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## VIGILANT AND AVOIDANT ATTENTION BIASES AS PREDICTORS OF RESPONSE TO COGNITIVE BEHAVIORAL THERAPY FOR SOCIAL PHOBIA

Matthew Price, M.A., Erin B. Tone, Ph.D., and Page L. Anderson, Ph.D.\*

Georgia State University, Atlanta, Georgia

### Abstract

**Background**—Attention bias for socially threatening information, an empirically supported phenomenon, figures prominently in models of social phobia. However, all published studies examining this topic to date have relied on group means to describe attention bias patterns; research has yet to examine potential subgroups of attention bias among individuals with social phobia (e.g., vigilant or avoidant). Furthermore, almost no research has examined how attention biases in either direction may predict change in symptoms as a result of treatment.

**Methods**—This study ( $N=24$ ) compared responses to cognitive behavioral therapy (CBT) for social phobia between individuals with avoidant and vigilant biases for threatening faces at pretreatment.

**Results**—Participants with avoidant biases reported significantly and clinically higher symptom levels at posttreatment than did those with vigilant biases.

**Conclusions**—These findings suggest that an avoidant attention bias may be associated with reduced response to CBT for social phobia.

### Keywords

attention biases; social phobia; treatment response

## INTRODUCTION

Various theoretical models of social phobia suggest that attention biases help maintain the disorder by enhancing the processing of negative information in social situations.<sup>[1–3]</sup> Such enhanced processing not only results in increased anxiety for the current event and negative expectations for future events, but also contributes to maladaptive beliefs about the individual's social performance. Most research to date has found socially phobic samples to show increased vigilance or a bias to attend toward threatening information.<sup>[4–7]</sup> Such biases, however, seem to be malleable. Recent studies have found that cognitive behavioral therapy (CBT)<sup>[6,8]</sup> or attention retraining<sup>[9,10]</sup> can reduce vigilance biases, along with other social phobia symptoms, in clinical samples. Indeed, individuals who received attention retraining not only disengaged significantly faster from social threat cues after treatment, but they also reported greater declines in anxiety symptoms and functional impairment as compared to a placebo treatment.<sup>[9]</sup> This provides preliminary evidence that decreased

attentional vigilance toward threat may serve as an important component of overall treatment response for social phobia.

However, some research has also found evidence of attentional avoidance or a bias away from threatening information in socially phobic individuals,<sup>[2,11,12]</sup> raising questions about the uniformity of attentional biases in this population. A variety of factors could contribute to the inconsistent pattern of findings across studies. First, these inconsistencies may reflect methodological differences (e.g., variations in stimulus presentation duration or task type—Stroop versus dot probe) among studies.<sup>[13,14]</sup> Indeed, unlike studies that found evidence of vigilant biases, the two studies that show avoidant biases in socially phobic samples used a dot probe task that paired socially threatening face images with pictures of household objects, rather than images of neutral faces.<sup>[11,12]</sup> Second, consistent with a two-stage model that proposes initial attentional vigilance followed by attentional avoidance,<sup>[13]</sup> studies may have tapped attention at different stages, yielding variable results. A third possible explanation for the mixed findings is individual differences in attention bias. Specifically, subtypes of attentional bias (vigilant, avoidant) may exist within the broad diagnostic category of social phobia. This latter possibility is of particular interest, because it holds the potential to unite theoretical models of the disorder that emphasize different types of attention bias: selective attention to cues of negative evaluation<sup>[3]</sup> versus directed attention away from external threat cues.<sup>[2]</sup> Limited research to date has explored individual differences in attention bias patterns among individuals with social phobia; indeed, the exclusive use of group means to describe attention bias in prior research would have obscured evidence of subgroups.

