# Relationships between Premonitory Urge and Anxiety in Youth with Chronic Tic Disorders

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## Abstract

Tourette's Disorder and other chronic tic disorders are common neurodevelopmental conditions. One characteristic of tic disorders is the premonitory urge, an aversive or unpleasant sensory phenomenon that may precede tics. Initial examination of premonitory urge in pediatric tic disorders suggests that awareness and experience of sensations preceding tics may be related to anxiety and OCD. However, it may be possible that specific anxiety-related symptoms, such as anxious physiologic arousal, are particularly relevant to the experience of premonitory urge. The current study examines relationships between tic-related premonitory urge and anxiety-related symptom clusters in treatment-seeking youths with a primary diagnoses of Tourette's or other chronic tic disorder. The sample consisted of 124 youth, ages 9 to 17, who participated in the multi-site Comprehensive Behavioral Intervention for Tics randomized controlled trial (CBIT; Piacentini et al., 2010). Specific anxiety-related subtypes, including generalized worry, separation, social, and panic/somatic symptoms, as well as severity of obsessions and compulsions, were

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assessed as potential correlates of premonitory urge. Findings indicated that age, global tic-related impairment, and specific panic/somatic symptoms accounted for a substantial proportion of variance in youth report of premonitory urge. These findings provide information about the characteristics of premonitory urge in pediatric tic disorders, and have implications for the treatment of pediatric tic syndromes.

## Keywords

Tourette's and other chronic tic disorders (CTDs) are common neuropsychiatric conditions characterized by the presence of rapid, repetitive, involuntary motor or vocal movements (American Psychiatric Association, 2013). For a CTD diagnosis, an individual must have experienced tics for at least 12 consecutive months, with onset before 21 years of age. One characteristic of tic disorders is the premonitory urge, an aversive or unpleasant sensory phenomenon that may precede tics (Banaschewski, Woerner, & Rothenberger, 2003). Premonitory urge is typically assessed by an individual's self-report of subjective awareness and severity ratings of a variety of sensory and mental experiences that may precede tics; perceived control over ability to suppress or delay tics may also be assessed (e.g., Woods, Piacentini, Himle, & Chang, 2005). Youths often describe their premonitory urge as a sensation of "pressure", "tension", an "itch", or sense that "something isn't right". Importantly, the premonitory urge is usually fully or partially relieved by performance of the subsequent tic (Leckman, Walker & Cohen, 1993). This negative reinforcement cycle has been hypothesized to support the maintenance, or even worsening, of tics during childhood (Piacentini, Pearlman, & Peris, 2007). Despite being identified as a common feature of tic disorders, the premonitory urge has not been studied extensively. The extant literature consistently highlights two important themes in understanding premonitory urges: 1) the impact of development and 2) clinical correlates, including other features of tics, anxiety, and OCD.

First, although somewhat limited, existing evidence suggests that premonitory urge is less common in early childhood than in later childhood, adolescence, and adulthood. Rates of premonitory urge in pediatric samples range widely, between 24% (Banaschewski et al., 2003) and 98% (Woods et al., 2005). Leckman et al. (1993) reported that the phenomenon begins approximately three years after tic onset, with higher levels of premonitory urge reported in older youths (Woods et al., 2005). In addition, premonitory urge has been correlated with tic severity and comorbid disorders (i.e., anxiety, OCD) in older children and adolescents, but not younger children (Kircanski, Woods, Chang, Ricketts, & Piacentini, 2010; Steinberg et al., 2010; Woods et al., 2005). These data suggest that age likely plays a role in the development of premonitory urge. At present, however, it is not clear whether premonitory urge truly appears later in development or, alternately, that cognitive development over the course of childhood and into adolescence leads to greater awareness of tics and related sensory phenomena. Given the central role of premonitory urge in behavioral models of tic phenomenology and treatment, additional study of this phenomenon is clearly needed (Himle, Woods, Piacentini, & Walkup, 2006).

Second, the literature to date has primarily focused on identifying broad clinical correlates of premonitory urge. For example, tic interference and severity, and global symptom scores for anxiety and OCD, have been significantly correlated with premonitory urge in older youths (Steinberg et al., 2010; Woods et al., 2005). This relationship between premonitory urge and anxiety-related symptoms is not surprising, given that tic disorders often co-occur with anxiety and OCD (e.g., Specht et al., 2011). However, there may be some components of anxiety-related symptoms that are more closely linked to the experience of premonitory urge than the broad construct of "anxiety." Specifically, panic or somatic symptoms may be particularly relevant to tic-related sensory phenomena, as both are reported by youths as subjective experiences of bodily discomfort. Given this overlap, we hypothesize that the relationship between anxiety symptomatology and premonitory urge is primarily accounted for by anxiety-related physiologic arousal.

