Retrospective reports of behavioral inhibition and young adults' current symptoms of social anxiety, depression, and anxious arousal

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Abstract

The primary goal of this study was to investigate the specificity of the social versus nonsocial components of self-reported behavioral inhibition during childhood with young adults' current symptoms of anhedonic depression, social anxiety, and anxious arousal. As hypothesized, the social component of BI demonstrated some specificity for symptoms of social anxiety versus other internalizing disorders. Furthermore, results support the hypothesis that the relationship between BI and depressive symptoms is mediated by levels of social anxiety and anxious arousal.

Anxiety and mood disorders account for the vast majority of individuals suffering from mental health problems (Kessler, Tat Chiu, Demler, & Walters, 2005). Given this, it is important to gain a better understanding of the shared and unique vulnerabilities to these forms of psychopathology so that more effective prevention and early intervention efforts can be developed. One potentially important risk factor is childhood temperament, which can be understood as one's natural disposition toward his or her physical and interpersonal world (Rothbart, Ahadi, & Evans, 2000). A child's temperament is believed to have a notable impact on the way in which the child adapts to his or her world (Rothbart et al., 2000). The temperament style of behavioral inhibition (BI) is characterized by reticence to interact with novel people and situations (Garcia-Coll, Kagan, & Reznick, 1984), and may represent a shared vulnerability for internalizing disorders such as anxiety and depression. In considering the role of BI in the subsequent development of psychopathology, previous research has largely focused on the role of BI in the development of pathological anxiety (Rosenbaum et al., 1993), and more specifically, social anxiety (Hirshfeld-Becker et al., 2008). This research has suggested that children with elevated levels of BI are more likely to develop social phobia later in life (Hayward, Killen, Kraemer, & Taylor, 1998; Hirshfeld-Becker et al., 2007; Schwartz, Snidman, & Kagan, 1999). For example, Hirshfeld-Becker and colleagues (2007) found that children's levels of BI significantly predicted new onset of social phobia (but not other anxiety disorders) five years later. This link between BI and

[1]To be clear, throughout this paper the construct of "behavioral inhibition" refers to a temperament trait characterized by reticence to interact with novel social and nonsocial stimuli. A related, but somewhat different construct is similarly referred to as the "behavioral inhibition system." This latter construct refers to the motivational system originally defined by Gray (1981) and will not be addressed in this manuscript.

elevated social anxiety has also been supported in a number other studies (Biederman et al., 2001; Coles, Schofield, & Pietrefesa, 2006; Gladstone, Parker, Mitchell, Wilhelm, & Mali, 2005; Mick & Telch, 1998; Neal, Edelman, & Glachan, 2002).

More recently, there has been evidence to suggest that BI may be a more general risk factor for internalizing disorders. For example, studies have suggested that childhood BI may also be related to internalizing disorders such as panic disorder (Rosenbaum, Biederman, Hirshfeld, Bolduc, & Chaloff, 1991), obsessive-compulsive disorder (Van Ameringen, Mancini, & Oakman, 1998; Coles et al., 2007), and depression (Caspi, Moffitt, Newman, & Silva, 1997; Jaffee et al., 2002). Thus, there is evidence to suggest that BI may represent a general vulnerability factor for internalizing disorders rather than a specific predisposition to social phobia.

Although the majority of studies have focused on BI generally, there is increasing evidence for the utility of differentiating social versus nonsocial components of BI. These separate components were included in the original identification of BI as "the behavioral tendency to be extremely inhibited... to unfamiliar people or events" (Garcia-Coll et al., 1984, p. 1018). The social component of BI is characterized by reticence to approach/interact with strangers and unfamiliar people, whereas the nonsocial component is characterized by behavior such as reticence to explore unfamiliar surroundings and fearfulness when faced with novel or potentially threatening situations (e.g., school, a dark room). Importantly, factor analyses conducted in previous research support the separability of behaviors reflecting social inhibition in contrast to behaviors reflecting nonsocial inhibition in children as young as 2 years old (Kochanska, 1991). Furthermore, these domains of BI may be differential predictors of social behavior in children. For example, in one study of children, social BI predicted subsequent shy behavior in peer interactions and decreased affect in fantasy play (e.g., less expressive behavior while playing "make believe"), whereas nonsocial BI only predicted decreased participation in group play (engaging with peers while playing; Kochanska & Radke-Yarrow, 1992).

