Published in final edited form as:

Depress Anxiety. 2012 February ; 29(2): 132–139. doi:10.1002/da.20909.

Childhood Maltreatment and Social Anxiety Disorder: Implications for Symptom Severity and Response to Pharmacotherapy

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Abstract

Background—Childhood maltreatment has been associated with symptom severity, reduced quality of life, and impaired functioning in adults with social anxiety disorder (SAD). No study has investigated how childhood maltreatment impacts pharmacotherapy outcomes in this population, despite evidence for such a link in depression. The current study replicates previous work on childhood maltreatment within SAD and examines its impact on response to pharmacotherapy.

Methods—156 individuals seeking treatment for SAD completed the Childhood Trauma Questionnaire, which measures various types of abuse and neglect, along with measures of symptom severity, quality of life, and disability. Data from a subset of patients enrolled in a paroxetine trial (N=127) were analyzed to gauge the impact of childhood maltreatment on attrition and treatment response.

Results—All types of maltreatment except for sexual abuse and physical abuse were related to greater symptom severity. Emotional abuse and neglect were related to greater disability, and emotional abuse, emotional neglect, and physical abuse were related to decreased quality of life. Emotional abuse significantly predicted attrition. A time by emotional abuse interaction suggests that for those who stayed the course, the impact of emotional abuse on severity of social anxiety weakened significantly over time.

Conclusions—Emotional maltreatment was most strongly linked to dysfunction in SAD, despite a tendency in the anxiety literature to focus on the effects of sexual and physical abuse. Additionally, individuals reporting emotional abuse were more likely to dropout from pharmacotherapy, but those who stayed the course displayed similar outcomes to those without such a history.

Keywords

social anxiety disorder; social phobia; childhood maltreatment; pharmacotherapy; treatment outcome

INTRODUCTION

The association between childhood maltreatment and a wide range of psychiatric disorders has been well established [1-4]. Research linking various types of childhood adversity with depression has been particularly productive [5-10]. Studies of childhood maltreatment and subsequent anxiety have tended to focus more on physical and sexual abuse [11-12] than on emotional forms of maltreatment, perhaps due to an assumption that these forms of abuse are inherently more egregious and therefore more damaging. However, recent research hints at a significant connection between emotional maltreatment and anxiety-related constructs. One recent study showed that emotional abuse and neglect, but not other types of maltreatment, predict the negative cognitions related to the development and maintenance of anxiety disorders [13]. Additionally, of all the types of childhood maltreatment, emotional abuse most strongly predicts difficulties with emotion regulation [14], which has been strongly linked to the development of anxiety disorders [15-17].

There is growing interest in the relationships between different forms of childhood maltreatment and particular anxiety disorders. Social anxiety disorder (SAD), in part due to its relatively early onset and the centrality of interpersonal fears, is a natural “place” in which to examine these relationships. Research examining childhood risk factors for the development of social anxiety suggests that parenting styles such as overprotection, rejection, and lack of emotional warmth show a specific association with retrospectively assessed onset of SAD [18-19], though it should be noted that these relationships are correlational and causality cannot be assumed. A prospective study by Kessler et al. [3] found that childhood trauma (and specifically childhood emotional neglect) predicted the onset of SAD. Yet, despite these findings, little research has examined the effect of childhood maltreatment on the clinical presentation of persons with SAD or their response to treatment.

Findings from one recent study that directly examined the relationship between childhood maltreatment and SAD [20] indicate that childhood trauma is associated with greater severity of SAD, poorer functioning, and poorer quality of life, and that emotional abuse and neglect are particularly strongly related to severity of SAD. Another recent study examining the prevalence of childhood maltreatment in individuals with SAD versus healthy controls produced similar findings, and these relationships were robust after controlling for depression [21]. Despite a growing body of research demonstrating the link between childhood maltreatment and SAD, only one study has extended this investigation to the impact of childhood maltreatment on treatment outcomes for adults with SAD. Alden and colleagues [22] found that childhood adversity in general predicted higher rates of attrition and poorer response to cognitive behavioral therapy (CBT) among patients with SAD. No study to date has extended the scope of this research question to examine pharmacotherapy outcomes.

A precedent for examining the connection between childhood maltreatment and response to pharmacotherapy exists in the depression literature [23-24]. This research suggests that childhood maltreatment is associated with an especially chronic form of major depressive disorder that is less responsive to antidepressant pharmacotherapy. Moreover, the likelihood of dropping out of pharmacotherapy treatment has been linked to a history of paternal neglect [25].