To explore this hypothesis and expand upon prior investigations of tic-related sensory and mental phenomena, the current study examined relationships between premonitory urge and anxiety-related symptom subtypes in a sample of treatment-seeking youths diagnosed with CTD. The specific contributions of anxiety-related symptom subtypes were examined both dichotomously (i.e., diagnoses and symptom scale cutoffs) and dimensionally. Given that premonitory urge is conceptualized as a sensory experience, we hypothesized that somatic symptoms and anxiety sensitivity might be particularly relevant to the experience of this phenomenon. Such work might provide a more fine-grained understanding of the components of anxiety-related problems that are relevant to tic-related premonitory urge. This, in turn, may inform methods for increasing tic awareness in order to successfully utilize behavioral interventions to treat pediatric tic disorders.

## Method

### Participants

The current sample consisted of 124 youths (ages 9 to 17) with a primary DSM-IV diagnosis of Tourette (n = 116) or chronic motor (n=7) or vocal (n=1) tic disorder who participated in a multi-site randomized controlled trial evaluating efficacy of the Comprehensive Behavioral Intervention for Tics Study (CBIT; Piacentini et al., 2010). Inclusion criteria included a total tic severity score greater than 13 (as measured by the Yale Global Tic Severity Scale;YGTSS; Leckman et al., 1989). Other inclusion and exclusion criteria included English fluency and IQ greater than 80. Youths receiving concurrent pharmacotherapy for tics or related conditions were permitted to enroll as long as they remained on a stable medication dose for six weeks prior to study entry. See Piacentini et al. (2010) for additional sample characteristics.

The current study examines pre-treatment baseline data for these youths in relation to premonitory urge and anxiety symptoms. Two youths from the original CBIT sample were excluded from the current analyses because they did not complete the measure of premonitory urge at pre-treatment assessment. Participants in the current study ranged in age from 9 to 17 years (Mean age = 11.76, SD = 2.33), were 78% male, and self-identified as 86% Caucasian, 7% Hispanic, 3% African American, 3% Asian/Pacific Islander, and 1% "other." The mean YGTSS total tic score was 24.65 (SD = 6.09) which was comparable to

prior investigations of premonitory urge in pediatric tic disorders (Woods et al., 2005), andthe mean YGTSS overall impairment score was 23.72 (SD = 8.47). In total, 36% of the sample also met for a concurrent anxiety diagnosis: Separation Anxiety (9%), Social Phobia (21%), Generalized Anxiety disorders (20%), and OCD (18%). Fourteen participants met for more than one anxiety diagnosis, and 10 received both an OCD and other anxiety diagnosis.

**Measures**

Anxiety Disorders Interview Schedule for Children, Version IV (ADIS-IV; Silverman & Albano, 1996). The ADIS-IV is a semi-structured diagnostic interview assessing the major DSM-IV internalizing and externalizing disorders, including anxiety, OCD, and chronic tic disorders. It has demonstrated good reliability and validity in prior studies (Silverman, Saavedra, & Pina, 2001; Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). The ADIS to confirm tic disorder diagnosis and assess for anxiety and OCD comorbidity.

*Child Anxiety Sensitivity Index* (CASI; Silverman, Fleisig, Rabian, & Peterson, 1991) is an 18-item self-report assessing negative beliefs and fear of negative consequences related to the experience of anxiety. Each item is rated on a scale of 1("none") to 3 ("a lot") with total scores ranging from 18 to 54. The CASI has sound psychometric properties for typically-developing and clinical samples of youths and correlates with youth anxiety symptoms (Silverman et al., 1991; Silverman, Goedhart, Barrett, & Turner, 2003). In this study, the CASI was examined as a potential predictor of premonitory urge. In this sample, Cronbach's alpha for the CASI was .85.