Understanding individual differences in attention bias patterns in social phobia is important because affected individuals with vigilant versus avoidant attentional styles could show distinctive patterns of response to varied treatments. For example, individuals who are attentionally vigilant before treatment may be more likely than pretreatment attentional avoiders to respond well to exposure-based therapies, given that optimal treatment response is thought to occur when participants are fully present and aware of the exposures.<sup>[15,16]</sup> Furthermore, prior research shows that distraction, which can be conceptualized as facilitating avoidance, may inhibit extinction learning.<sup>[17,18]</sup> Whether an avoidant attentional bias similarly interferes with adaptive responding to exposure therapy is unknown. To examine this possibility, this study tested the hypothesis that pretreatment attentional vigilance for and avoidance of threat cues would differentially predict treatment response to exposure-based CBT for social phobia. It was predicted that individuals who showed a pretreatment avoidant bias would have a poorer treatment response.

## METHODS

### PARTICIPANTS

Participants were recruited via two outcome studies. The first ( $N=75$ ) was a randomized clinical trial comparing the effectiveness of virtual reality exposure therapy (VRE), Cognitive Behavioral Group Therapy, and a waitlist control as a treatment for social phobia. The second study ( $N=10$ ) examined amygdala activity as a predictor of treatment response to VRE in the context of an uncontrolled clinical trial. The attention bias task was introduced toward the end of the first study and was included from the beginning of the second study. Across these two studies, all participants who completed the attention bias task and received VRE were included (Study 1,  $n=14$ ; Study 2,  $n=10$ ). Recruitment procedures, treatment, and assessment protocols were identical across the two studies, with the exception that individuals in the second study completed an fMRI scan at pre- and posttreatment.

Participants comprised 24 individuals diagnosed with social phobia, with almost one third ( $n=9$ ) meeting criteria for the generalized subtype. The sample was predominantly male (71%,  $n=17$ ) with an average age of  $M=41.38$ ,  $SD=11.26$ . Participants self-identified as European American (46%,  $n=11$ ), African American (25%,  $n=6$ ), Latino (8%,  $n=2$ ), and Asian American (8%,  $n=2$ ). The remaining (13%,  $n=3$ ) participants reported their ethnicity as “Other.” The sample was well educated, with 71% having completed college; 58% reported being married. Most were middle class; 58% had an annual income of \$50,000 or more. Informed consent was obtained from all participants before enrollment in the study.

## MATERIALS

Social phobia symptoms were assessed with the Liebowitz Social Anxiety Scale [LSAS<sup>[19]</sup>]. The LSAS is a 24-item self-report instrument that measures *fear* and *avoidance* experienced in a variety of social and performance situations. Participants rate expected levels of fear and avoidance for the situations (e.g., “going to a party” or “speaking up at a meeting”) on four-point Likert scales (0=no fear/avoidance, to 3=severe fear/avoidance). Scores range from 0 to 144. The self-report version of the LSAS is comparable to the original clinician-administered version. It demonstrates good internal consistency among socially anxious individuals ( $\alpha=.95$ ), as well as strong convergent and discriminant validity.<sup>[20]</sup> Internal consistency for the measure in this sample was excellent, with Cronbach’s that ranged from .92 to .97. Social phobia diagnoses were made with the Structured Diagnostic Interview for the DSM-IV [SCID;<sup>[21]</sup>] by trained research assistants.

Attention bias was measured with a widely used dot probe task developed and described in detail by Bradley et al.<sup>[22]</sup> Consistent with Bradley et al.<sup>[22]</sup> during each of 80 randomly ordered trials, after a 500 ms fixation cross in the center of the screen, two images of an individual’s face appeared for 500 ms (32 trials paired happy/neutral faces, 32 paired angry/neutral faces, and 16 paired neutral/neutral faces). After the offset of the face pair, a target probe (an asterisk) replaced one face for 1,100 ms; participants pressed computer keys to indicate as quickly as possible where on the screen (left or right side) each probe appeared. The probe appeared on the same side of the screen as the emotionally valenced faces during half of the emotional-neutral pair trials and, appeared on the left or the right an equal number of times for each trial type (happy-neutral, angry-neutral, neutral-neutral).