Additional support for the distinction between social and nonsocial BI is provided by a growing body of research suggesting that the two components may have differential relations with different internalizing disorders. Specifically, several studies have suggested that social anxiety is more strongly associated with social BI than nonsocial BI (Mick & Telch, 1998; Neal et al., 2002), whereas symptoms of other anxiety disorders may be similarly correlated with the two BI components (Coles et al., 2007; Mick & Telch, 1998; Neal et al., 2002; Van Ameringen et al., 1998). This suggests that whereas nonsocial BI may play a role in multiple anxiety disorders, social BI may show some specificity to social anxiety symptoms.

Potential relations between components of BI and depression have received less empirical attention. The existing literature suggests that this temperament style may serve as a precursor to depression as well as anxiety, though the nature of this relation remains unclear. Specifically, although one study of adults found that symptoms of depression were more strongly related to social than nonsocial BI in childhood (Neal et al., 2002), another study of high school students suggested that nonsocial BI ("fearfulness"), but not social BI, increased

risk for future depression (Hayward et al., 1998). Given the discrepancy in ages across the two aforementioned samples (mean ages of 43 vs. 15 years), it is difficult to assess whether the later project is best conceived as a failure to replicate, or whether developmental factors influenced the different patterns of findings. Thus, the current study focuses on a study of young adults (an intermediate age between those used in the two prior studies) as a means to address this gap in the literature addressing the relationship between BI and mood/anxiety symptoms.

In considering the relation between BI and depression, it is important to note that individuals suffering from anxiety disorders are at a increased risk for developing depression in comparison to non-anxious individuals (Stein et al., 2001), and evidence suggests that in many instances the presence of an anxiety disorder precedes the development of major depression (Brown, Campbell, Lehman, Grishman, & Mancill, 2001). Given such temporal relationship between anxiety and depression, it is important to consider that associations between BI and depression may be largely contingent upon the presence of anxiety. In fact, one study found that social anxiety fully mediated the relation between BI and depression (Gladstone & Parker, 2006), supporting the hypothesis that the link between childhood BI and later depression was not direct, but rather mediated by the presence of social anxiety symptoms.

The primary aim of the current study was to examine relations between behavioral inhibition (social versus nonsocial) and symptoms of anxiety and depression in young adults. We examined specificity of the general construct of behavioral inhibition to symptoms of social anxiety, nonsocial anxiety (anxious arousal; cf. Clark & Watson, 1991), and depression. We hypothesized that behavioral inhibition would be significantly associated with all three forms of internalizing symptoms. However, given previous research supporting the strength of the relation between BI and social anxiety (Hirshfeld-Becker et al., 2008), we hypothesized that BI would be more strongly related to social anxiety than the other symptom domains. Second, we examined the utility of differentiating the social versus nonsocial components of BI. We hypothesized that the social component of BI would be significantly more strongly related to young adults' current levels of social anxiety than would nonsocial BI. We hypothesized that strength of the relations between the two domains of BI with symptoms of anxious arousal would be similar. Predictions as to relative importance of the two domains of behavioral inhibition were not made for depression, given conflicting data on the role of social behavioral inhibition and depression (Neal et al., 2002, Hayward et al., 2002) and the age discrepancy between the participants in the current study and previous research. Finally, we tested the hypothesis that symptoms of anxiety (both social anxiety and anxious arousal) would mediate the relations between social and nonsocial BI and depression. For this meditational model, we expected to replicate previous research indicating that the relation between childhood BI and symptoms of depression would be mediated by social anxiety (Gladstone & Parker, 2006). Further, given that depression is typically preceded by symptoms of anxiety (Brown et al., 2001), we also predicted that symptoms of anxious arousal would mediate the BI-depression relationship.

Method

Participants and Procedure

Participants in this study were 247 undergraduate students (73% female). The mean age for the sample was 19.17 (SD = 2.63). Seventy percent of the sample was Caucasian, 13% were Asian/Asian American, 5% were African American, 6% were Hispanic, and 6% reported their ethnicity as "other."

