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Test of an Anxiety Sensitivity Amelioration Program for At-Risk Youth (ASAP-Y)

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Abstract

Objective: Adult research supports the efficacy of targeting the malleable risk factor of anxiety sensitivity (AS) in preventing anxiety and related psychopathology. However, very little work has evaluated the impact of AS reduction among youth, which is unfortunate given adolescence is a "core risk" period in terms of disorder onset.

Method: The primary project aim was to test the effects of an Anxiety Sensitivity Amelioration Program for Youth (ASAP-Y) among a sample of 88 youth aged 10-14 years with elevated AS. High AS youth and a parent were randomly assigned to either the ASAP-Y, which consisted of psychoeducation and experimenter-led and parent-led exposures, or a general health information control condition.

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Contributors

Drs. Knapp, Leen-Feldner, Feldner, Schmidt, and Keough designed and adapted the Anxiety Sensitivity Amelioration Program for At-Risk Youth (ASAP-Y) from the original Anxiety Sensitivity Amelioration Training (ASAT) and ASAT-Revised programs for adults. Dr. Knapp conducted the project that evaluated the ASAP-Y among at-risk youth and their parents, and Drs. Leen-Feldner, Feldner, and Schmidt provided consultation throughout the project period. Dr. Allan conducted the majority of statistical analyses and wrote the majority of the results section. Dr. Knapp conducted additional statistical analyses and completed the initial draft of the manuscript. All authors contributed to and have approved the final manuscript.

Results: Youth AS levels in both conditions decreased from baseline to the one-month assessment, but this decrease was more pronounced at one-month for youth in the intervention condition. Further, significant indirect effects of condition on one-month anxiety and depression symptoms via reduced AS were detected. Homework compliance rates and self-report data support the acceptability of the ASAP-Y. Contrary to hypotheses, differences between conditions in emotional reactivity elicited using experimental psychopathology methods were not observed.

Conclusions: The current findings offer preliminary support for the ASAP-Y as an acceptable selective preventive intervention for at-risk youth, with specific anxiety- and depression-related effects through reduced AS.

Keywords

anxiety sensitivity; anxiety; depression; preventive intervention; prevention; youth

Adolescence marks an important period in terms of psychological vulnerability (Dahl, 2004). Several disorders, such as anxiety and depression, emerge during the course of adolescence (Beardslee, Chien, & Bell, 2011; Kessler et al., 2012). These conditions negatively impact functioning and physical health, increase risk for other forms of psychopathology, and have a lasting impact for many youth into their adult lives (Ames & Leadbeater, 2018; Copeland, Angold, Shanahan, & Costello, 2014). These outcomes underscore the importance of developing evidence-based prevention strategies before and during the critical period of adolescence.

Anxiety sensitivity (AS) is a malleable cognitive risk factor that reflects beliefs pertaining to the harmful consequences of anxiety (Reiss & McNally, 1985). Although AS is a robust risk factor for panic, it can also be conceptualized as a transdiagnostic risk factor with relevance to other types of psychopathology, such as depression and other forms of anxiety (Naragon-Gainey, 2010; Noel & Francis, 2011; Olatunji & Wolitzky-Taylor, 2009), and a range of negative health behaviors (e.g., substance use; Otto et al., 2016). As such, AS modification may not only decrease panic vulnerability, but has the potential to attenuate the risk for development of other types of psychopathology.

A large body of work supports the malleability of AS (Naragon-Gainey, 2010; Olatunji & Wolitzky-Taylor, 2009). For example, Schmidt and colleagues (2007) found that a brief AS reduction training produced a 30% reduction in AS (compared to 17% in the control condition) and decreased likelihood of Axis I disorders at a two-year follow-up. In a follow-up study that included interoceptive exposure (IE) homework, Keough and Schmidt (2012) reported even larger reductions in AS at one and six-months post-intervention. Among the few preventive interventions that have targeted AS among youth (Conrod, Castellanos-Ryan, & Strang, 2010), Balle and Tortella-Feliu (2010) adapted the Australian FRIENDS anxiety prevention program to a six-session school-based program for high AS youth (11 to 17 years) and assessed AS, anxiety, and depression outcomes. Condition differences were only detected at the 6-month follow-up, in that participants in the prevention condition evidenced decreased AS compared to controls. Although promising, this intervention was resource intensive and condition differences were limited to AS. Nonetheless, evidence indicates AS

is malleable via brief psychosocial interventions and that such reductions impact anxiety, depression, and other psychopathology (Schmidt et al., 2007).

Consistent with theoretical perspectives on the importance of including parents in youth prevention protocols (Beardslee et al., 2011), converging lines of empirical evidence underscore the benefit of parents in youth intervention efforts. Nonspecific anxiety and depression prevention programs that integrate parents evidence statistically and/or clinically significant anxiety reduction (Feldner, Zvolensky, & Schmidt, 2004), and “child plus parent” conditions outperform “child only” conditions (Pina, Zerr, Villalta, & Gonzales, 2012). Evidence from other prevention literatures suggest parent training can be an effective preventive intervention among youth (e.g., substance use; Mahabee-Gittens, Xiao, Gordon, & Khoury, 2013). Finally, parents are key agents in efforts to generalize exposure-related learning (Hirshfeld-Becker & Biederman, 2002), such as promoting learning experiences designed to reduce anxious responding to panic-relevant cues (e.g., IE exercises) in contexts outside the clinic/laboratory.