To calculate threat bias scores, mean response time for the 16 threat-neutral trials with threat-congruent probes (asterisks that replaced angry faces) was subtracted from the mean response time for the 16 trials with threat-incongruent probes (asterisks that replaced neutral faces) for each participant. Positive scores indicated a bias to direct attention toward angry faces; negative scores indicated a bias to direct attention away from angry faces. Happy bias scores were similarly calculated, based on response times to congruent and incongruent happy-neutral trials. Findings from prior research suggest that the measure validly discriminates between anxious and nonanxious adults and youth.<sup>[13,22–24]</sup>

## PROCEDURE

Eligibility was determined through a two-stage process. First, participants completed a telephone screen to identify exclusion criteria (active suicidal ideation, active substance abuse, current enrollment in therapy for social phobia, history of mania, and psychotropic medication initiation or dosage change within the past 3 months).

Second, during an in-person assessment, candidates completed the anxiety, mood, and substance abuse portions of the Structured Diagnostic Interview for the DSM-IV [SCID<sup>[21]</sup>] to determine if the potential participant met criteria for a primary diagnosis of social phobia. The SCID was administered by a doctoral student in clinical psychology, supervised by a

licensed psychologist. An independent assessor and licensed psychologist reviewed 10% of the videotaped SCID assessments and showed 100% agreement with the original interviewer for the primary diagnosis. Participants also completed the LSAS and the dot probe task before beginning treatment.

VRE consisted of eight sessions of CBT that targeted several processes shown to maintain social phobia, including self-focused attention, negative perceptions of self and others, perceptions of lack emotional control, rumination, and realistic goal setting for social situations. Treatment was administered according to a manualized protocol.<sup>[25]</sup> The virtual reality scenarios included (1) a conference room, (2) a classroom, and (3) a large auditorium. These scenarios were presented via a head-mounted display that consisted of a helmet with headphones and goggles. At the conclusion of treatment, participants completed the LSAS.

## RESULTS

Participants were divided into vigilant ( $n=15$ ) and avoidant ( $n=9$ ) groups, based on their pretreatment attention bias scores for threatening faces (vigilant: score $<0$ ; avoidant: score $<0$ ) (see Table 1 for descriptive statistics). The threat bias scores of the two groups differed significantly, ( $t(23)=4.13$ ,  $P<.01$ ; avoidant:  $M=-7.09$ ,  $SD=2.22$ ; vigilant:  $M=18.99$ ,  $SD=4.71$ ). Threat bias scores for each group also differed significantly from 0 (Vigilant:  $t(14)=5.22$ ,  $P<.01$ ; Avoidant:  $t(8)=-2.97$ ,  $P<.01$ ). However, there were no pretreatment differences between groups on measures of social anxiety, demographic variables, or bias scores for threatening or happy faces. Furthermore, there was no evidence that threat bias type was associated with drop-out status ( $\chi^2=.12$ ,  $P=.73$ ) or that bias scores differed between those who dropped out of treatment and those who completed treatment ( $F(1, 30)=.03$ ,  $P=.86$ ).

First, an ANCOVA was used to determine if threat bias category, avoidant or vigilant, accounted for pretreatment to posttreatment change in LSAS scores. The results indicated that after controlling for pretreatment social anxiety, those with an avoidant threat bias ( $M=36.88$ ,  $SD=13.66$ ) had significantly higher posttreatment anxiety than those with a vigilant threat bias ( $M=24.29$ ,  $SD=14.92$ ),  $F(1, 19)=4.72$ ,  $P<.05$ , *partial*  $\eta^2=.16$  (Fig. 1). To more fully describe the association between attention bias type and treatment response, a regression analysis using bias score as a continuous variable was also conducted. However, this yielded null results ( $\beta=-.09$ ,  $P=.66$ ,  $R^2_{\Delta}=.01$ ). Upon closer inspection of the data, it appeared that the null result was due to a nonlinear association between bias scores and LSAS scores. Specifically, the association between bias score and posttreatment LSAS scores (while controlling for pretreatment LSAS scores) varied by threat bias type (avoidant or vigilant) (Fig. 1). To further explore this association with an appropriately powered analysis, separate regressions were conducted for each bias type (Table 2). For vigilant biases, bias scores predicted outcome such that greater vigilance bias was associated with greater posttreatment social anxiety ( $\beta=.52$ ,  $P<.05$ ,  $R^2_{\Delta}=.27$ ). For the group with avoidant biases, there was no association between bias scores and posttreatment anxiety ( $\beta=-.22$ ,  $P=.41$ ,  $R^2_{\Delta}=.04$ ). These findings suggest that participants with avoidant bias did not benefit from treatment ( $M_{\Delta}=10.85$ ) as much as those with a vigilant bias ( $M_{\Delta}=23.04$ ). Furthermore, although vigilant bias scores were positively related to treatment response, no such association was found for avoidant bias scores.