Measures

Behavioral Inhibition—The Retrospective Self-Report of Inhibition (RSRI; Reznick, Hegeman, Kaufman, Woods, & Jacobs, 1992) is a retrospective self-report questionnaire used to assess levels of behavioral inhibition exhibited during childhood (i.e., grades 1-6). The RSRI consists of 30 items rated on a Likert-type scale from 1 to 5 (the anchors for this scale vary depending on the question; e.g., never → very often or 0-4 days → 20 or more days), with higher scores reflecting higher levels of behavioral inhibition. Total and subscale scores are computed by determining the mean item scores (cf. Reznick et al., 1992). Items were developed to refer to specific events/situations (e.g., "Did you have a nightlight?") rather than subjective impressions so as to reduce the influence of mood or current psychopathology (Reznick et al., 1992). The RSRI consists of two factors, consistent with the social and nonsocial components of behavioral inhibition: 1) school and social situations (12 items), and 2) fear and illness (12 items), a factor structure that has been supported in several studies (Coles et al., 2006; Neal et al., 2002; Reznick et al., 1992; van Ameringen et al., 1998). Supporting the convergent validity of the scale previous research has demonstrated that scores on the RSRI are significantly correlated with symptoms of anxiety disorders such as agoraphobia, social phobia and depression (van Amerigen et al.,1998; Neal et al., 2002) as well as obsessive compulsive disorder (Coles et al., 2006). Further, supporting the scale's reliability across informants, undergraduates and their parents demonstrate high lefvels of agreement with regards to the student's level of BI during childhood (r = .63; Reznick et al., 1992). In the current sample, the RSRI total score and subscale scores demonstrated strong internal consistency (as defined by α > .80$;$ αs = .82 for Total score, .83 for School/Social and .73 for Fear/Illness).

Depressive Symptoms—The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) and the Mood and Anxiety Symptom Questionnaire-Anhedonic Depression subscale (MASQ-AD; Watson & Clark, 1991) were used to assess depressive symptoms. Both measures exhibit good reliability and validity (BDI: Whisman, Perez, & Ramel, 2000; MASQ: Reidy & Keogh, 1997) and both demonstrated strong internal consistency in the current study (BDI-II: α = .90; MASQ-AD: α = .92).

Social Anxiety Symptoms—The Social Interaction Anxiety Scale (SIAS) and the Social Phobia Scale (SPS; Mattick & Clarke, 1998) were used to assess symptoms of social anxiety, including anxiety specific to social interactions and performances, respectively. Both scales consist of 20 items, with items rated on a Likert-type scale from 0-4, and the SIAS contains 3 reverse-scored items (items 5, 9, and 11). Total scores range from 0-80, with higher scores indicating more severe symptoms of social anxiety. Studies have

supported the convergent and discriminant validity of the SIAS and SPS (Brown et al., 1997; Reis et al., 1998), as well as the internal consistency of these scales (Mattick & Clarke, 1998). For the current study, the SIAS and SPS exhibited strong internal consistency (SIAS a = .92, SPS a = .91).

Anxious Arousal Symptoms—The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) and the Mood and Anxiety Symptom Questionnaire-Anxious Arousal subscale (MASQ-AA; Watson & Clark, 1991) were used to assess anxious arousal. The BAI has demonstrated discriminant validity with measures of depression and strong internal consistency in previous research (Creamer, Foran, & Bell, 1995). Likewise, the MASQ had demonstrated both convergent and discriminant validity in previous research (MASQ: Reidy & Keogh, 1997). Both scales demonstrated strong internal consistency in the current study (BAI: a = .88; MASQ-AA: a = .85).

Results

Descriptive statistics and correlations among all study measures are presented in Table 1. As shown in the table, the majority of correlations were statistically significant, and most were moderate to large in magnitude (Cohen, 1988, 1992). In support of the separability of the two components of BI, the RSRI fear/illness and fear school/social subscales were not significantly correlated. Finally, scores on the study measures were generally consistent with available data from previous college student samples (Endler, Rutherford, & Denisoff, 1999; Creamer et al., 1995; Rodebaugh, Woods, Heimberg, Liebowitz & Schneier, 2006).