The current study evaluated the selective (i.e., specific to those at elevated risk) preventive intervention targeting the transdiagnostic risk factor of AS among at-risk youth. This brief intervention integrated experimenter- and family-directed IE exercises with the aim of decreasing vulnerability for anxiety and depression psychopathology through reducing AS. Vulnerability was indexed via anxiety and depression symptoms and emotional reactivity elicited using experimental psychopathology methods (Olatunji, Leen-Feldner, Feldner, & Forsyth, 2007). Proximal and short-term distal effects of the Anxiety Sensitivity Amelioration Program for Youth were evaluated by comparing it to a general health information control condition.

Method

Participants

Eighty-eight nonclinical youth (51.1% male) between 10 and 14 years (M = 12.52 years, SD = 1.41) and one of their parents were recruited from the local community. We chose the lower cutoff age of 10 years given the beginning of adolescence has been defined as the onset of puberty, which is underway by age 8 years for many American girls with outward signs appearing around age 10 years (Dahl, 2004; Susman & Rogol, 2004); we reasoned the upper cutoff of 14 years best captures the anxiety-related vulnerability of this period prior to disorder onset. Youth had a total CASI score ≥ 1 SD above the mean for males or females and the PI stratified by gender (Silverman, Fleisig, Rabian, & Peterson, 1991). Table 1 includes youth characteristics as a function of condition. Exclusionary criteria for youth were current or past cardiopulmonary or respiratory illness, possibility of being pregnant, current enrollment in mental health treatment, sibling enrollment in the current study, current psychotic disorder, current suicidal intent, and/or inability to give informed, written assent. Please see the CONSORT flow diagram in Figure 1 for more details on those excluded. Due to recommendations that prevention efforts should occur prior to disorder diagnosis (O’Connell et al., 2009), combined with evidence that suggests panic and generalized anxiety are two of the disorders most strongly associated with AS (Knapp, Blumenthal, Mischel, Badour, & Leen-Feldner, 2016; Naragon-Gainey, 2010), we also

excluded for current or past PD, panic attacks, and GAD. All procedures were approved by the sponsoring university's Institutional Review Board.

Measures

Youth assessment.—The *Anxiety Disorders Interview Schedule-IV: Child version* (ADISC; Silverman & Albano, 1996) and the *Panic Attack Questionnaire* (PAQ; Norton, Dorward, & Cox, 1986) were used to assess exclusionary criteria. The negative affect subscale of the *Positive and Negative Affect Schedule for Children* (PANAS; Joiner, Catanzaro, & Laurent, 1996) examined the effectiveness of random assignment to conditions. A *manipulation check survey* was used to ask youth about the topics (i.e., healthy foods, AS, bodily sensations, sleep, and/or none of the above) "talked about" in the presentation and related exercise.

Primary outcome variables.: The 18-item *Childhood Anxiety Sensitivity Index* (CASI; Silverman et al., 1991) was used to index global fear regarding the consequences of anxiety-related sensations. The 47-item *Revised Child Anxiety and Depressive Scales* (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000) was administered to assess how often youth experienced anxiety and depressive symptoms. Both the RCADS total score, anxiety symptom subscale, and depression symptom subscales were employed in analyses.

Experimental psychopathology variables.: A three-minute *voluntary hyperventilation (VH) challenge*, where the participant breathes at a rate of 30 respiratory cycles/min, was utilized to index real-time panic-relevant reactivity (Fried & Grimaldi, 1993). Participants provided pre-and post-challenge ratings of panic symptom intensity using the 23-item *Acute Panic Inventory* (API; Dillon, Gorman, Liebowitz, Fyer, & Klein, 1987). An *ideographic worry induction procedure*, where the participant is asked to engage in the cognitive process of worry for five-minutes, was used to index real-time emotional reactivity to worry (Frala, Mischel, Knapp, Autry, & Leen-Feldner, 2014). Participants reported current anxiety before and after the procedure using a 100-point *Subjective Units of Distress Scale* (SUDs; Wolpe, 1958).

Parent-youth dyad assessments.—Each week over the one-month intervention period, the parent and youth were asked to report homework completion. During the one-month debriefing, both the youth and parent in the ASAP-Y condition were separately asked to rate how reasonable or manageable the weekly homework was on a 11-point scale from 0 (*not reasonable at all*) to 10 *(very reasonable)* and to provide the completed weekly homework forms. Each youth-parent dyad was able to earn up to $75 for their participation in the study, and entered into a Mac-Apple gift-card raffle for each homework completed.