## DISCUSSION

These findings provide preliminary support for the hypothesis that the direction of attention bias (avoidant or vigilant) at the start of treatment would be associated with different

patterns of response to VRE in individuals with social phobia. Specifically, an avoidant bias for threatening faces at pretreatment was associated with a weaker treatment response ( $M_{\Delta}=10.85$ ) as shown by change in LSAS score than was a vigilant bias ( $M_{\Delta}=23.04$ ). A potential theoretical explanation for these findings comes from evidence that suggests distraction from a feared stimulus results in poorer treatment outcomes.<sup>[18]</sup> Although the attentional avoidance measured in this study (e.g., reaction times to faces) differs from the behavioral avoidance that functions to distract an individual from a feared stimulus (e.g., not making eye contact), future research could test whether such “automatic” forms of attentional avoidance limit engagement with exposure and acquisition of extinction learning.

These findings are the first to suggest that individuals with social phobia may show one of two distinct attention bias subtypes. Given the small sample size of this study, our results are necessarily preliminary. Even so, the findings are notable because most research on biased attention to threat has focused on mean scores, thus potentially obscuring evidence of individual differences among adults with social phobia. Additionally, the dot probe task variant used in this study (pair threatening and neutral faces) has historically yielded evidence of mean vigilance biases; these findings suggest that this task variant, such as a variant that paired threatening faces and pictures of household objects,<sup>[11,12]</sup> can also elicit avoidant biases in socially anxious individuals. Further research is needed to determine whether attention bias subtypes can be replicated in larger samples and to examine the utility of attention bias subtypes in advancing knowledge regarding social anxiety and its treatment.

If these findings are replicated, there may be implications for treatments that directly address attention bias. For example, recent work has shown that attention retraining alters attention biases and reduces social phobia symptoms in a group presenting with a vigilance bias for socially threatening information.<sup>[9,10]</sup> An attention retraining program may or may not be beneficial for individuals with an avoidant bias, given that the treatment focuses on disengaging attention from feared stimuli. Alternatively, attention retraining may reduce avoidance biases and prepare such individuals to engage with and benefit from traditional exposure therapy.

This study has several limitations. First, the sample size was small, which may have increased our risk of error and limited the scope of statistical analysis for the study. Furthermore, the majority of the sample did not meet criteria for the generalized subtype of social phobia, which may have contributed to relatively restricted threat bias scores. Additional research in larger samples with generalized social phobia would permit the selection of groups with extreme vigilant and avoidant biases, which would, in turn, provide a stronger test of differential effects of varying bias types. All participants received VRE, and although VRE has been shown to be equivalent to in vivo exposure for specific phobia,<sup>[26–28]</sup> it is unclear whether these results would generalize to studies that use other forms of CBT to treat social phobia. Furthermore, given that prior work has indicated that attention biases can change during the course of treatment,<sup>[6,8]</sup> our use of cross-sectional pretreatment attention bias measures may have obscured dynamic associations between attention bias and treatment response. Repeated measurement of attention bias before, during, and after treatment could shed light on more complex interactions between attention bias and social phobia symptoms. Additionally, although attention biases have been shown to fluctuate based on the presence of a social threat,<sup>[29,30]</sup> this study did not include a social threat condition. How attention biases fluctuate as a function of social threat and how these changes may influence social phobia and treatment response warrant examination. Such research may be particularly relevant with regard to CBT response; because CBT involves consistent presentation of socially threatening situations, attention biases that are observed under social threat conditions may be a better indicator of treatment response. Finally, even