*Children's Yale-Brown Obsessive Compulsive Scale* (CYBOCS; Scahill et al., 1997) is a clinician-rated dimensional measure of OCD symptoms and severity. The CYBOCS total severity score sums ratings for time spent on symptoms, interference, distress, resistance, and control over symptoms, for a total severity score ranging from 0 to 40. Severity scores for obsession and compulsion subscales can also be examined separately. The CYBOCS has good psychometric properties (e.g., Storch et al., 2004) and has been used across many studies of obsessive-compulsive symptoms and diagnoses. The CYBOCS total severity score, as well as severity scores for obsessions and compulsions, were each explored possible dimensional and categorical predictors of premonitory urge in this study. In this sample, Cronbach's alpha for the CYBOCS was .93.

*Premonitory Urge for Tics Scale* (PUTS; Woods et al., 2005) is a 10-item self-reported measure of tic-related premonitory urges. The first 9 items assess physical and cognitive sensations that often precede tics and comprise the Total Score; item 10 assess whether the individual is able to suppress or stop tics and is evaluated separately. Each item is scored on a scale from 1 (not at all true) to 4 (very much true), with the Total Score (sum of items 1 to 9) ranging from 9 to 36 (Woods et al., 2005). Higher scores indicate greater sensory experience occurring prior to tics. The PUTS has demonstrated excellent psychometric properties in both youths (Woods et al., 2005; Steinberg et al., 2010) and adults (Crossley, Seri, Stern, Robertson, & Cavanna, 2014; Reese et al., 2013). In youths, it has been found to correlate with overall tic severity, anxiety, and obsessive-compulsive symptoms (Woods et al., 2005; Steinberg et al., 2010). Cronbach's alpha for PUTS items 1 through 9 was .82.

Screen for Child Anxiety Related Emotional Disorders – Child Version (SCARED-C; Birmaher, Brent, Chiappetta, Bridge, Monga, & Baugher, 1999) is a 41-item self-report of anxiety symptoms. Youths rate each item on a scale from 0 ("not true or hardly ever true") to 2 ("very true or often true"), with the total score ranging from 0 to 82. In addition, the measure provides subscale scores for five factors: generalized anxiety, separation anxiety, social phobia, school refusal, and panic/somatic symptoms. The scale has been validated in diverse clinical and community samples, with good internal consistency. SCARED-C total and subscale scores were examined as potential predictors of premonitory urge in this study. In this sample, Cronbach's alpha for the SCARED-C was .89.

*Yale Global Tic Severity Scale* (YGTSS; Leckman et al., 1989) is a clinician-rated interview providing a dimensional measure of tic severity. Each dimension is rated on a 5-point scale, with separate ratings for motor and vocal tics, as well as overall tic number, frequency, intensity, interference, complexity, and an overall impairment rating from 0 (none) to 50 (severe). The measure has demonstrated good psychometric properties and sensitivity to treatment effects (e.g., Leckman et al., 1989; Piacentini et al., 2010). The YGTSS impairment and severity ratings were explored as potential covariates in the current investigation. Cronbach's alpha for the YGTSS in this sample was .87.

### Procedure

Data were collected as part of a large multi-site randomized controlled trial comparing the Comprehensive Behavioral Intervention for Tics (CBIT) to psychoeducation and supportive therapy for the treatment of pediatric tic disorders (Piacentini et al., 2010; Woods et al., 2011). Thus, the sample included treatment-seeking youths with a primary tic disorder. The current investigation reports only pre-treatment assessment data. Clinician-rated measures were administered by individuals with at least Master's-level training in psychology or a related field. For additional details on CBIT procedures, see Piacentini et al. (2010).

### Statistical Analyses

Associations between premonitory urge and tic impairment, tic severity, obsessive-compulsive symptoms, anxiety, and anxiety sensitivity were examined in two ways. These variables of interest were selected because they were examined as correlates of premonitory urge in prior studies. First, independent samples t-tests provided a dichotomous approach to compare premonitory urge in youths with and without a) anxiety-related diagnoses, and b) meeting cutoffs for elevated scores on anxiety and OCD dimensional measures. Second, multiple linear regression was used to explore potential continuous predictors of premonitory urge. We planned to examine significant predictors from the full model for follow-up correlations, including examination of item-level questions that might be particularly relevant to premonitory urge. To examine whether multicollinearity between predictors (e.g., SCARED-C subscales) might impact the regression model, we examined the variance inflation factor (VIF) for each predictor; values ranged from 0.8 to 1.6, suggesting acceptable levels of collinearity (Pan & Jackson, 2008). To correct for multiple comparisons in follow-up correlations, the False Discovery Rate (FDR; Benjamini & Hochberg, 1995) was used. The FDR procedure controls for the *expected* proportion of false discoveries (i.e., incorrectly rejected null hypotheses) by providing by an adjusted overall *q*-

value, with adjusted p-values for each comparison. This is considered a less stringent yet more powerful means of correcting for multiple comparisons than the Bonferroni correction, which provides a conservative adjusted familywise error rate without consideration of significance values for individual comparisons. Finally, these significant predictors were examined in a post-hoc prediction model.