Procedure

Standardized Intervention and Control Programs

The Anxiety Sensitivity Amelioration Program for Youth, and associated administrator manual, were adapted from the standardized Anxiety Sensitivity Amelioration Training program and manual (ASAT; Schmidt et al., 2007) to make it developmentally appropriate

for youth and consisted of two parts. Part I consisted of psychoeducation regarding the nature of anxiety/fear and AS, and an individual experimenter-directed exposure session of 10 repeated trials of straw breathing. Part II consisted of parent training in conducting at-home exposure exercises and training the dyad to monitor exposure practice once per week (four times total) during the follow-up period. The psychoeducation presentation was followed verbatim, and there was no deviation from the manual regarding the straw exercises. To control for general education effects and time spent with the researcher, *the General Health Information Control Condition* (GHI) also consisted of two parts (Schmidt et al., 2007). Part I included psychoeducation about the benefits of healthy dietary habits and practice using a "food tracker" to plan, record, and monitor nutritional information of meals (USDA; 2010). Part II consisted of parent training in using the food tracker and training the dyad in planning and tracking meals. The GHI control condition was adapted from the standardized Physical Health Education Training program and manual used in the ASAT and ASAT-Revised (Keough & Schmidt, 2012; Schmidt et al., 2007). Each program lasted approximately 50min.

Data Analytic Strategy

To test the equivalence of conditions on key baseline and demographic characteristics, *t*-tests and chi-square analyses were conducted to compare conditions regarding the variables of age, gender, PANAS, CASI, and RCADS (total, anxiety subscale, and depression subscale). Zero-order correlations were conducted between continuous variables to evaluate relations between demographic, baseline, and outcome characteristics. Chi-square tests were used to compare conditions on their knowledge of topics addressed during the programs.

Primary analyses.—Next, a latent difference score approach, using a latent growth curve framework (Mun, von Eye, & White, 2009) was used to model the effects of condition on changes in AS levels from baseline to post-intervention, post-intervention to two-weeks, and two-weeks to one-month. Models were fit in Mplus version 8 (Muthén & Muthén, 1998-2017) using full information maximum likelihood and the Yuan-Bentler scaled chi-square index (Y-B χ^2) to adjust for nonnormality and missing data. A nonsignificant value indicated that the model provided good fit to the data (Kline, 2011). The comparative fit index (CFI), root mean square error of approximation (RMSEA), and RMSEA 90% confidence interval (CI) were also examined for model fit (Browne & Cudeck, 1993; Hu & Bentler, 1999). Modification indices and residual covariances were examined in the event of model misfit. Effect sizes (Cohen's *d*) were calculated for the difference in change from baseline to the three separate outcome points over the pooled baseline standard deviation. Condition (0 = GHI, 1 = ASAP-Y) and age were included as predictors in this model.

Next, the direct effect of condition on one-month RCADS total score was examined, covarying for baseline RCADS total score. A separate model was conducted to examine the direct effects of condition on the RCADS anxiety and depression subscale scores. Following examination of the direct effects models, indirect effects models were examined to test whether condition led to reductions in RCADS total, RCADS anxiety, and RCADS depression scores through reductions in AS. Indirect effects models were conducted using

maximum likelihood estimation and percentile-based CIs with 5,000 bootstrap resamples (Preacher & Hayes, 2008).

Random-intercept fixed effects MLMs were conducted to examine WIP Δ SUDs post-intervention and at one-month as well as VH Δ API post-intervention and at one-month. All models were initially centered at post-intervention. Time, condition, and time by condition interaction terms were included to examine the effects of condition on post-intervention and one-month challenge task outcomes.

Results

Preliminary Analyses

Missing data, skew, and kurtosis.—Five participants did not complete the two-week assessment and seven participants did not complete the one-month follow-up (four did not complete either session). Of these eight participants, seven were enrolled in ASAP-Y and one was enrolled in GHI. This difference in attrition was not significant ($\chi^2 = 3.09$, $df = 1$, $p = .08$). Comparison of demographics and baseline variables revealed no significant differences between those who attended all appointments and those who missed at least one appointment. No problematic levels of skew or kurtosis were detected (Curran, West, & Finch, 1996). The correlation matrix for all variables is provided in Table 1.

Covariates.—Preliminary analyses indicated that random assignment effectively equated conditions across key baseline and demographic variables. Conditions did not significantly differ as a function of youth age, gender, race, ethnicity, negative affect, baseline AS, baseline RCADS total, RCADS anxiety, or RCADS depression scores. Table 2 includes the means, standard deviations, and *p*-values of *t*-tests as a function of condition. Given the theoretical and empirical precedent of age in relation to anxiety and depression (Olatunji & Walistzky-Taylor, 2009), age and baseline symptom scores were included as covariates for relevant primary analyses.

Manipulation check of condition and treatment acceptability.—Preliminary analyses suggested youth in the ASAP-Y were more likely to report learning about AS [χ^2 (1, $n = 88$) = 80.18, $p < .001$] and bodily sensations [χ^2 (1, $n = 88$) = 59.40, $p < .001$] post-intervention compared to GHI youth, whereas GHI youth were more likely to report reviewing healthy food [χ^2 (1, $n = 88$) = 72.88, $p < .001$] and sleep [χ^2 (1, $n = 88$) = 70.04, $p < .001$]. The weekly ASAP-Y homework appeared to be manageable for families to complete, as suggested by the high ratings of the homework as reasonable or manageable reported by both the youth ($M = 8.9$; $SD = 1.3$) and parent (M = 8.9; $SD = 1.3$). The acceptability of the weekly ASAP-Y homework was also demonstrated by the high compliance rates for the weekly homework. Participants (including those participants who dropped out) reported completing 3.4 weeks ($n = 44$; $SD = 1.1$), on average, of the four weeks possible, and 3.7 weeks ($n = 38$; $SD = 0.80$) among the participants who completed the follow-up.

