures of Psychopathology

Measure	AFQ-Y total score (<i>N</i> = 111)
CBCL Anxiety Problems	.29**
CBCL Affective Problems	.29**
CBCL ADHD Problems	.09
CBCL Externalizing Problems	.05
YSR Anxiety Problems	.63***
YSR Affective Problems	.63***
YSR ADHD Problems	.53***
YSR Externalizing Problems	.40***

Note. AFQ-Y = Avoidance and Fusion Questionnaire for Youth; CBCL = Child Behavior Checklist; ADHD = attention-deficit/hyperactivity disorder; YSR = Youth Self-Report.
** $p < .01$. *** $p < .001$.

ables and AFQ-Y total score as the outcome variable was conducted. In this model, the predictors together accounted for 13.5% of the variance (adjusted r^2 , $R^2 = .16$, $F = 6.70$, $p < .001$) in AFQ-Y scores, and both CBCL anxiety problems ($B = 0.24$, $t = 2.43$, $p = .017$) and sex ($B = -0.21$, $t = -2.37$, $p = .02$) retained significance.

The Predictive Ability and Clinical Utility Value of the AFQ-Y

Our second aim was to establish the predictive ability and clinical utility value of the AFQ-Y. Accordingly, we used receiver operating characteristics (ROC) analysis to assess the performance of the AFQ-Y in predicting a positive diagnosis of anxiety disorder on the C-DISC (Shaffer et al., 2000) and establish a clinical cutoff score. A ROC curve is created when the true positive rate (sensitivity) is plotted against the false positive rate ($1 - \text{specificity}$). The area under the curve (AUC) can then be calculated using the nonparametric trapezoid method (Hanley & McNeil, 1982), which yields an index of accuracy that has been used in several other studies to establish criterion validity (Fombonne, 1991; Thapar & McGuffin, 1998). A measure is thought to have low diagnostic accuracy if its AUC is below .7, moderate accuracy from .7 to .9, and high accuracy when greater than .9 (Swets & Pickett, 1982). The measure's cutoff score can be established by finding the intersection of the measure's sensitivity and specificity curves. All analyses were completed using SPSS, Release 17.0.2.

The ROC curve with any anxiety diagnosis predicting AFQ-Y total score is shown in Figure 1. Both the AUC and standard error

were significant ($p < .001$), with an AUC of .78, indicating moderate diagnostic accuracy. Additionally, plotting sensitivity and specificity (see Figure 2) at different cutoff scores on the AFQ-Y indicated that the optimal cutoff point, the intersection of sensitivity and specificity, for the measure is 26.5 (sensitivity = .73, specificity = .71) when predicting anxiety disorder.

Discussion

This is the first study to use the AFQ-Y in a clinical sample of adolescents. We sought to explore the relation between anxiety and experiential avoidance—suggested by previous research in adults (Forsyth, Parker, & Finlay, 2003; Marx & Sloan, 2005; Roemer, Salters, Raffa, & Orsillo, 2005)—among inpatient adolescents from categorical and dimensional points of view, using multiple sources of report. Several findings warrant further discussion. First, as expected, the mean AFQ-Y total score in our sample was higher than the mean of the community sample studied by Greco et al. (2008). Given the relation between experiential avoidance and psychopathology established previously in the literature, and the expectedly much higher rate and severity of psychopathology among inpatients, this result is not surprising.

Second, there was no significant relation between IQ scores or age and AFQ-Y total score, so they were not included in multivariate analyses. Given that the current study is only the third study of experiential avoidance in youths (after Best, 2010, and Greco et al., 2008), these findings are noteworthy. Findings suggest that experiential avoidance is not a function of variation in age in the narrow age band studied here (12- to 17-year-olds). Whether