Preliminary analyses were conducted to ensure that the symptom clusters used in the current study were separable from one another. For these analyses, depression, social anxiety and anxious arousal were modeled as latent variables. The latent variable for depression was specified by the manifest variables BDI-2 and MASQ-AD, the latent variable for social anxiety was specified by the manifest variables SIAS and the SPS, and the latent variable for anxious arousal was specified by the manifest variables BAI and the MASQ-AA. Confirmatory factor analysis of the sample variance–covariance matrix, using AMOS 7.0 (Arbuckle, 2006) with maximum likelihood estimation, was used to fit a model in which symptoms of depression, social anxiety, and anxious arousal were independent but correlated latent variables. This three-construct model was tested against two alternative models. For the first alternative model all of the symptoms measures were specified as measuring a single internalizing symptom construct and for the second alternative model, two constructs were specified, with symptoms of social anxiety and anxious arousal loading onto a latent variable of anxiety and symptoms of depression loading onto a latent variable for depression. Results of nested model comparisons suggested that the three factor model provided a good fit to the data, χ^2 (6) = 19.55, p = .003, CMIN/df = 3.26, RMSEA = .096, CFI = .98, and fit significantly better than either the one factor model, χ^2 (3) = 130.90, p < .001, or the two factor model χ^2 (1) = 67.16, p < .001, supporting the separability of social anxiety, anxious arousal, and depressive symptoms in this sample.

Structural equation modeling was then used to examine the specificity of overall behavioral inhibition to symptoms of social anxiety versus depression and anxious arousal. In this

model, BI was identified with manifest variable represented by the RSRI Total score and direct paths were included from this variable to the depression, social anxiety, and anxious arousal latent variables. Error terms for the three latent variables were allowed to correlate. This model is depicted in Figure 1. Results showed that all paths within the model were significant (all p's <.001) and the model provided an adequate fit to the data, $\chi^2(9) = 21.81$, p <.01, $\chi^2/df = 2.42$, CFI - .98, RMSEA - .08 (cf. Hu & Bentler, 1999). As hypothesized, pairwise comparisons revealed that the strength of the path from RSRI total score to social anxiety was significantly stronger than the path from RSRI total to depression ($z = 2.35$, p < .001) and the path from RSRI total to anxious arousal ($z = 3.20$, p < .001). Exploratory analyses also revealed that the magnitudes of the relations between BI and depression versus anxious arousal did not differ significantly ($z = -0.80$, $p = .21$).

Next, we tested the hypothesis that the social versus nonsocial domains of BI would be differentially related to symptoms of social anxiety, anxious arousal, and depression. Specifically, a second model was tested with the social and nonsocial components of BI included as correlated manifest variables. In this model, paths were added from both forms of behavioral inhibition to each of the symptom domains. The model provided an adequate fit to the data, $\chi^2(12) = 39.01$, CMIN/df = 3.25, RMSEA,=.09, CFI = .96,and all of the paths were significant (all p's <.001), *except* for the path from nonsocial behavioral inhibition to social anxiety (p =.096). Therefore, the model was re-run omitting the path from nonsocial behavioral inhibition to social anxiety, $\chi^2(14) = 41.59$, CMIN/df = 3.20, RMSEA=.09, CFI, = .96 (see Figure 2). As hypothesized, reports of social BI were significantly more strongly related to levels of social anxiety than were reports of nonsocial BI ($z = 4.05$, p <.001). In contrast, the magnitudes of the paths from social versus nonsocial BI to anxious arousal ($z = -1.03$, p =.90) or depression ($z = -.97$, p =.52) did not differ significantly. Exploratory analyses were then conducted examining the relative specificity of each domain of behavioral inhibition to the three types of internalizing symptoms. Social BI was significantly more strongly related to symptoms of social anxiety than to depression ($z = 5.34$, p <.001) and anxious arousal ($z = 6.11$, p <.001). In contrast, the magnitudes of the paths from social BI to depression versus anxious arousal did not differ significantly ($z = 0.70$, p =.62). Nonsocial BI was significantly more strongly related to symptoms of depression ($z = 2.34$, p <.001) and anxious arousal ($z = 2.38$, p <.001) than social anxiety. As with social BI, the magnitudes of the paths from nonsocial BI to depression versus anxious arousal did not differ significantly ($z = -0.05$, p > .62). In summary, social anxiety was most strongly associated with the social domain of BI and was not significantly associated with the nonsocial domain, whereas depression and anxious arousal were associated with both domains of behavioral inhibition (although more modestly than the link between social BI and social anxiety).