The present study had two aims. The first aim was to conceptually replicate previous work and provide a further test of the types of maltreatment associated with severity of SAD, quality of life, and disability. The second aim was to investigate the relationship between childhood maltreatment and attrition from and response to 12 weeks of paroxetine for SAD.

We hypothesized that individuals with a history of childhood maltreatment would experience more severe social anxiety, lower quality of life, and greater disability. We also hypothesized greater attrition and poorer response to paroxetine among individuals reporting a history of childhood maltreatment. We expected that, of all the types of childhood maltreatment, emotional maltreatment would most strongly predict the various markers of dysfunction in individuals with SAD.

METHODS

SUBJECTS

Data for the present study came from 156 treatment-seeking outpatients with a primary diagnosis of generalized SAD who completed the Childhood Trauma Questionnaire – Short Form (CTQ-SF, see below) [26]. Data from a subset of these patients who enrolled in a study of paroxetine treatment (N=127) were used for the pharmacotherapy outcome analyses. Patients were assessed and treated at one of two collaborating sites: the Adult Anxiety Clinic of Temple University (Temple, N = 71; 42 participated in the treatment study; 29 received open treatment during the same time as the patients in the study) or the Anxiety Disorders Clinic of the New York State Psychiatric Institute (NY, N = 85; all participated in the treatment study). Exclusion criteria for the paroxetine treatment study included psychotic symptoms, past or current diagnosis of bipolar disorder, mental disorder due to a general medical condition, significant suicidal ideation, history of failed paroxetine or cognitive-behavioral treatment for SAD, clinically significant or unstable medical disease, pregnancy or the likelihood of becoming pregnant, current or past seizure disorder, conditions in which use of paroxetine would be contraindicated, unwillingness to withdraw from other psychoactive medications or unwillingness or inability to tolerate a drug-free period prior to beginning the study, or concurrent psychotherapy. Patients in open treatment generally met the same inclusion and exclusion criteria but were allowed to stay on psychotropic medications at a stable dose, and were admitted without reference to treatment history or past medication tolerance.

For treatment response analyses, attriters were defined as individuals who a) failed to adhere to the recommended paroxetine dosage schedule; b) missed 3 or more visits with the study psychiatrist; c) failed to take medication for 7 consecutive days or a total of 10 days; or d) requested that treatment be terminated. Analyses of attrition included the entire sample for whom CTQ-SF responses were available, including those who terminated treatment before 4 weeks (N=127). In assessing response to paroxetine, analyses were limited to patients who provided self-report data at baseline and at least one other time-point (N = 96).

ASSESSMENTS

Diagnoses—At Temple, diagnostic data were obtained at baseline using the Anxiety Disorders Interview Schedule for DSM-IV: Lifetime Version [27]. At NY, diagnoses were obtained using the Structured Clinical Interview for DSM-IV (SCID-IV) [28]. Because the reliability of a SAD diagnosis is lower with the SCID ($\kappa = 0.63$) than with the ADIS-IV-L [29-30], the social phobia module of the ADIS was added to the SCID for the diagnosis of SAD in New York.

Severity of SAD—Severity of social anxiety was assessed at baseline, week 4, week 8, and at week 12 (post-treatment) using the Liebowitz Social Anxiety Scale [31], a clinician-administered measure with strong psychometric properties [32-36].

Quality of life and disability—Measures of quality of life and disability were administered at baseline and post-treatment. Life satisfaction within 16 domains of

functioning including health, family, friendships, and standard of living was assessed using the Quality of Life Inventory (QOLI) [37-38]. Disability was assessed using the Liebowitz Self-Rated Disability Scale (LSRDS) [39].

Childhood Maltreatment—Information about childhood maltreatment and the presence of specific types of abuse and neglect was collected at baseline using the CTQ-SF [26], a self-report measure with strong psychometric properties [40]. The CTQ-SF contains 25 self-rated items grouped into five different trauma subscales (sexual abuse, physical abuse, physical neglect, emotional abuse, emotional neglect). Each item is rated from 1 (“never true”) to 5 (“very often true”). Validity items were not included in this particular version. Example items include “When I was growing up people in my family called me things like ‘stupid,’ ‘lazy,’ or ‘ugly’” (emotional abuse) and “When I was growing up someone tried to make me do sexual things or watch sexual things” (sexual abuse). Total scores range from 25-125, and subscale scores range from 5-25. Thresholds for the presence of clinically significant abuse and neglect have been established by previous research [41] as physical abuse ≥ 8 , physical neglect ≥ 8 , sexual abuse ≥ 8 , emotional neglect ≥ 15 , emotional abuse ≥ 10 . Tests of the relationships between childhood maltreatment and SAD severity were repeated using these thresholds in place of continuous CTQ-SF scores.