## Results

### Premonitory urge and clinical characteristics

The mean PUTS total score for the entire sample at baseline was 17.34 (SD=6.63), with total scores ranging from 9 to 34. The initial psychometric evaluation of the PUTS suggested that the measure demonstrated poorer psychometric properties with youths aged 9 and younger (Woods et al., 2005). Because of this prior finding, we conducted analyses with and without youths aged nine; analyses were not significantly different and nine-year-old youths were included in final analyses. However, PUTS total score was positively correlated with youth age ($r = .27$, $p =.002$), YGTSS overall impairment ($r = .27$, $p = .002$) and YGTSS global severity ($r = .27$, $p = .003$). Therefore, age, YGTSS impairment, and YGTSS severity were explored as potential covariates in subsequent analyses. No group differences were found between boys (M=17.34, SD=6.68) and girls (17.33, SD=6.58) on PUTS scores ($t_{122} = -.005$, $p=.97$).

### Anxiety as a categorical predictor of premonitory urge

Anxiety and OCD were examined as both categorical and continuous predictors of premonitory urge. As there were relatively few youths with an OCD diagnosis in the sample (n=24), youths were collapsed into groups of those without any anxiety-related comorbidity (n=67) and those with an anxiety-related comorbid disorder (n=58; includes Separation Anxiety, Social Phobia, Generalized Anxiety, and OCD). There were no group differences on PUTS total scores between youths with and without comorbid anxiety disorders.

Anxiety-related comorbidity was also examined categorically using cutoffs on dimensional measures. Forty percent of the sample indicated elevated anxiety-related problems on dimensional measures but did not meet criteria for an anxiety-related disorder, or met for an anxiety-related disorder but did not self-report elevated scores on symptom or clinician-rated measures. Elevated anxiety was defined by a SCARED-C total score of 22 or greater (Desousa, Salum, Isolan, & Manfro, 2013) and/or a CY-BOCS total score of 14 or greater (Storch, Lewin, De Nadai, & Murphy, 2010). The elevated anxiety symptom group consisted of 58 youth with 66 youth classified as without elevated anxiety symptoms. Youths with elevated anxiety symptoms (Mean PUTS = 19.48, SD = 6.26) had significantly higher PUTS total scores than youths without elevated anxiety symptoms (Mean PUTS = 15.45, SD = 6.41; $t_{124} = -3.54$, $p=.001$. These results did not change when controlling for age and YGTSS impairment and severity.

### Anxiety as a continuous predictor of premonitory urge

Stepwise multiple linear regression was conducted to examine the respective contributions of clinician-rated obsessive-compulsive symptoms (CY-BOCS), and self-reported anxiety

(SCARED-C) and anxiety sensitivity (CASI) total scores. In a second model, individual subscales from the CY-BOCS (number of obsessions and compulsions, and severity ratings for obsessions and compulsions) and the SCARED-C (panic/somatic, GAD, social phobia, separation anxiety, and school avoidance) were examined, along with anxiety sensitivity total score, to explore the predictive value of these more specific anxiety-related domains. Results of the linear regression indicated that age, YGTSS impairment, and SCARED-C panic/somatic subscale collectively accounted for 24% of the variance in PUTS scores (see Table 1 for reduced model). CYBOCS scores, SCARED-C subscales for GAD, social phobia, separation anxiety, and school avoidance, and the CASI total score were not identified as significant predictors in the model (β-values ranging from −.13 to .24; *p*-values ranging from .22 to .61).