Primary Analyses

Anxiety sensitivity.—The unconditional latent difference score model for AS was first fit to the data. This model provided good fit to the data (Y-B χ = 2.19, *df* = 2, *p* = .33, CFI = 1.00, RMSEA = .03, 90% CI [.00, .22]). Although the RMSEA upper-bound CI exceeded .10, there is evidence that the RMSEA performs poorly in models with few degrees of freedom (e.g., Hu & Bentler, 1999). The conditional latent difference score model, including condition and grand mean-centered age predicting the intercept (mean centered at post-intervention), the difference score from baseline to post-intervention, the difference score from post-intervention to two-weeks, and the difference score from two-weeks to one-month provided good fit to the data (Y-B χ^2 = 1.95, *df* = 2, *p* = .38, CFI = 1.00, RMSEA = .00, 90% CI [.00, .21]), though again the upper bound RMSEA CI contained .10. Model parameters are provided in Table 3 and estimated mean scores by condition are provided in Figure 2. There was a significant decrease in AS scores from baseline to post-intervention, which was not significantly influenced by condition. There were no significant changes in AS from post-intervention to two-weeks, which was also not influenced by condition. Finally, there was not a significant change in AS from two-weeks to one-month. However, change was related to condition, such that scores decreased 2.13 points more in the ASAP-Y condition compared to scores in the GHI condition. At one-month, a medium-to-large effect size was found favoring ASAP-Y (*d* = .75). A 22.8% reduction was found for the ASAP-Y condition whereas a 14.0% reduction was found for the GHI condition.

Direct effects on anxiety and depression symptoms.—The direct and indirect effects of condition on one-month RCADS total score, anxiety score, and depression score (controlling for age) are provided in Table 4. The model examining the direct effect of RCADS total score provided good fit to the data (χ^2 = .28, *df* = 2, *p* = .87, CFI = 1.00, RMSEA = .11, 90% CI [.07, .14]). Examination of results indicated no direct effect of condition on one-month RCADS total scores (*B* = −4.15, *p* = .15). There was a 6.4% reduction in RCADS total scores in ASAP-Y and a 2.4% reduction in RCADS total scores in GHI. The differences were associated with a small effect size (*d* = .16; effect size estimates are based on raw data provided in Table 2). The direct effects model of condition on the anxiety and depression scores, controlling for age, provided excellent fit to the data (χ^2 = 1.68, *df* = 3, *p* = .64, CFI = 1.00, RMSEA = .00, 90% CI [.00, .14]). Examination of results indicated no direct effects of condition on one-month anxiety scores (*B* = −3.94, *p* = .09) or on one-month depression scores (*B* = −.19, *p* = .81).

Indirect effect models for anxiety and depression symptoms.—The model examining the indirect effects on RCADS total score provided adequate fit to the data (χ^2 = 12.36, *df* = 6, *p* = .05, CFI = .94, RMSEA = .11 90% CI [.00, .20]; see Figure 3), although the RMSEA was again elevated. Examination of modification indices revealed no empirically supported modifications that could be made to improve model fit. A significant indirect effect was found from condition to one-month RCADS total score through one-month AS score (*B* = −4.50, 95% CI [−8.49, −.86]), revealing that RCADS total scores were reduced 4.5 points more in ASAP-Y compared to GHI, through AS reductions. The model examining the indirect effects on RCADS anxiety and depression scores provided excellent fit to the data (χ^2 = 4.07, *df* = 6, *p* = .67, CFI = 1.00, RMSEA = .00, 90% CI [.00, .11]).

Significant indirect effect was found from condition to one-month anxiety (B = −4.20, 95% CI [−7.21, −.117]) and one-month depression (B = −.92, 95% CI [−1.81, −.21]) through one-month AS scores.

Direct effects on laboratory-based outcomes.—In the WIP Δ SUDs model, scores in GHI (M = 35.45) were similar to scores in ASAP-Y (M = 40.16; p = .54). There was a significant effect of time (B = −12.89, p = .01), indicating that Δ SUDs scores were significantly lower from post-intervention to the one-month in GHI. In contrast, one-month scores in ASAP-Y (M = 40.66) were similar to post-intervention scores in ASAP-Y. In the VH Δ API model, scores in GHI (M = 5.53) were similar to scores in ASAP-Y (M = 8.93; p = .10). There was no effect of time (B = −1.65, p = .06), indicating that Δ API scores were similar across post-intervention and one-month in GHI. The condition by time interaction was nonsignificant (B = −.91, p = .53), indicating that Δ API scores were also similar across timepoints in ASAP-Y.