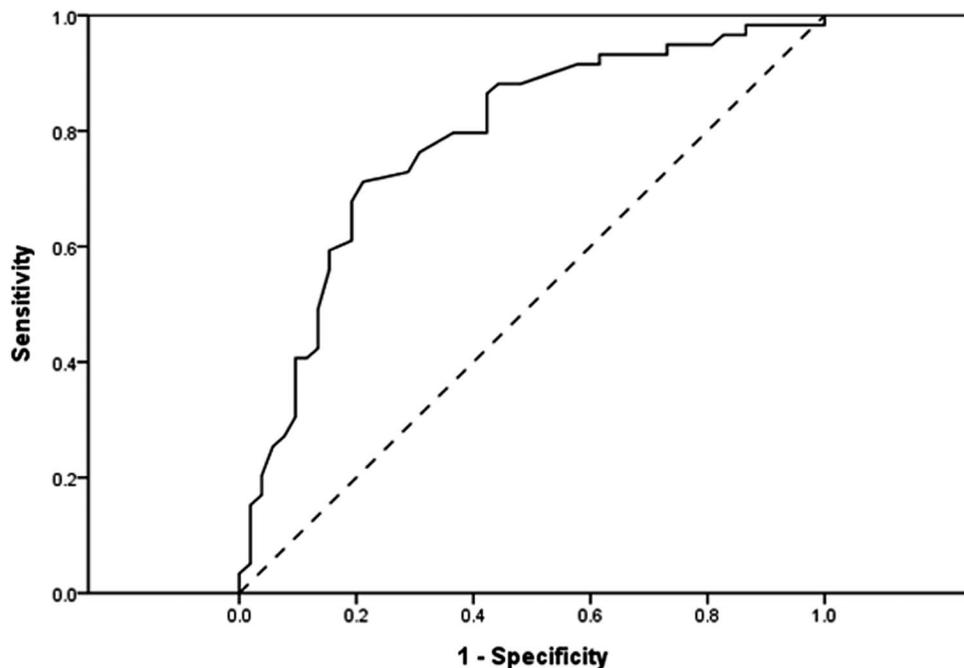


Figure 1. Receiver operating characteristic curve of the Avoidance and Fusion Questionnaire for Youth in predicting any anxiety disorder. There were 59 cases positive for any C-DISC anxiety disorder and 52 cases negative for any C-DISC anxiety disorder in this analysis. The diagonal segments are produced by ties. The area under the curve is .78 ($SE = .045$, $p = .000$), indicating moderate accuracy in discriminating adolescents with any diagnosis of anxiety. C-DISC = Computerized Diagnostic Interview Schedule for Children.

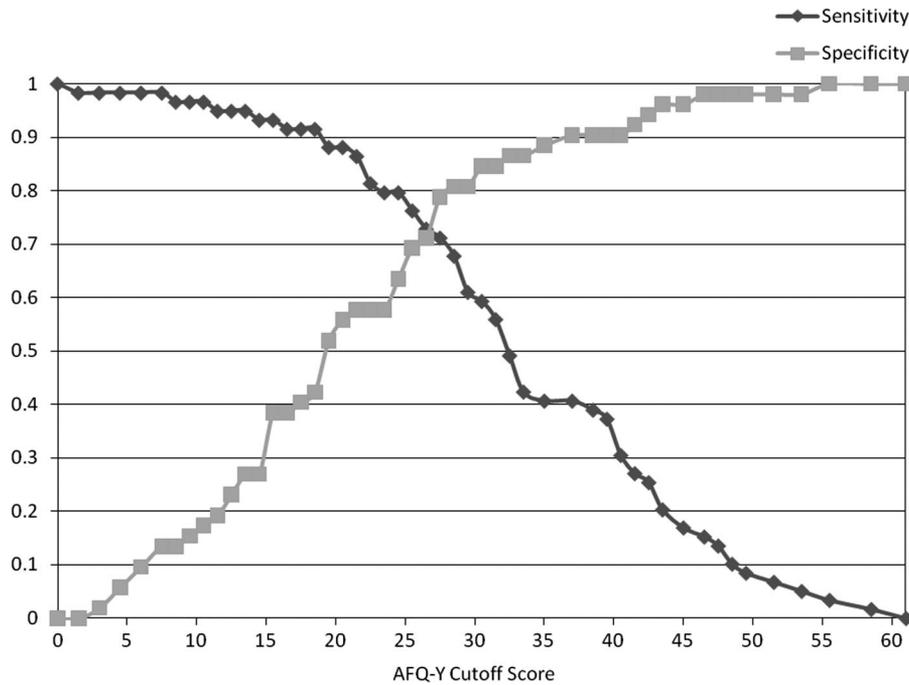


Figure 2. Sensitivity and specificity plotted against different cutoff scores on the Avoidance and Fusion Questionnaire for Youth (AFQ-Y) in reference to any anxiety disorder. The optimal cutoff score is determined by the intersection of the sensitivity and specificity lines. In predicting any anxiety disorder, the optimal cutoff score is 26.5 (sensitivity = .73, specificity = .71).

experiential avoidance occurs more or less frequently in younger cohorts should be a focus of future research, acknowledging the possibility that experiential avoidance may be difficult to detect in preadolescent children, given the limited metacognitive capacities apparent in this age range (Metcalf, Eich, & Castel, 2010). Moreover, our findings suggest that experiential avoidance is not a function of variation in IQ either. While some metacognitive capacities have been found to correlate positively with IQ (Swanson et al., 1993), our findings suggest that variation in IQ does not affect the capacity to remain in contact with private cognitive and emotional experiences.