The SCARED-C panic/somatic subscale independently accounted for 13% of the variance in PUTS scores (adjusted $R^2$ = .13). To further explore relationships between panic/somatic symptoms and premonitory urge, four items from the panic/somatic subscale of the SCARED-D were then identified as significantly correlated with PUTS total score (see Table 2). These four items were identified using the False Discovery Rate correction procedure (*q* < .02 for the present study; Benjamini & Hochberg, 1995). The items included: "When I get frightened, I feel shaky", "When I get frightened, I feel like choking", "When I get frightened, I feel like throwing up", and "When I get frightened, I feel dizzy." The items appeared to demonstrate acceptable internal consistency as a subgroup (Cronbach's α = .64), and were therefore combined to form a modified physiologic arousal subscale. This modified subscale was then entered into a stepwise linear regression, with age and YGTSS impairment entered into the first block, as these variables were identified as significant predictors of PUTS total score in the a priori regression model. Altogether this model including age, YGTSS impairment, and modified panic/somatic subscale accounted for 29% of the variance in PUTS scores, with the modified panic/somatic subscale independently accounting for 19% of the variance in premonitory urge (adjusted $R^2$ = .19; see Table 3 for model).

## Discussion

This investigation is the first to explicitly examine relationships between premonitory urge and specific anxiety-related symptom subscales in youth with tic disorders. Prior studies of premonitory urge have focused on global diagnostic clusters (e.g., anxiety, OCD, depression, ADHD symptoms; Woods et al., 2005). In this study, we attempted to determine whether more specific anxiety-related domains (including symptoms of GAD, social anxiety, separation anxiety, school refusal, panic/somatic symptoms, severity and number of obsessions and compulsions, and anxiety sensitivity) might be particularly relevant to the experience of premonitory urge in youths. We also examined age and tic severity and impairment as potential covariates, given these have previously been found to correlate with premonitory urge in this and other youth samples (Leckman et al., 1993; Steinberg et al., 2010; Woods et al., 2005).

First, our findings indicate that using diagnostic cutoffs may not distinguish between youths with and without anxiety-related disorders in predicting premonitory urge. However, when

anxiety-related symptoms were examined dimensionally, youths with elevated anxiety and/or OCD symptoms reported higher premonitory urge scores than youths without elevated anxiety-related symptoms. A focus on symptoms as continuous, rather than categorical, predictors may be a more sensitive way to examine experience of tic-related premonitory urge in youths. This approach is also in line with current perspectives to assess psychopathology syndromes as dimensional, rather than categorical (e.g., Insel et al., 2010).

Analyses examining specific, rather than global, anxiety-related domains yielded more fine-grained results. A substantial proportion of variance in PUTS scores (24% in first model, 29% in second model) was accounted for by youth age, clinician-rated tic severity, and youth self-report of panic/somatic symptoms. Perhaps not surprisingly, panic/somatic symptoms independently accounted for 13% (original SCARED-C panic/somatic subscale) and 19% (modified 4-item SCARED-C panic/somatic subscale) of variance in PUTS scores. The items in the modified 4-item panic/somatic subscale consisted of physiologic arousal symptoms that might be particularly relevant to premonitory urge sensations: feeling like one is shaky, choking, nauseous, and dizzy. These items differ from some of the other panic/somatic subscale items that may tap into more cognitive aspects of panic or anxiety sensitivity (e.g., fear of anxiety attacks, appearing nervous, feeling frightened for no reason, depersonalization, feeling out of control).

There are several potential explanations for this relationship between tic-related premonitory urge and youth reports of anxiety-related physiologic arousal. One possibility is that youths with more severe tics also tend to have higher levels of premonitory urge and greater anxiety-related physiologic arousal. This is supported by prior findings that tic complexity and severity may be linked to both premonitory urge and anxiety comorbidity (Kircanski et al., 2010; Woods et al., 2005). Two other possibilities are that some youths might either have greater body awareness, or conceptualize subjective somatic experience similarly across their tics and anxiety symptoms; this would lead to youth endorsement of bodily discomfort or arousal regardless of whether the questionnaire asks them to identify sensations in relation to tics or anxiety. Finally, youths with greater experience of premonitory urge may become aware of other bodily sensations over time as they try to distinguish between the types of sensations that do and do not precipitate tics. Future investigations involving behavioral assessment of physiological arousal (e.g., electrocardiogram, skin conductance, respiration) may provide some clarification about some of these possibilities.

It should be noted that youth self-reported anxiety sensitivity was not identified as a predictor of premonitory urge, suggesting that youths may not specifically relate premonitory urges to fear of anxiety-related sensations. Moreover, cognitive aspects of panic symptoms, as assessed by the SCARED-C panic/somatic subscale, were not as significantly correlated with PUTS total scores. Thus, the relationship between anxiety-related symptoms and premonitory urge may have some specificity: youths who report premonitory urge may also report higher physiological arousal when anxious, but not necessarily experience fear of these sensations or cognitive aspects of panic/somatic symptoms.