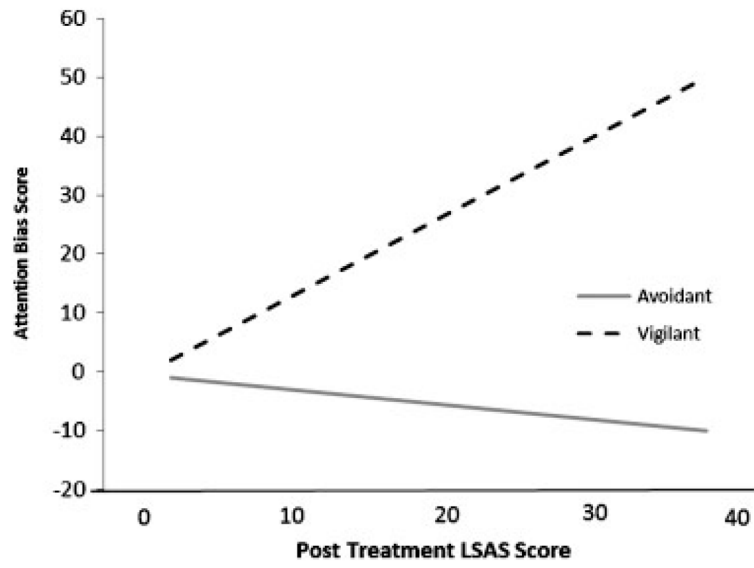
though the dot probe task is widely considered to be a robust measure of attention bias, scholars have raised issues related to its reliability<sup>[31]</sup> and ecological validity.<sup>[32]</sup>

Despite these limitations, we hope the results of this study will stimulate further research on the existence of subtypes of attention bias and to examine its potential utility in better understanding and treating social anxiety. Future research might also examine the neural substrates of attentional vigilance for and avoidance of threat in anxious samples; neuroimaging work to date, using attention bias tasks in healthy adults, have yielded evidence that avoidance may relate to increased occipitotemporal activation<sup>[33]</sup> and that vigilance may be associated with increased activity in temporoparietal and prefrontal cortical (PFC) regions.<sup>[34]</sup> Increased activity in select PFC regions, particularly the right dorsolateral PFC, during trials that reflect attention bias toward anger, has also been found in youths with anxiety disorders.<sup>[35]</sup> None of these studies, however, have compared patterns of neural activation between individuals with avoidant and vigilant biases, which could show distinct patterns of neural function, as well as behavior.