Finally, to determine whether the relation between behavioral inhibition and depression was contingent upon symptoms of anxiety, a mediation model was tested in which (a) social anxiety was specified to mediate the relation between social inhibition and depression, (b) anxious arousal was specified to mediate the relation between social inhibition and depression, and (c) anxious arousal was specified to mediate the relation between nonsocial inhibition and depression (see Figure 3). Although both full and partial mediation models

were tested, the full mediation model provided an adequate fit to the data, $\chi^2(15) = 45.74$, p < .001, CMIN/df = 3.05, RMSEA = .09, CFI = .96, and did not fit significantly worse than the partial mediation model, $\chi^2(1) = 0.93$, $p = .33$. Therefore, the more parsimonious full mediation model was retained. As can be see in Figure 3, all of the paths in this full mediation model were significant (see Figure 3). Testing the magnitude of the indirect effects using the procedures outlined by MacKinnon, Fritz, Williams, and Lockwood (2007), we found that all of the indirect paths in the model (from both social and nonsocial inhibition to social anxiety, to depression; and from both social and nonsocial inhibiton to anxious arousal, to depression) were significant ($p < .05$).

Given the study's cross-sectional design, we also tested an alternate mediation model in which depression was specified to mediate the link between both forms of BI and both social anxiety and anxious arousal. Specifically, we tested a model in which depression was specified to fully mediate the relations between (a) social inhibition and social anxiety, (b) social inhibition and anxious arousal, and (c) nonsocial inhibition and anxious arousal. This model provided a poor fit to the data, $\chi^2(16) = 110.99$, CMIN/df = 6.94, RMSEA = .16, CFI = .87, allowing greater confidence in the results obtained in our hypothesized mediation model.

Discussion

The primary aim of the current study was to investigate relations between BI and symptoms of internalizing inhibition during childhood were strongly related to symptoms of social anxiety in young adulthood (Hirshfeld-Becker et al., 2008). Further, behavioral inhibition was moderately related (cf. Cohen, 1988) to symptoms of depression and anxious arousal in adulthood, suggesting that this temperament style may be a more general risk factor for internalizing disorders, as opposed to a specific predictor of social anxiety. Importantly, this study supports the utility of distinguishing the social versus nonsocial components of behavioral inhibition. Specifically, the social component of behavioral inhibition was significantly more strongly related to social anxiety than the other symptom domains. The nonsocial component was not significantly related to symptoms of social anxiety, but was significantly related to the latent constructs representing depression and anxious arousal, with moderate effect sizes. The current findings also extend previous disorders. Specifically, we examined the social versus nonsocial components of BI and their differential relations to symptoms of social anxiety, anxious arousal, and depression. Replicating previous work, results of the current study showed that retrospective reports of behavioral research (Gladstone & Parker, 2006), suggesting that relation between BI and symptoms of depression is largely contingent on the presence of symptoms of anxiety. Specifically, levels of social anxiety and anxious arousal fully mediated the relation between reports of social and nonsocial behavioral inhibition in childhood and symptoms of depression in young adults. Given the cross-sectional design of the study, conclusions must be limited to statistical rather than temporal mediation. This said, however, the current results support the utility of future prospective research examining the role of social versus nonsocial BI in the sequential development of anxiety and depression.

Our results are consistent with our theoretical understanding of the etiological pathways to internalizing disorders. That is, avoidance of social stimuli seen in children who exhibit social BI presumably undermines a child's ability to learn that such social stimuli are not dangerous, or that the physiological arousal such interactions elicit is manageable. Similarly, more general avoidance of novel situations and stimuli (as exhibited by a child with both social and nonsocial BI) presumably interferes with the individual's ability to learn that various anxiety provoking situations more generally are neither objectively threatening, nor unmanageable. Such avoidance likely contributes to heightened sensitivity to anxiety cues in general (i.e., anxiety sensitivity). Thus, consistent with behavioral theories of anxiety (Chorpita & Barlow, 1998; Foa & Kozak, 1986; McAllister & McCallister, 1995), stimuli that are avoided in childhood contribute to the development of a fear network in adulthood, perpetuating avoidance behavior and undermining opportunities to obtain disconfirming information about the threat value of these situations/stimuli.