Discussion

The primary aim of the current investigation was to examine a selective preventive intervention that integrated psychoeducation and experimenter- and family-directed IE exercises with the aim of reducing AS and vulnerability for anxiety and depression psychopathology among at-risk youth. The high homework compliance rates and dyad ratings of homework manageability support the acceptability of the ASAP-Y. Youth in the intervention condition sustained low AS levels across the intervention period, and although both conditions decreased in AS levels across the intervention, youth in the intervention condition evidenced significantly lower AS levels at the one-month follow-up period compared to youth in the control condition. The trends in AS reductions between baseline and the one-month follow-up within both conditions (23% reduction in intervention condition, 14% in control condition at the one-month follow-up) are consistent with those observed in the youth and adult AS amelioration literatures. For example, Schmidt and colleagues (2007) detected a 30% reduction in the intervention condition and 17% reduction in control condition at the 1-year follow-up among adults, whereas Balle and Tortella-Feliu (2010) reported a 25% reduction in the intervention condition and 18% reduction in the control condition at the 6-month follow-up among youth. Our pattern of results could suggest that both conditions evidenced systematic decline due to repeated assessment, but the intervention condition evidenced further reductions in AS due to the intervention itself.

As hypothesized, the indirect effects of condition on anxiety and depression symptoms through one-month AS were significant. This suggests that psychoeducation and IE exercises yield specific anxiety- and depression-related benefits through the indirect effects of reduced AS. This finding is consistent with adult AS amelioration programs, in which the interventions evidenced beneficial effects on anxiety and mood symptoms through changes in AS (Schmidt, Norr, Allan, Raines, & Capron, 2017; Smits et al., 2008). This finding has exciting potential implications for anxiety and depression psychopathology prevention, in that a small dose may contribute to significant and long-term change. It will be critical to employ longer-term assessments to assess durable change and to examine if increasing dose

or including more robust intervention components (e.g., cognitive-bias modification; Capron & Schmidt, 2016) yield greater effects.

In contrast to prediction, no differences in emotional reactivity elicited using experimental psychopathology methods were detected between conditions. While the effects of an AS amelioration program on reactivity to a worry induction have not yet been directly evaluated, our breathing exercise results are in contrast to past AS amelioration work among adults that have detected differences between conditions in reactivity to a biological challenge (Schmidt et al., 2007). These inconsistent findings underscore the early phases of development of this intervention and that refinement is needed to better engage youth AS to produce meaningful effects on the incidence of anxiety and related disorders.

Limitations of the current study merit mention. The current investigation primarily relied on youth self-report measures. A promising avenue for future work would be inclusion of additional assessment modalities from multiple informants to better inform the design and evaluation of the ASAP-Y intervention. Further, the PI who administered the programs was not blind to condition. Utilizing a technology-delivered intervention modality would enhance the internal validity of the observed findings (Schmidt, Capron, Raines, & Allan, 2014) . Lastly, extended post-intervention assessment intervals and inclusion of older youth are essential for determining the impact of the intervention on incidence of psychopathology across the course of adolescence.

Given the public health significance of decreasing risk for anxiety and depression psychopathology onset among youth, the goal of current study was to investigate the effects of a brief intervention on anxiety and depression outcomes for at-risk youth. Taken together, the current findings offer preliminary support for the ASAP-Y intervention as an acceptable, selective preventive intervention for at-risk youth, with specific short-term effects on AS and support for anxiety- and depression-related effects via reduced AS. The intervention implications of the current results are promising, in that a small dose may contribute to substantial and lasting change. Future work is now needed to refine ASAP-Y and prospectively evaluate the effects of the optimized intervention on the incidence of anxiety and depression psychopathology.

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Highlights

- Intervention condition had greater decreases in anxiety sensitivity (AS) at 1-month
- Indirect effects of condition on 1-month mood symptoms via AS were significant
- Self-report and homework data supported the acceptability of the AS intervention
- No differences between conditions were detected in challenge procedures outcomes