Third, while bivariate analyses suggested relations between experiential avoidance and several forms of psychopathology, some of these lost predictive power in the multivariate analyses, with only anxiety disorder retaining significance across all analyses. Specifically, categorical analyses revealed a significant relation between AFQ-Y total score and anxiety, depression, and ADHD at the bivariate level. Similarly, self-reported anxiety, affective, ADHD, and externalizing problems and parent-reported anxiety and affective problems were significantly correlated with AFQ-Y total score at the bivariate level. A set of regression analyses, however, revealed that in predicting AFQ-Y total scores (a) only anxiety disorder and depressive disorder retained significance from a categorical perspective; (b) affective, anxiety, and ADHD problems retained significance from a self-report dimensional perspective; and (c) only parent-reported anxiety problems and sex retained significance from a parent-report dimensional perspective. In all of these analyses, anxiety disorder remained a significant predictor of experiential avoidance when controlling

for self- and parent-reported continuous variables of psychopathology. Taken together, our findings suggest that anxiety disorder makes an independent contribution to experiential avoidance even when controlling for other forms of psychopathology.

It is important to note, however, that identical conclusions can be drawn about depressive disorders based on categorical data; affective, anxiety, and ADHD problems based on continuous self-report; and anxiety problems and sex based on continuous parent report. Though the aim of the present study was to explore the relation between experiential avoidance and anxiety disorder specifically, these findings indicate that other types of psychopathology (i.e., depression, affective problems, and ADHD problems) and sex are predictive of experiential avoidance as well. In fact, experiential avoidance has been tied to various forms of psychopathology in adult studies where relations between experiential avoidance and substance abuse (Stewart, Zvolensky, & Eifert, 2002); posttraumatic stress disorder (Plumb, Orsillo, & Luterek, 2004); emotion regulation (Kashdan et al., 2006); trichotillomania (Begotka et al., 2004); and anxiety, depressive, and anger symptoms (Kashdan et al., 2010) have been demonstrated. Our findings are therefore not only consistent with existing adult literature but also with the theoretical foundations of Acceptance and Commitment Therapy's (ACT) conceptualization of experiential avoidance as a transdiagnostic vulnerability factor (Hayes, Strosahl, & Wilson, 1999).

Moreover, the findings of this study suggest an important relation between depression and experiential avoidance supported by categorical data and continuous self-report. This link has also been identified by existing research with adults that ties experiential

avoidance to self-reported depression (Hayes et al., 2006) and includes experiential avoidance in conceptual models of depression by highlighting the link between avoidance and rumination (Cribb, Moulds, Carter, 2006; Giorgio et al., 2010). Furthermore, some evidence has suggested that the construct is causally related to depression in nonclinical adult samples (Bond & Bunce, 2003; Kashdan et al., 2006). Though understanding this link was not the focus of the present study, these findings certainly highlight the important relation between experiential avoidance and depression and mandate further investigation.

Nonetheless, anxiety was the only form of psychopathology that retained predictive significance in all three analyses (categorical data, continuous self-report, and continuous parent report). Thus, the methodological strengths of this study (multiple sources and methods to assess psychopathology) ensure that the demonstrated relationship between anxiety and experiential avoidance is not unique to reporting source or the consequence of shared method variance. In other words, the fact that anxiety remained a significant predictor of experiential avoidance regardless of whether self- or parent-reported psychopathology or interview- or questionnaire-based assessment was used suggests an important relation between anxiety and experiential avoidance in adolescents.