Considering the relations of BI to depression further illustrates the role of this temperament factor in symptoms of internalizing disorders. Initial data from previous research has yielded equivocal results regarding whether BI may be a risk factor for depression in addition to anxiety (Caspi et al., 1996, Brozina & Abela, 2006). The current research, as well as that conducted by Gladstone and Parker (2006), indicates that the equivocal findings may be a result of the somewhat more complicated relationship between these two constructs. Specifically, results of this study suggest that behaviorally inhibited children may be vulnerable to developing depression because of the effects of behavioral inhibition on anxiety. If prospective data confirm this etiological chain, it will provide further support for the importance of early intervention programs for anxiety. Encouragingly, preliminary evidence suggests that anxiety in young children is amenable to early intervention (Hannan, Rapee, & Hudson, 2000; Rapee, 2002; Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005). Furthermore, such results suggest that treating anxiety may reduce the incidence of subsequent depressive disorders; however, more research on these programs, their active components, and long-term impact on anxiety and depression will be beneficial.

Implications of the current findings are limited by the cross-sectional design and the focus on a specific sub-sample of the population (undergraduate students who are predominantly Caucasian and female). Thus, future research with more diverse samples will be needed to establish the generalizability of these findings to the broader population. In addition, the current study relied exclusively on self-report measures of BI and symptoms and future research would benefit from multi-method assessment of both behavioral inhibition and internalizing symptoms. Specifically, prospective longitudinal research assessing behavioral inhibition via behavioral tests (cf. Garcia-Coll et al., 1984) will be important in elucidating the etiological pathways between (domains of) BI in children and subsequent symptoms of internalizing disorders. Such research should also consider the role of potential moderators of the relationship between inhibited temperament and symptoms of internalizing disorders. For example, there is evidence that early child temperament interacts with parenting styles (Stice & Gonzales, 1998; Stright, Gallagher, & Kelley, 2008) and environmental events (Mezulis, Hyde, & Abramson, 2006) to influence personality characteristics later in life. Specifically, whereas assertive parenting can have negative effects on children high in fearfulness, it can have a positive impact on children low in fearfulness (Kochanska, Aksan,

& Joy, 2007). Given this meaningful relationship between child temperament and parenting approaches, and the encouraging evidence that the parent-based interventions (in which early inhibition in selected children is modified via parent education focused on education about anxiety, anxiety management strategies for the parent, and the importance of modeling competence) can improve the trajectory for children at-risk for anxiety (Rapee, 2002), future research should address not only the relationship between temperament style and symptoms, but also the potential interaction of temperament with parenting styles.

The current study indicates that retrospective reports of childhood BI are strongly related to levels of social anxiety in young adults. Current findings suggest that distinguishing the components of behavioral inhibition (social versus nonsocial) may be useful in distinguishing risk status for social anxiety versus other internalizing disorders. In addition, it is reasonable to propose that if the current findings are replicated, future efforts to delineate children at risk for the development of anxiety and/or depression may be streamlined by emphasizing the social component of behavioral inhibition (as measured by the fear of school/social subscale of the RSRI). Indeed, reticence in school and social situations may be a particularly meaningful marker of risk status, given that an index of this component was found to be strongly related to all 3 of the internalizing symptoms measured in this study, and particularly strongly linked to symptoms of social anxiety (which in turn mediated the relationship between behavior inhibition and depressive symptoms). Such a clarification of risk status may meaningfully inform the refinement of prevention programs, which hold substantial promise for the reduction in the development and impact of mental illness. Specifically, although development of effective interventions for anxiety and mood disorders has been an impressive focus of research for the past few decades, a better understanding of quantifiable etiological factors should begin to be a focus of research on the common and debilitating mental illnesses of anxiety and depression (Zvolensky, Schmidt, Bernstein, & Keough, 2006). That is, research such as the current study begins to provide important elucidation of factors which may identify individuals for indicated (cf. Rapee et al., 2006) or selective (cf. Mrazek & Haggerty, 1994) prevention trials (in which participants are selected based on the presence of indicators or risk factors of a disorder, respectively). Thus, results of the current study call for future research examining such questions prospectively.