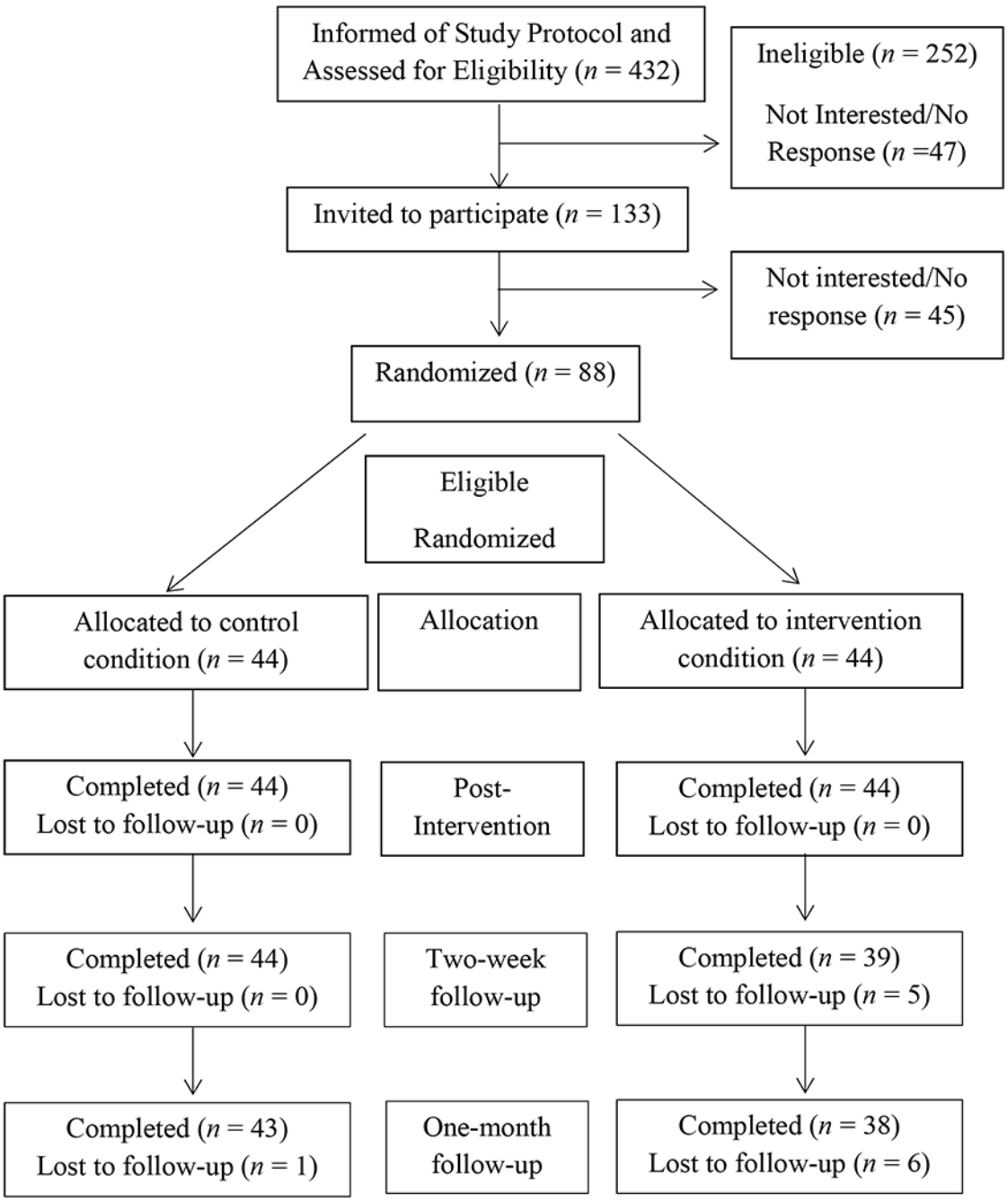

Figure 1.
CONSORT Flow Diagram of the progress through the phases of a preventive intervention among two conditions (i.e., enrollment, intervention allocation, post-intervention, and two-week and one-month follow-up).