## References

1. Mathews, A. Anxiety and the processing of threatening information. In: Hamilton, V.; Bower, GH.; Frijda, NH., editors. *Cognitive Perspectives on Emotion and Motivation*. New York, NY US: Kluwer Academic/Plenum Publishers; 1988. p. 265-284.
2. Clark, DM.; Wells, A. A cognitive model of social phobia. In: Heimberg, RG.; Liebowitz, MR., editors. *Social Phobia: Diagnosis, Assessment, and Treatment*. Guilford Press; 1995. p. 69-93.
3. Rapee RM, Heimberg RG. A cognitive-behavioral model of anxiety in social phobia. *Behav Res Ther*. 1997; 35:741–756. [PubMed: 9256517]
4. Gamble AL, Rapee RM. The time-course of attention to emotional faces in social phobia. *J Behav Ther Exp Psychiatry*. 2010; 41:39–44. [PubMed: 19781689]
5. Mogg K, Bradley BP, Miles F, Dixon R. Time course of attentional bias for threat scenes: testing the vigilance-avoidance hypothesis. *Cognition Emotion*. 2004; 18:689–700.
6. Pishyar R, Harris LM, Menzies RG. Responsiveness of measures of attentional bias to clinical change in social phobia. *Cognition Emotion*. 2008; 22:1209–1227.
7. Bögels SM, Mansell W. Attention processes in the maintenance and treatment of social phobia: hypervigilance, avoidance and self-focused attention. *Clin Psychol Rev*. 2004; 24:827–856. [PubMed: 15501558]
8. Lundh L-G, Öst L-G. Attentional bias, self-consciousness and perfectionism in social phobia before and after cognitivebehaviour therapy. *Scand J Behav Ther*. 2001; 30:4–16.
9. Amir N, Beard C, Taylor CT, et al. Attention training in individuals with generalized social phobia: a randomized controlled trial. *J Consult Clin Psychol*. 2009; 77:961–973. [PubMed: 19803575]
10. Schmidt NB, Richey JA, Buckner JD, Timpano KR. Attention training for generalized social anxiety disorder. *J Abnorm Psychol*. 2009; 118:5–14. [PubMed: 19222309]
11. Chen YP, Ehlers A, Clark DM, Mansell W. Patients with generalized social phobia direct their attention away from faces. *Behav Res Ther*. 2002; 40:677–687. [PubMed: 12051486]
12. Mansell W, Clark DM, Ehlers A, Chen Y-P. Social anxiety and attention away from emotional faces. *Cognition Emotion*. 1999; 13:673–690.
13. Mogg K, Philippot P, Bradley BP. Selective attention to angry faces in clinical social phobia. *J Abnorm Psychol*. 2004; 113:160–165. [PubMed: 14992669]
14. Schultz L, Heimberg R. Attentional focus in social anxiety disorder: potential for interactive processes. *Clin Psychol Rev*. 2008; 28:1206–1221. [PubMed: 18555570]
15. Foa, EB.; McNally, RJ. Mechanisms of change in exposure therapy. In: Rapee, RM., editor. *Current Controversies in the Anxiety Disorders*. New York: Guilford Press; 1996. p. 329-343.
16. Moscovitch, DA.; Antony, MM.; Swinson, RP.; Stein, MB. *Oxford Handbook of Anxiety and Related Disorders*. New York, NY: Oxford University Press; 2009. *Exposure-Based Treatments for Anxiety Disorders: Theory and Process*; p. 461-475.