PHARMACOTHERAPY

Eligible individuals received 12 weeks of paroxetine and attended 6 weekly, followed by 3 bi-weekly, 30-minute appointments with a psychiatrist. Dosage was titrated up from 10 mg to 20-50 mg (as tolerated by the participant). The psychiatrist provided general support, monitored clinical state and side effects, and adjusted medication dose when necessary. During these appointments, patients were told that they should expose themselves to feared situations in an effort to overcome avoidant tendencies. However, psychiatrists did not offer any systematic exposure advice or provide specific instructions. No insight-oriented psychotherapy was offered.

DATA ANALYSIS

Demographic and Covariate Analyses—First, we examined bivariate associations between the five childhood maltreatment scales (physical neglect, emotional neglect, sexual abuse, physical abuse, and emotional abuse) and demographic variables (age, sex, race, Hispanic ethnicity, marital status, years of education, and employment status). We also examined the degree of intercorrelation between CTQ maltreatment subscales. Pearson’s r was used to evaluate the relationship between pairs of continuous measures, and Pearson chi-squares tests were used for categorical measures. Alpha was set at .05

Baseline Analyses—We ran a series of multiple regressions to examine the relationships between childhood maltreatment variables and the three baseline clinical variables of interest: severity of social anxiety (LSAS total score), life satisfaction (QOLI), and disability (LSRDS), controlling for age and sex. Alpha was set at .05

Attrition and Treatment Response Analyses—To determine whether any types of childhood maltreatment predicted early termination from treatment, we conducted logistic regression analyses on the randomized sample, controlling for age and sex. Alpha was set at .05. Observations of paroxetine outcomes (LSAS score at baseline, weeks 4, 8, and 12) were nested within individuals; therefore, we used multi-level modeling techniques to examine whether a history of childhood maltreatment affected response trajectories over 12 weeks of paroxetine treatment. Multi-level modeling accounts for violations of the Ordinary Least Squares assumption of independent cases. In order to tease apart the effects of different forms of abuse and neglect, separate models were run to test for the effects of the

five maltreatment variables, with maltreatment, time, and the maltreatment x time interaction as independent variables. Because previous research suggests that the degree and time course of response to SSRIs are impacted by a host of individual characteristics^[42-43], we allowed the slope for the effect of time spent in treatment to vary randomly across subjects. All maltreatment variables were centered on their grand means so that intercepts refer to individuals who experienced average levels of maltreatment. Alpha was set at .05. Due to missing data and listwise deletion of individuals providing fewer than two observations, N=96.

RESULTS

BIVARIATE CORRELATIONS AND MULTIVARIATE ANALYSES

None of the tested demographic variables were significantly correlated with any of the maltreatment variables. The maltreatment subtypes did not correlate very highly with each other; correlation coefficients ranged from $r = .052$ (physical neglect and sexual abuse) to $r = .599$ (physical abuse and emotional abuse). Using previously established criteria for clinically significant childhood abuse or neglect^[41], 35.9% of our sample met the criteria for physical neglect, 36.5% for emotional neglect, 68.4% for sexual abuse, 34.6% for physical abuse, and 50.6% for emotional abuse. Table 1 summarizes descriptive statistics for the sample, including demographic information.

Table 2 summarizes the results of multiple regressions examining the relationship of maltreatment types to severity of SAD, quality of life, and self-reported disability. Generally replicating the results of Simon et al.^[20], higher scores on the CTQ-SF emotional neglect, emotional abuse, and physical neglect subscales predicted significantly greater severity of SAD. Greater emotional neglect, emotional abuse, and physical abuse predicted lower quality of life. Higher scores on the emotional abuse and emotional neglect subscales predicted higher levels of self-reported disability. Notably, sexual abuse was not related to any dependent variable. The lack of a significant finding for sexual abuse is all the more notable given our high rates of sexual abuse compared to those reported by Simon and colleagues, who used the CTQ-SF in a different population of patients with SAD.