The fourth major finding of the current study relates to the clinical utility value of the AFQ-Y by determining sensitivity, specificity, and clinical cutoffs of the measure when used with an inpatient population. As expected, the AFQ-Y demonstrated adequate sensitivity and specificity in detecting a positive C-DISC diagnosis of anxiety disorder. We found that the total AFQ-Y score served as a moderate predictor in ROC analysis of any anxiety disorder among inpatient adolescents and determined that 26.5 is a clinically useful cutoff score. Though this finding adds to the AFQ-Y's existing clinical utility, it is notably tempered by the high comorbidity in our sample. Given that 64.4% of participants with any anxiety disorder also had a depressive disorder, the interpretation of this finding is further complicated. Specifically, in this study it is impossible to determine whether the AFQ-Y is a moderate predictor of pure anxiety disorder or rather anxious and depressive comorbidity. The ROC analysis in this study allows us only to assess the clinical utility value of the AFQ-Y in predicting any anxiety disorder, without excluding other diagnoses. Because the sample size in this study precluded us from conducting ROC analyses with pure depression ($n = 21$) and pure anxiety ($n = 14$) as outcomes, further research exploring the differential predictive power and cutoff scores of the AFQ-Y for these different disorders is still needed. Still, this finding is a useful step toward establishing the clinical utility value of the AFQ-Y and allows one to do so in a naturalistic setting, exploring the relation between anxiety and experiential avoidance within the comorbidity that is common in inpatient settings.

Taken together, these findings are significant for several reasons. First, they establish the AFQ-Y as a useful measure and predictor of anxiety disorders (albeit not pure anxiety disorder) in clinical samples of adolescents. Moreover, they further establish experiential avoidance as an important correlate of anxiety disorders, and psychopathology in general, among psychiatrically referred youths. While more research is necessary to establish the etiological status of experiential avoidance in the development of psychopathology in youths, research has begun to elucidate the role of this construct in the treatment of adults. More specifically,

evidence is starting to accumulate to suggest that experiential avoidance may impede reduction of symptoms in the treatment of a wide variety of disorders. For example, in adult patients, a high level of experiential avoidance has been suggested to prevent clients from habituating to phobic stimuli (Foa, Huppert, & Cahill, 2006; Foa & Kozak, 1986; Lang, Levin, Miller, & Kozak, 1983), engaging in a supportive relationship with their therapists (Horvath & Bedi, 2002; Lynch, Chapman, Rosenthal, Kuo, Linehan, 2006), processing important emotional experiences (Greenberg & Pascual-Leone, 2006), using adaptive emotion regulation strategies (Ehrenreich, Goldstein, Wright, & Barlow, 2009; Suveg, Kendall, Comer, & Robin, 2006), and engaging in behavioral experiments to challenge irrational thinking patterns (Clark & Beck, 2009). Emotional avoidance is therefore an important target of treatment regardless of the treatment approach being used. Our study supports the potential importance of this construct also for the treatment of adolescents and establishes the necessity of further studies investigating its mediating effect in treatment outcome studies.

Currently, ACT has not been extended to the treatment of youths. Moreover, only one study other than Greco et al. (2008) has explored the relation between experiential avoidance and psychopathology in adolescents thus far. Best (2010) identified a link between experiential avoidance and chronic tic disorder in adolescents, suggesting that experiential avoidance may co-occur with various forms of psychopathology in adolescents as it does in adults. While much more research in the area is needed to determine if this is the case, we feel that our study responds to a lacuna in the current literature by exploring the construct in a clinical sample of adolescents. Our findings, with those of Greco et al. and Best, suggest that experiential avoidance is a measurable construct in adolescents and that the process of avoiding or suppressing unwanted feelings and thoughts may be important in the development and/or maintenance of adolescent anxiety disorder. Our findings contribute to the growing body of research suggesting that developmentally, adolescents have the metacognitive capacity to reflect on their own minds in the same way adults do (Dunlosky & Metcalfe, 2009), opening up the potential for the downward extension of ACT and other metacognitive therapies (e.g., Mentalization-based therapies; e.g., Bateman & Fonagy, 2004, 2008) to adolescents.

Several limitations warrant discussion. Specifically, our sample was drawn from a largely Caucasian group of adolescents with severe psychopathology. Replication of this study with a racially and ethnically diverse population is essential before our findings can be widely generalized. Additionally, the cross-sectional nature of our research limits the impact of our findings. Although we have identified a crucial component in understanding adolescent anxiety, longitudinal research is needed to elucidate the direction of causality, if any, between experiential avoidance and anxiety. Further, the value of the AFQ-Y in predicting anxiety is complicated by high comorbidity in our sample and prevents us from drawing definitive conclusions about the measure's predictive power for detecting pure anxiety disorder. Finally, more information about the development of experiential avoidance in childhood and adolescence is needed in order to identify and treat it as an early marker of future psychopathology.