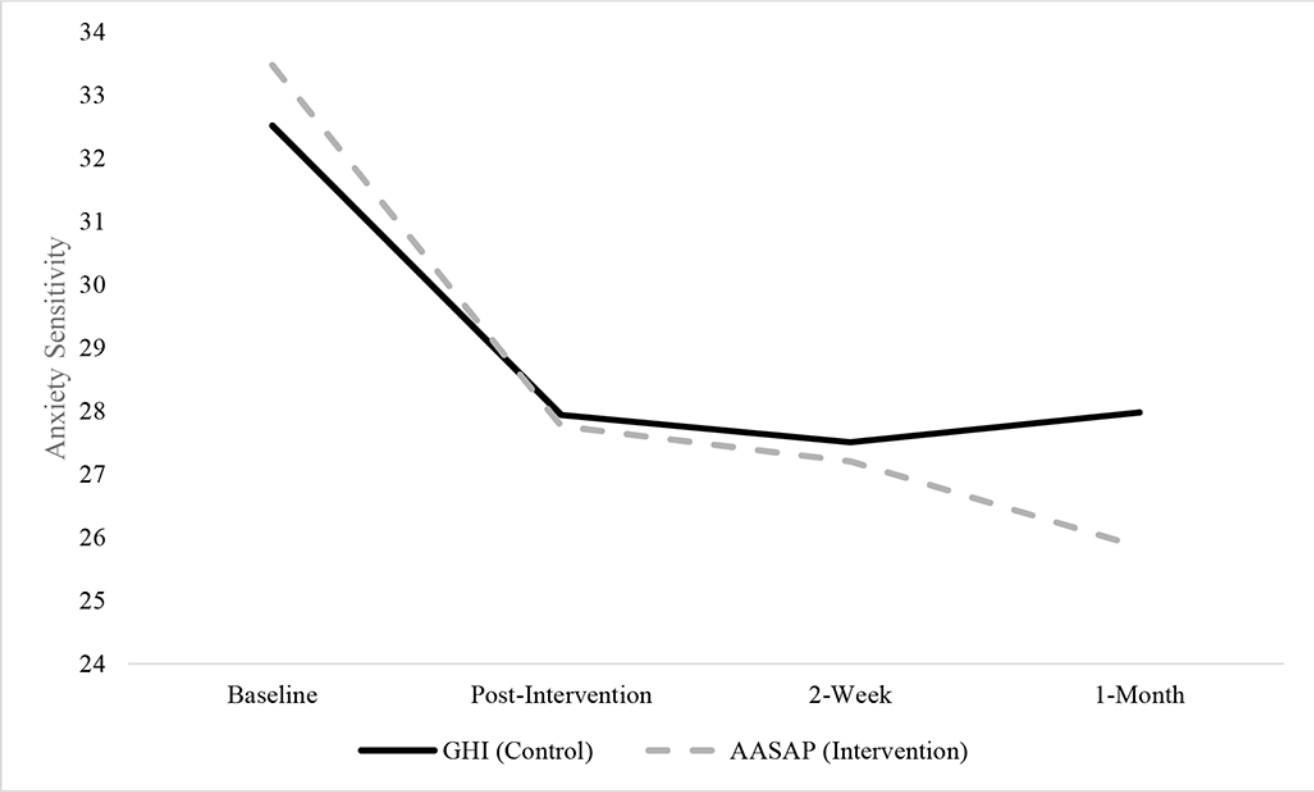

Figure 2.
Trajectories of anxiety sensitivity across the intervention and follow-up period as a function of condition.

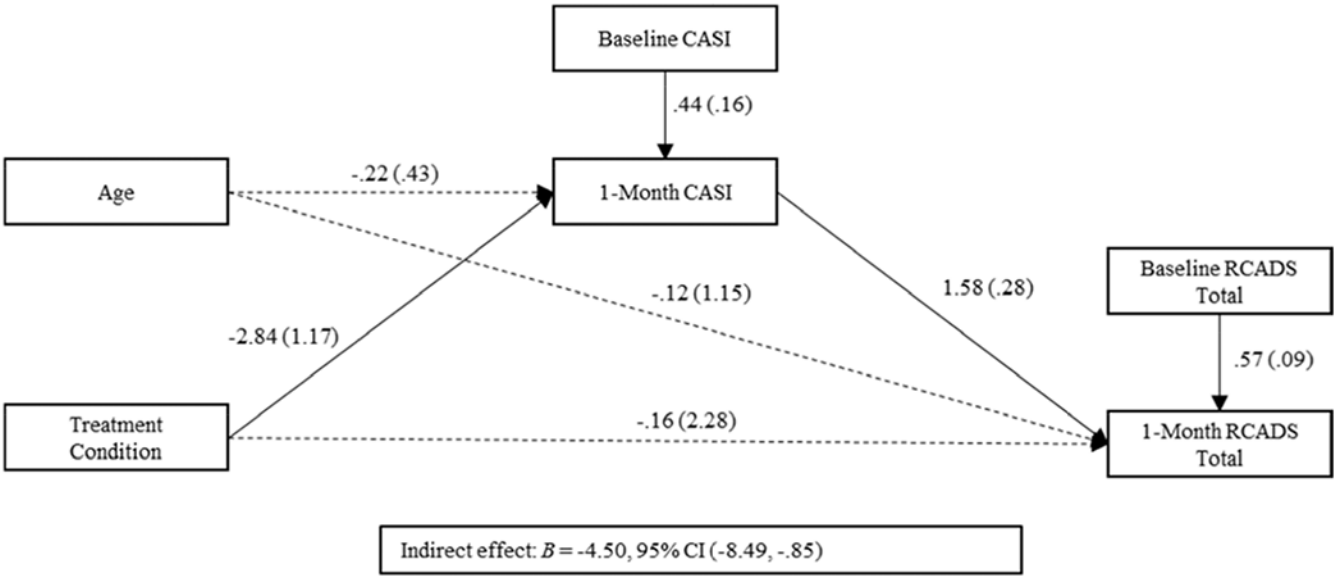

Figure 3.

Indirect effects of intervention condition (0 = GHI, 1 = ASAP-Y) predicting 1-month RCADS total scores through 1-month CASI scores. Nonsignificant path estimates are represented by dashed lines.

Table 1

Correlations between Anxiety Sensitivity and Depression and Anxiety Symptoms at Baseline and Follow-up

	1	2	3	4	5	6	7	8	9	10	11
1. BL CASI	--										
2. Post CASI	.50*	--									
3. W2 CASI	.36*	.71*	--								
4. ML CASI	.29*	.55*	.58*	--							
5. BL RCADS	.31*	.62*	.44*	.38*	--						
6. BL Anx	.32*	.65*	.47*	.39*	.98*	--					
7. BL Dep	.17	.36*	.25*	.21	.82*	.71*	--				
8. M1 RCADS	.21	.52*	.48*	.67*	.70*	.69*	.58*	--			
9. M1 Anx	.20	.56*	.50*	.70*	.70*	.70*	.53*	.99*	--		
10. M1 Dep	.21	.30*	.31*	.45*	.58*	.52*	.62*	.85*	.75*	--	
11. Age	−.01	.05	.07	−.07	.01	.02	.02	−.03	−.07	.10	--

Note. BL = Baseline. CASI = Childhood Anxiety Sensitivity Index. W2 = Week 2. M1 = Month 1. RCADS = Revised Child Anxiety and Depression Scale. Anx = Anxiety symptoms. Dep = Depression symptoms. $n = 88$.

*$p < .05$.