ATTRITION AND TREATMENT RESPONSE

Logistic regressions examining the association between types of childhood maltreatment and attrition are summarized in Table 3. Emotional abuse and physical abuse predicted early termination from paroxetine treatment. Notably, the effect of emotional abuse remained robust after controlling for baseline severity of SAD (the effect of physical abuse dropped to trend levels, $P = .08$).

Multi-level modeling analyses examining the association between types of childhood maltreatment and social anxiety symptom severity (LSAS scores) are summarized in Table 4. Emotional abuse was the only type of maltreatment to significantly predict LSAS scores throughout treatment; greater emotional abuse was associated with greater severity of SAD. Emotional neglect was marginally predictive of higher LSAS scores ($P = .07$). Additionally, there was a significant cross-level interaction between emotional abuse and time in treatment, indicating that for those patients reporting higher levels of emotional abuse, social anxiety symptoms were significantly higher at baseline but decreased significantly more rapidly across time (see Figure 1). There were no other significant main effects of maltreatment or maltreatment x time interactions.

When the several models were recalculated using dichotomous variables indicating the presence or absence of clinically significant abuse or neglect^[41], the same pattern of results emerged. The only exception was that LSAS scores for individuals who experienced clinical

levels of physical neglect were significantly higher at baseline, and remained higher throughout treatment, compared to those for individuals reporting sub-threshold physical neglect or no physical neglect.*

DISCUSSION

The aims of this study were to provide a further test of the relationship between specific forms of childhood maltreatment and social anxiety and to examine whether childhood maltreatment predicted response to paroxetine in adults with SAD. Three key findings emerged. First, greater childhood emotional abuse, emotional neglect, and physical neglect, but not sexual or physical abuse, predicted more severe symptoms in patients with SAD. Of the maltreatment subtypes, emotional abuse was the strongest predictor of pre-treatment severity of social anxiety, disability, and decreased quality of life. Second, emotional abuse predicted higher rates of early attrition from pharmacotherapy. Third, treatment outcome analyses, which were limited to participants who provided self-report data at week 0 and at least one other time point (week 4, 8 or 12), revealed that patients with histories of emotional abuse had significantly more severe pre-treatment social anxiety symptoms but also tended to show greater improvement over the 12-week course of paroxetine treatment

Our first finding, that childhood maltreatment, and particularly emotional abuse, predicted greater symptom severity, greater disability, and decreased quality of life in individuals seeking treatment for SAD, is consistent with previous research [20, 21]. There are several plausible explanations for these observed relationships. First, according to the diathesis-stress model of psychopathology, life stressors such as childhood maltreatment interact with biological risk to manifest symptoms of social anxiety. One study found that genetic risk for anxiety sensitivity, a dispositional characteristic that increases the risk for developing an anxiety disorder, is moderated by stressful childhood experiences [44]. In another study, childhood adversity modified the relationship between anxiety disorders and basal cortisol secretion in adults [45]; the authors speculated that childhood maltreatment might have resulted in reduced cortisol secretion, thereby potentially increasing vulnerability to an internalizing disorder.

Second, studies examining risk factors for the development of psychopathology found that parenting styles consistent with emotionally abusive behaviors (i.e. overprotection, rejection, and lack of emotional warmth) show a specific association with onset of SAD or SAD symptoms [3, 18, 19, 46]. Furthermore, it is reasonable to assume that parental criticism and other forms of emotional abuse may exert larger effects within individuals who are prone to be sensitive to rejection.

Our study was the first to look at the link between childhood maltreatment and pharmacotherapy response in a sample of adult outpatients with SAD. Here, the first notable finding was that childhood emotional and physical abuse predicted attrition from treatment. Research within the framework of attachment theory has explored how disruptions in early relationships relate to patterns of trust and social information processing throughout life [47-49]. In the psychotherapy literature, attrition is strongly related to poor working alliance between patients and their therapists [50]. In the aforementioned study of childhood maltreatment and response to CBT for SAD [22], childhood parental abuse was associated with weaker working alliance and more negative relationships between patients and therapists. One interpretation for our observed relationship between emotional abuse and attrition is that childhood maltreatment contributed to weaker working alliance with the treating psychiatrist or to mistrust of research personnel. Insufficient information about

*Data regarding the association between physical neglect threshold scores and pre-treatment LSAS scores are available upon request.

reasons for study discontinuation was collected in the present study to empirically test this hypothesis; however, given the relationship between emotional abuse and attrition, this is an important area for future research.