References

- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*, 213–232. doi:10.1037/0033-2909.101.2.213
- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for ASEBA school-age forms & profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families. Retrieved from <http://www.aseba.org/>
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Barlow, D. H. (2000). Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. *American Psychologist, 55*, 1247–1263. doi:10.1037/0003-066X.55.11.1247
- Bateman, A., & Fonagy, P. (2004). *Psychotherapy for borderline personality disorder: Mentalization-based treatment*. Oxford, England: Oxford University Press.
- Bateman, A., & Fonagy, P. (2008). 8-year follow-up of patients treated for borderline personality disorder: Mentalization-based treatment versus treatment as usual. *American Journal of Psychiatry, 165*, 631–638. doi:10.1176/appi.ajp.2007.07040636
- Begotka, A. M., Woods, D. W., & Wetterneck, C. T. (2004). The relationship between experiential avoidance and the severity of trichotillomania in a nonreferred sample. *Journal of Behavior Therapy and Experimental Psychiatry, 35*, 17–24. doi:10.1016/j.jbtep.2004.02.001
- Best, S. (2010). Experiential avoidance in chronic tic disorders: An online survey and pilot treatment study using habit reversal and acceptance and commitment therapy. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 70*(7-B), 4475.
- Bittner, A., Egger, H. L., Erkanli, A., Costello, E. J., Foley, D. L., & Angold, A. (2007). What do childhood anxiety disorders predict? *Journal of Child Psychology and Psychiatry, 48*, 1174–1183. doi:10.1111/j.1469-7610.2007.01812.x
- Bond, F. W., & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction, and work performance. *Journal of Applied Psychology, 88*, 1057–1067. doi:10.1037/0021-9010.88.6.1057
- Brückl, T. M., Wittchen, H. U., Höfler, M., Pfister, H., Schneider, S., & Lieb, R. (2007). Childhood separation anxiety and the risk of subsequent psychopathology: Results from a community study. *Psychotherapy and Psychosomatics, 76*, 47–56. doi:10.1159/000096364
- Chawla, N., & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. *Journal of Clinical Psychology, 63*, 871–890. doi:10.1002/jclp.20400
- Clark, D. A., & Beck, A. T. (2009). *Cognitive therapy of anxiety disorders: Science and practice*. New York, NY: Guilford Press.
- Cribb, G., Moulds, M. L., & Carter, S. (2006). Rumination and experiential avoidance in depression. *Behaviour Change, 23*, 165–176. doi:10.1375/bech.23.3.165
- Dadds, M. R., Holland, D. E., Laurens, K. R., Mullins, M., Barrett, P. M., & Spence, S. H. (1999). Early intervention and prevention of anxiety disorders in children: Results at 2-year follow-up. *Journal of Consulting and Clinical Psychology, 67*, 145–150. doi:10.1037/0022-006X.67.1.145
- Dunlosky, J., & Metcalfe, J. (2009). *Metacognition*. Thousand Oaks, CA: Sage.
- Ehrenreich, J. T., Goldstein, C. R., Wright, L. R., & Barlow, D. H. (2009). Development of a unified protocol for the treatment of emotional disorders in youth. *Child & Family Behavior Therapy, 31*, 20–37. doi:10.1080/07317100802701228
- Ferdinand, R. F., & Verhulst, F. C. (1995). Psychopathology in Dutch young adults: Enduring or changeable? *Social Psychiatry and Psychiatric Epidemiology, 30*, 60–64. doi:10.1007/BF00794943