### Limitations

A limitation of this investigation was the small proportion of youths with elevated OCD who did not meet for elevated levels of other anxiety symptoms; this did not permit examination of the specific relationship between the OC symptoms and premonitory urge. Additional studies with larger samples might identify whether other anxiety-related problems are relevant to the experience of premonitory urge. Future investigations might also assess biobehavioral aspects of premonitory urge and somatic symptoms (e.g., using physiological data acquisition during anxiety-provoking tasks), as this study utilized primarily self-report measures of youth experience of premonitory urge and somatic symptoms. Continued study of age and cognitive development in relation to experience of premonitory urge will also clarify current questions about how premonitory urge emerges over the course of childhood.

### Implications for Practice

The current findings have clinical significance to the treatment of tic disorders in youths. A major component of evidence-based psychosocial interventions for tic disorders is teaching patients to develop an awareness of their tics (i.e., awareness training) in order to anticipate, and subsequently implement competing responses, for these behaviors (i.e., habit reversal training; Woods et al., 2008). Experience of premonitory urge may increase a youth's ability to, first, anticipate tics and, second, successfully implement competing responses. Therefore, during initial evaluation and functional analysis of behavior, youth identification of physiological arousal as relevant to anxiety may indicate a greater likelihood of the presence of premonitory urge. In addition, experience of other physiologic cues (as in the four items identified in this investigation) may provide a context in which youths can learn how to anticipate their tics. For example, if a child reported nausea or stomach ache as an anxiety-related symptom, a clinician might ask the child to identify similar sensations in their stomach as a means of anticipating a stomach muscle-tensing tic.

### Conclusions

In sum, the current investigation identified a specific domain of anxiety-related problems – youth-reported physiological arousal – as a predictor of premonitory urge. A better understanding of anxious arousal in youths across development may provide clarification about premonitory urge as a subjective sensory phenomenon. Examination of premonitory urge and/or physiological arousal over the course of behavioral intervention may identify these as predictors or mediators of treatment response. Future work to replicate these findings in other samples of youths with tics and anxiety-related symptoms may inform personalization of behavioral interventions for tic disorders to meet the needs of individual youths.

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**Table 1**

Reduced multiple linear regression model predicting premonitory urge

|  | β | t | p-value | R² | R² |
|---|---|---|---|---|---|
| Age | .24 | 2.98 | <.01 | .11 | .05 |
| YGTSS Total Impairment | .21 | 2.65 | <.01 | .07 | .07 |
| SCARED-C Panic / Somatic Subscale | .37 | 4.60 | <.01 | .24 | .13 |

**Table 2**

Bivariate correlations (r) with PUTS total score

| SCARED-C Panic/Somatic Subscale Item | r | *p-value |
|---|---|---|
| 1. When I feel frightened, it is hard to breathe. | .20 | .03 |
| 6. When I get frightened, I feel like passing out. | .19 | .03 |
| 9. People tell me that I look nervous. | .19 | .03 |
| 12. When I get frightened, I feel like I am going crazy. | .10 | .29 |
| 15. When I get frightened, I feel like things are not real. | .08 | .36 |
| 18. When I get frightened, my heart beats fast. | .18 | .05 |
| 19. I get shaky. | .29 | <.01 |
| 22. When I get frightened, I sweat a lot. | .13 | .16 |
| 24. I get really frightened for no reason at all. | .02 | .84 |
| 27. When I get frightened, I feel like I am choking. | .30 | <.01 |
| 30. I am afraid of having anxiety (or panic) attacks. | .20 | .03 |
| 34. When I get frightened, I feel like throwing up. | .40 | <.01 |
| 38. When I get frightened, I feel dizzy. | .26 | <.01 |

*Using the False Discovery Rate (FDR) to control for number of correlations, $q$ .02 for significance. Items 19, 27, 34, and 37 met for significance based on FDR correction and therefore comprised the modified Panic/Somatic subscale.

**Table 3**

Reduced multiple Linear Regression predicting premonitory urge with modified panic/somatic subscale

|  | β | t | p-value | $R^2$ | $R^2$ |
|---|---|---|---|---|---|
| Age | .21 | 2.64 | <.01 | .07 | .07 |
| YGTSS Total Impairment | .20 | 2.54 | .01 | .11 | .05 |
| Modified SCARED-C Panic/Somatic Subscale | .43 | 5.64 | <.01 | .29 | .19 |