Our second finding regarding treatment was that although higher scores on the CTQ-SF emotional abuse subscale initially predicted higher scores on baseline measures of the severity of SAD, the impact of emotional abuse weakened significantly over time during treatment. By the end of treatment, those with a history of emotional abuse had less severe social anxiety symptoms than, but were statistically indistinguishable from, patients without this history. In contrast to the recent study of CBT outcomes by Alden and colleagues [22], which found that socially anxious patients with a history of childhood adversity in general showed less symptom reduction after 12 sessions of psychotherapy, our results indicate that 12 sessions of pharmacological intervention is enough to close the response gap between patients with and without emotional abuse histories. This discrepancy may reflect different levels of dependence on successful interpersonal processes in the two treatment modalities; however, future research should refine the integrity of this comparison by examining the impact of specific types of childhood maltreatment on CBT outcomes.

Our study had several limitations. First, causal inferences about the observed associations between childhood maltreatment and baseline characteristics (social anxiety symptom severity, life satisfaction, and disability) are limited by the cross-sectional nature of the analyses. Additionally, childhood maltreatment was assessed retrospectively using the CTQ-SF, and it is possible that patients' recall of childhood maltreatment was affected by their current or chronic mood state. A prospective design with multi-modal assessment of childhood maltreatment and longitudinal measurement of relevant clinical variables would afford greater confidence about the causal connection between childhood maltreatment and adult dysfunction.

CONCLUSIONS

Although the association between childhood maltreatment and various psychiatric disorders has been established, only recently have researchers begun to examine its impact among persons with SAD [44, 51]. Despite a historic tendency in the anxiety literature to focus on sexual and physical abuse, our results add to a growing body of research indicating that emotional maltreatment is most strongly related to symptom severity and functioning within SAD.

Our findings also have some clinical implications. First, screening for childhood maltreatment might be clinically important for assessing and proactively addressing the risk of early discontinuation of medication treatment of SAD. Second, since patients with a history of emotional abuse had poorer response to paroxetine treatment in the short term but not by the end of the 12-week medication regimen, it may be particularly important to engage and keep them in long enough to experience the full benefits of treatment. The addition of pre-treatment interventions like Motivational Interviewing [52], a procedure whereby treatment providers assist patients in conducting a cost-benefit analysis of their current patterns of behavior in order to motivate engagement in treatment, may be especially prudent. Motivational interviewing has shown efficacy in improving psychotherapy adherence [53-54] and pharmacotherapy adherence [55] for individuals seeking treatment for anxiety disorders, and might be considered for patients with a history of emotional abuse.

Our study was the first to look at the impact of childhood maltreatment on pharmacotherapy variables in a sample of individuals with social anxiety disorder and therefore requires replication. Future research might explore the effectiveness of using pre-treatment

interventions such as Motivational Interviewing in increasing adherence to pharmacotherapy regimens. Additionally, our results support the need for a fine-grained examination of the ways in which specific types of childhood maltreatment affect the onset, maintenance, and treatment within SAD.

Acknowledgments

Portions of this study were supported by grants from the National Institute of Mental Health to Richard G. Heimberg (R01MH064481) and to Michael R. Liebowitz (R01MH040121) as well as a grant from the Pennsylvania Department of Health to Richard G. Heimberg. We thank Shang-Min Liu for her role in data management related to this study.

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FIGURE 1.
Significant cross-level interaction between emotional abuse and time spent in treatment.

TABLE 1**Patient Demographic and Clinical Characteristics (N = 156)**

Age, mean (SD)	32.5 (12.0)
Gender, % male (N)	58.1 (90)
White, % (N)	53.0 (81)
Black, % (N)	19.2 (30)
Asian/ Pacific Islander, % (N)	10.9 (17)
Other, % (N)	16.9 (26)
Hispanic, % (N)	15.0 (23)
Unemployed, % (N)	16.6 (26)
Never Married, % (N)	60.1 (92)
Years Education, mean (SD)	15.1 (2.5)
CTQ-SF Physical Neglect, mean (SD)	7.4 (3.1)
CTQ-SF Physical Abuse Subscale, mean (SD)	7.5 (3.5)
CTQ-SF Sexual Abuse Subscale, mean (SD)	9.0 (3.5)
CTQ-SF Emotional Neglect Subscale, mean (SD)	12.7 (5.0)
CTQ-SF Emotional Abuse Subscale, mean (SD)	10.9 (5.2)
LSAS at Baseline, mean (SD)	76.8 (22.2)
LSRDS at Baseline, mean (SD)	11.4 (5.8)
QOLI at Baseline, mean (SD)	0.4 (27.3)
BDI II at Baseline, mean (SD)	17.1 (11.9)