- Foa, E. B., Huppert, J. D., & Cahill, S. P. (2006). Emotional processing theory: An update. In B. O. Rothbaum (Ed.), *Pathological anxiety: Emotional processing in etiology and treatment* (pp. 3–24). New York, NY: Guilford Press.
- Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin, 99*, 20–35. doi:10.1037/0033-2909.99.1.20
- Fombonne, E. (1991). The use of questionnaires in child psychiatry research: Measuring their performance and choosing an optimal cut-off. *Journal of Child Psychology and Psychiatry, 32*, 677–693. doi:10.1111/j.1469-7610.1991.tb00343.x
- Forsyth, J. P., Parker, J. D., & Finlay, C. G. (2003). Anxiety sensitivity, controllability and experiential avoidance and their relation to drug of choice and addiction severity in a residential sample of substance-abusing veterans. *Addictive Behaviors, 28*, 851–870. doi:10.1016/S0306-4603(02)00216-2
- Giorgio, J. M., Sanflippo, J., Kleiman, E., Reilly, D., Bender, R. E., Wagner, C. A., . . . Alloy, L. B. (2010). An experiential avoidance conceptualization of depressive rumination: Three tests of the model. *Behaviour Research and Therapy, 48*, 1021–1031. doi:10.1016/j.brat.2010.07.004
- Goodman, R. (1995). The relationship between normal variation in IQ and common childhood psychopathology: A clinical study. *European Child & Adolescent Psychiatry, 4*, 187–196. doi:10.1007/BF01980457
- Greco, L. A., Lambert, W., & Baer, R. A. (2008). Psychological inflexibility in childhood and adolescence: Development and evaluation of the Avoidance and Fusion Questionnaire for Youth. *Psychological Assessment, 20*, 93–102. doi:10.1037/1040-3590.20.2.93
- Greenberg, L. S., & Pascual-Leone, A. (2006). Emotion in psychotherapy: A practice-friendly research review. *Journal of Clinical Psychology, 62*, 611–630. doi:10.1002/jclp.20252
- Gregory, A. M., Caspi, A., Moffitt, T. E., Koenen, K., Eley, T. C., & Poulton, R. (2007). Juvenile mental health histories of adults with anxiety disorders. *American Journal of Psychiatry, 164*, 301–308. doi:10.1176/appi.ajp.164.2.301
- Hanley, J. A., & McNeil, B. J. (1982). The meaning and use of the area under a receiver operating characteristic (ROC) curve. *Radiology, 143*, 29–36. Retrieved from <http://radiology.rsna.org/>
- Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy, 44*, 1–25. doi:10.1016/j.brat.2005.06.006
- Hayes, S. C., Strosahl, K., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York, NY: Guilford Press.
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bissett, R. C., Pistorello, J., Toarmino, D., . . . McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *Psychological Record, 54*, 553–578. Retrieved from <http://openiuc.lib.siu.edu/tpr/vol54/iss4/5>
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*, 1152–1168. doi:10.1037/0022-006X.64.6.1152
- Horvath, A. O., & Bedi, R. P. (2002). The alliance. In J. C. Norcross (Ed.), *Psychotherapy relationships that work: Therapist contributions and responsiveness to patients* (pp. 37–69). New York, NY: Oxford University Press.
- Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy, 44*, 1301–1320. doi:10.1016/j.brat.2005.10.003
- Kashdan, T. B., Breen, W. E., Afram, A., & Terhar, D. (2010). Experiential avoidance in idiographic, autobiographical memories: Construct validity and links to social anxiety, depressive, and anger symptoms. *Journal of Anxiety Disorders, 24*, 528–534. doi:10.1016/j.janxdis.2010.03.010