17. Kamphuis JH, Telch MJ. Effects of distraction and guided threat reappraisal on fear reduction during exposure-based treatments for specific fears. *Behav Res Ther.* 2000; 38:1163–1181. [PubMed: 11104181]
18. Telch MJ, Valentiner DP, Ilai D, et al. Fear activation and distraction during the emotional processing of claustrophobic fear. *J Behav Ther Exp Psychiatry.* 2004; 35:219–232. [PubMed: 15262218]
19. Baker SL, Heinrichs N, Kim H-J, Hofmann SG. The Liebowitz social anxiety scale as a self-report instrument: a preliminary psychometric analysis. *Behav Res Ther.* 2002; 40:701–715. [PubMed: 12051488]
20. Fresco D, Coles M, Heimberg R, et al. The Liebowitz Social Anxiety Scale: a comparison of the psychometric properties of self-report and clinician-administered formats. *Psychol Med.* 2001; 31:1025–1035. [PubMed: 11513370]
21. First, MB.; Gibbon, M.; Spitzer, RL.; Williams, JBW. Structured Clinical Interview for the DSM-IV-TR Axis I Disorders. New York: Biometrics Research Department; 2002.
22. Bradley BP, Mogg K, White J, et al. Attentional bias for emotional faces in generalized anxiety disorder. *Br J Clin Psychol.* 1999; 38:267–278. [PubMed: 10532148]
23. Pine DS, Mogg K, Bradley BP, et al. Attention bias to threat in maltreated children: implications for vulnerability to stress-related psychopathology. *Am J Psychiatry.* 2005; 162:291–296. [PubMed: 15677593]
24. Wilson E, MacLeod C. Contrasting two accounts of anxiety-linked attentional bias: selective attention to varying levels of stimulus threat intensity. *J Abnorm Psychol.* 2003; 112:212–218. [PubMed: 12784830]
25. Anderson PL, Zimand E, Hodges LF, Rothbaum BO. Cognitive behavioral therapy for public-speaking anxiety using virtual reality for exposure. *Depress Anxiety.* 2005; 22:156–158. [PubMed: 16231290]
26. Price M, Anderson P, Rothbaum B. Virtual reality as treatment for fear of flying: a review of recent research. *Int J Behav Consult Ther.* 2008; 4:8.
27. Rothbaum B, Hodges L, Smith S, et al. A controlled study of virtual reality exposure therapy for the fear of flying. *J Consult Clin Psychol.* 2000; 68:1020–1026. [PubMed: 11142535]
28. Rothbaum B, Anderson P, Zimand E, et al. Virtual reality exposure therapy and standard (in vivo) exposure therapy in the treatment of fear of flying. *Behav Ther.* 2006; 37:80–90. [PubMed: 16942963]
29. Amir N, McNally RJ, Riemann BC, Burns J. Suppression of the emotional Stroop effect by increased anxiety in patients with social phobia. *Behav Res Ther.* 1996; 34:945–948. [PubMed: 8990547]
30. Sposari JA, Rapee RM. Attentional bias toward facial stimuli under conditions of social threat in socially phobic and nonclinical participants. *Cogn Ther Res.* 2007; 31:23–37.
31. Schmukle SC. Unreliability of the dot probe task. *Eur J Pers.* 2005; 19:595–605.
32. Tone EB, Fani N, Jovanovic T, et al. Posttraumatic stress disorder moderates attention bias for facial threat cues based on cue race and emotional valence. 2010 Manuscript submitted for publication.
33. Monk CS, Nelson EE, Woldehawariat G, et al. Experience-dependent plasticity for attention to threat: behavioral and neurophysiological evidence in humans. *Biol Psychiatry.* 2004; 56:607–610. [PubMed: 15476691]
34. Pourtois G, Schwartz S, Seghier ML, et al. Neural systems for orienting attention to the location of threat signals: an event-related fMRI study. *Neuroimage.* 2006; 31:920–933. [PubMed: 16487729]
35. Telzer EH, Mogg K, Bradley BP, et al. Relationship between trait anxiety, prefrontal cortex, and attention bias to angry faces in children and adolescents. *Biol Psychol.* 2008; 79:216–222. [PubMed: 18599179]



**Figure 1.** Association between posttreatment LSAS scores and bias scores across bias subtypes.



**TABLE 1**

## Descriptive statistics

	<b>M</b>	<b>SD</b>
Avoidant (n =9)		
Attention bias score	-7.09	2.22
Pretreatment LSAS total score	47.73	14.95
Posttreatment LSAS total score	36.88	13.66
Vigilant (n =15)		
Attention bias score	18.99	4.71
Pretreatment LSAS total score	47.33	24.74
Posttreatment LSAS total score	24.29	14.92

LSAS, Liebowitz Social Anxiety Scale.

**TABLE 2**

Hierarchical regression with attention bias score as predictor of outcome as measured by the LSAS

Variable		$R_{\Delta}^2$	<b>b</b>	$\beta$
Vigilance bias ( $n=15$ )				
Step 1	Pretreatment LSAS	.04 <sup>3</sup>	.11 (.16)	.20
Step 2	Pretreatment LSAS	.27 <sup>3</sup>	.09 (.15)	.16
	Attention bias		.42 <sup>3</sup> (.21)	.52 <sup>3</sup>
Avoidant bias ( $n=9$ )				
Step 1	Pretreatment LSAS	.68 <sup>3</sup>	.96 <sup>3</sup> (.27)	.82 <sup>3</sup>
Step 2	Pretreatment LSAS	.04 <sup>3</sup>	.90 <sup>3</sup> (.28)	.77 <sup>3</sup>
	Attention bias		-.42 (.47)	-.22

\* $P<.05$ . LSAS, Liebowitz Social Anxiety Scale.