CTQ-SF, Childhood Trauma Questionnaire-Short Form; LSAS, Liebowitz Social Anxiety Scale; LSRDS, Liebowitz Self-Rated Disability Scale; QOLI, Quality of Life Inventory; BDI II, Beck Depression Inventory.

TABLE 2

Impact of different types of childhood maltreatment (CTQ-SF subscale scores) on SAD symptom severity (LSAS), life satisfaction (QOLI), and disability (LSRDS)

Variable	LSAS B (SE)	QOLI B (SE)	LSRDS B (SE)
Childhood Physical Neglect	.20 (1.76)*	-.09 (.09)	.12 (.48)
Childhood Physical Abuse	.16 (1.78)	-.21 (.08)*	.06 (.48)
Childhood Sexual Abuse	.07 (1.78)	.01 (.09)	-.01 (.48)
Childhood Emotional Neglect	.20 (1.77)*	-.27 (.08)**	.22 (.48)**
Childhood Emotional Abuse	.24 (1.77)**	-.33 (.08)**	.26 (.46)**

CTQ-SF, Childhood Trauma Questionnaire-Short Form; LSAS, Liebowitz Social Anxiety Scale; QOLI, Quality of Life Inventory; LSRDS, Liebowitz Self-Rated Disability Scale.

**
 $P > .01$

*
 $P > .05$

TABLE 3Univariate logistic regression of maltreatment variables with completer status^a

Variable	OR	(95% CI)
Childhood Physical Neglect	1.13	(0.83, 1.54)
Childhood Physical Abuse	0.73	(0.57, 0.93)*
Childhood Sexual Abuse	1.03	(0.77, 1.38)
Childhood Emotional Neglect	1.10	(0.82, 1.47)
Childhood Emotional Abuse	0.73	(0.56, 0.96)*

^a Completer status dichotomized into completer vs. non-completer of 12 weeks of paroxetine treatment* $P > .05$

TABLE 4

Predictors of social anxiety symptom severity throughout treatment

Variable	Physical Neglect		Emotional Neglect		Sexual Abuse		Physical Abuse		Emotional Abuse	
	Fixed Effect (SE)	P	Fixed Effect (SE)	P	Fixed Effect (SE)	P	Fixed Effect (SE)	P	Fixed Effect (SE)	P
<i>Person-Level Variables</i>										
Initial Social Anxiety Score (z-standardized LSAS)	.715 (.078)	<.0001	.715 (.078)	<.0001	.714 (.078)	<.0001	.715 (.078)	<.0001	.716 (.076)	<.0001
Childhood Maltreatment (z-standardized CTQ subscale)	.113 (.007)	.158	.141 (.077)	0.07	.090 (.007)	0.253	.110 (.073)	0.136	.182 (.072) *	0.014
<i>Observation-Level Variables</i>										
Study-Week (uncentered)	-.125 (.007)	<.0001	-.125 (.007)	<.0001	-.125 (.007)	<.0001	-.126 (.007)	<.0001	-.126 (.007)	<.0001
<i>Cross-Level Interactions</i>										
Study-week x Childhood Maltreatment	.001 (.007)	.954	-.006 (.007)	0.348	-.005 (.007)	0.474	-.010 (.007)	0.163	-.018 (.007) *	0.012
<i>Variance Components</i>										
Within-Person	.234 (.484)		.234 (.483)		.234 (.484)		.233 (.483)		.233 (.483)	
Initial Social Anxiety	.420 (.648)	<.0001	.412 (.642)	<.0001	.424 (.651)	<.0001	.421 (.649)	<.0001	.400 (.632)	<.0001
Study-week (random slope)	.001 (.035)	.004	.001 (.035)	0.004	.001 (.034)	0.005	.001 (.035)	0.005	.001 (.031)	0.012

Note: All variables were centered on their grand mean unless otherwise noted

* p<.05