- Lang, P. J., Levin, D. N., Miller, G. A., & Kozak, M. J. (1983). Fear behavior, fear imagery, and the psychophysiology of emotion: The problem of affective response integration. *Journal of Abnormal Psychology, 92*, 276–306. doi:10.1037/0021-843X.92.3.276
- Lewinsohn, P. M., Holm-Denoma, J. M., Small, J. W., Seeley, J. R., & Joiner, T. E., Jr. (2008). Separation anxiety disorder in childhood as a risk factor for future mental illness. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*, 548–555. doi:10.1097/CHI.0b013e31816765e7
- Lynch, T. R., Chapman, A. L., Rosenthal, M. Z., Kuo, J. R., & Linehan, M. M. (2006). Mechanisms of change in dialectical behavior therapy: Theoretical and empirical observations. *Journal of Clinical Psychology, 62*, 459–480. doi:10.1002/jclp.20243
- Manassis, K., & Hood, J. (1998). Individual and familial predictors of impairment in childhood anxiety disorders. *Journal of the American Academy of Child & Adolescent Psychiatry, 37*, 428–434. doi:10.1097/00004583-199804000-00021
- Marx, B. P., & Sloan, D. M. (2005). Peritraumatic dissociation and experiential avoidance as predictors of posttraumatic stress symptomatology. *Behaviour Research and Therapy, 43*, 569–583. doi:10.1016/j.brat.2004.04.004
- Metcalfe, J., Eich, T., & Castel, A. (2010). Metacognition of agency across the lifespan. *Cognition, 116*, 267–282. doi:10.1016/j.cognition.2010.05.009
- Olino, T. M., Klein, D. N., Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (2010). Latent trajectory classes of depressive and anxiety disorders from adolescence to adulthood: Descriptions of classes and associations with risk factors. *Comprehensive Psychiatry, 51*, 224–235. doi:10.1016/j.comppsy.2009.07.002
- Ollendick, T. H., & Hirshfeld-Becker, D. R. (2002). The developmental psychopathology of social anxiety disorder. *Biological Psychiatry, 51*, 44–58. doi:10.1016/S0006-3223(01)01305-1
- Pine, D. S., Cohen, P., Gurley, D., Brook, J., & Ma, Y. (1998). The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Archives of General Psychiatry, 55*, 56–64. doi:10.1001/archpsyc.55.1.56
- Plumb, J. C., Orsillo, S. M., & Luterek, J. A. (2004). A preliminary test of the role of experiential avoidance in post-event functioning. *Journal of Behavior Therapy and Experimental Psychiatry, 35*, 245–257. doi:10.1016/j.jbtep.2004.04.011
- Roemer, L., Salters, K., Raffa, S. D., & Orsillo, S. M. (2005). Fear and avoidance of internal experiences in GAD: Preliminary tests of a conceptual model. *Cognitive Therapy and Research, 29*, 71–88. doi:10.1007/s10608-005-1650-2
- Shaffer, D., Fisher, P., Lucas, C. P., Dulcan, M. K., & Schwab-Stone, M. E. (2000). NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC-IV): Description, differences from previous versions, and reliability of some common diagnoses. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*, 28–38. doi:10.1097/00004583-200001000-00014
- Stewart, S. H., Zvolensky, M. J., & Eifert, G. H. (2002). The relations of anxiety sensitivity, experiential avoidance, and alexithymic coping to young adults' motivations for drinking. *Behavior Modification, 26*, 274–296. doi:10.1177/0145445502026002007
- Suveg, C., Kendall, P. C., Comer, J. S., & Robin, J. (2006). Emotion-focused cognitive-behavioral therapy for anxious youth: A multiple-baseline evaluation. *Journal of Contemporary Psychotherapy, 36*, 77–85. doi:10.1007/s10879-006-9010-4
- Swanson, H., Christie, L., & Rubadeau, R. (1993). The relationship between metacognition and analogical reasoning in mentally retarded, learning disabled, average, and gifted children. *Learning Disabilities Research & Practice, 8*, 70–81.
- Swets, J. A., & Pickett, R. M. (1982). *Evaluation of diagnostic systems: Methods from signal detection theory*. Orlando, FL: Academic Press.
- Thapar, A., & McGuffin, P. (1998). Validity of the shortened Mood and Feelings Questionnaire in a community sample of children and adolescents: A preliminary research note. *Psychiatry Research, 81*, 259–268. doi:10.1016/S0165-1781(98)00073-0
- Twohig, M. (2008). A randomized clinical trial of acceptance and commitment therapy versus progressive relaxation training in the treatment of obsessive compulsive disorder. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 68*(7-B), 4850.
- Verhulst, F. C., & Van der Ende, J. (1992). Agreement between parents' reports and adolescents' self-reports of problem behavior. *Journal of Child Psychology and Psychiatry, 33*, 1011–1023. doi:10.1111/j.1469-7610.1992.tb00922.x
- Verhulst, F. C., Van der Ende, J., Ferdinand, R. F., & Kasius, M. C. (1997). The prevalence of DSM-III-R diagnoses in a national sample of Dutch adolescents. *Archives of General Psychiatry, 54*, 329–336. Retrieved from <http://archpsyc.ama-assn.org/>
- Wechsler, D. (1997). *Wechsler Adult Intelligence Scale—Third Edition (WAIS-III)*. San Antonio, TX: Psychological Corporation.
- Wechsler, D. (2003). *Wechsler Intelligence Scale for Children—Fourth Edition (WISC-IV)*. San Antonio, TX: Psychological Corporation.
- Wechsler, D. (2008). *Wechsler Adult Intelligence Scale—Fourth Edition (WAIS-IV)*. San Antonio, TX: Psychological Corporation.

Received June 2, 2010

Revision received May 6, 2011

Accepted July 26, 2011 ■