Table 2

Evaluation of the Efficacy of Random Assignment among Youth Demographic and Baseline Characteristics

	Total Sample[a]	GHI (Control)[b]	ASAP-Y (Intervention)[b]	p[a]
	M (SD) or %	*M (SD)* or %	*M (SD)* or %	
Baseline Assessment				
Age	12.5 (1.4)	12.5 (1.4)	12.6 (1.4)	ns
Gender (Males)	51.1%	50.0%	52.3%	ns
Race (White)	73.3%	69.8%	76.7%	ns
Ethnicity (Hispanic)	10.2%	15.9%	4.5%	ns
Negative Affect[b]	25.9 (8.3)	25.9 (8.5)	25.8 (8.2)	ns
Anxiety Sensitivity[c]	32.9 (4.1)	32.5 (4.1)	33.3 (4.1)	ns
RCADS-Total[d]	77.1 (18.2)	77.8 (20.9)	76.5 (15.4)	ns
Anxiety Symptoms[e]	60.7 (14.7)	61..0 (16.3)	60.5 (13.0)	ns
Depression Symptoms[l]	16.4 (4.5)	16.8 (5.1)	15.9 (3.9)	ns
Post-Intervention Assessment				
Anxiety Sensitivity[e]	27.8 (5.2)	27.9 (5.7)	27.7 (4.6)	
Two-Week Assessment				
Anxiety Sensitivity[e]	27.2 (5.0)	27.6 (5.5)	26.7 (4.5)	
One-Month Follow-Up				
Anxiety Sensitivity[e]	27.1 (5.6)	28.6 (6.1)	25.8 (4.3)	
RCADS-Total[f]	73.9 (18.4)	75.9 (21.7)	71.6 (13.8)	
Anxiety Symptoms[g]	58.3 (14.7)	60.1 (17.4)	56.2 (10.8)	
Depression Symptoms[l]	15.6 (4.6)	15.8 (4.8)	15.4 (4.5)	

Note: a: n = 88 b: *n* = 44

a: A series of t-tests and chi square tests were utilized to examine condition differences between youth in the intervention condition and control condition.

b: Positive and Negative Affect Scale for Children

c: Childhood Anxiety Sensitivity Index

d: Revised Child Anxiety and Depressive Scales- Total Score

e: Revised Child Anxiety and Depressive Scales- Total Anxiety Symptoms Subscale

f: Revised Child Anxiety and Depressive Scales- Depression Symptoms Subscale

Table 3

Model Parameters for the Latent Difference Score Model of Anxiety Sensitivity

Parameters	Mean/*B*	*SE*	*p*
Intercept	27.94	.85	< .001
Condition	−.18	1.10	.87
Age	.18	.41	.67
Change 1	4.58	.60	< .001
Condition	.96	1.00	.34
Age	−.22	.35	.52
Change 2	−.32	.63	.60
Condition	−.42	.84	.62
Age	−.004	.34	.99
Change 3	.47	.87	.59
Condition	−2.13	1.05	.04
Age	−.50	.40	.20
Intercept (Centered one-month)	28.41	.94	< .001
Condition	−2.32	1.17	.05
Age	−.33	.45	.28

Note. The intercept was centered on the post-intervention score. Age was centered. Condition was coded such that 0 = GHI and 1 = ASAP-Y. Change 1 reflected changes from baseline to post-intervention, Change 2 reflected changes from post-intervention to two-week follow-up, and Change 3 reflected changes from two-week follow-up to one-month follow-up.

Table 4

Direct and Indirect Effects of Intervention condition on One-Month RCADS Total Score, Anxiety Symptoms, and Depression Symptoms

	Direct Effects			Indirect Effects		
1-Month RCADS Total	***B***	***SE***	***p***	***B***	***SE* (95% CI LL)**	***p* (95% CI UL)**
Baseline RCADS Total	.77	.09	< .001	.57	.09	< .001
Condition	−4.15	2.88	.15	−.16	2.28	.94
Age	−.40	1.04	.70	−.12	1.15	.92
1-Month Anxiety Sensitivity				1.58	.28	< .001
Indirect				−4.50	(−8.49)	(−.85)
1-Month Anxiety Symptoms	***B***	***SE***	***p***	***B***	***SE* (95% CI LL)**	***p* (95% CI UL)**
Depression Symptoms	.17	.39	.66	.46	.29	.12
Anxiety Symptoms	.73	.11	< .001	.43	.09	< .001
Condition	−3.94	2.31	.09	−.09	1.69	.96
Age	−.88	.96	.36	−.55	.89	.54
1-Month Anxiety Sensitivity				1.38	.20	< .001
Indirect				−4.20	(−7.21)	(−1.17)
1-Month Dep Symptoms	***B***	***SE***	***p***	***B***	***SE* (95% CI LL)**	***p* (95% CI UL)**
Depression Symptoms	.52	.20	.01	.58	.19	.003
Anxiety Symptoms	.05	.06	.34	−.01	.06	.85
Condition	−.19	.86	.83	.65	.84	.44
Age	.28	.31	.38	.35	.32	.28
1-Month Anxiety Sensitivity				.30	.09	.001
Indirect				−.92	(−1.81)	(−.21)

Note. RCADS = Revised Child Anxiety and Depressive Scales. For condition, 0 = GHI, 1 = ASAP-Y. *SE* = Standard error. 95% CI LL = 95% confidence interval lower limit. 95% CI UL = 95% confidence interval upper limit. CIs not containing 0 are significant.