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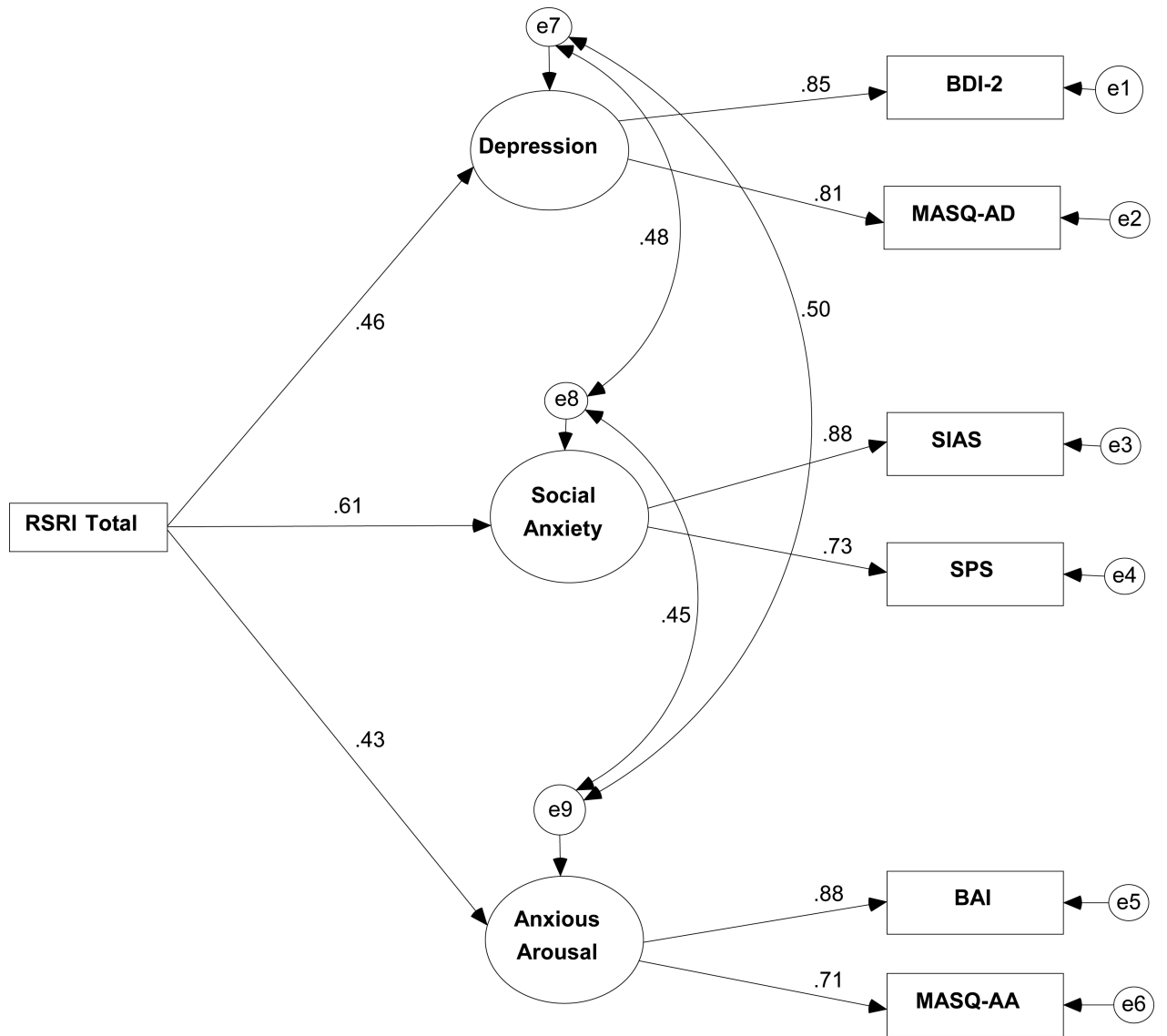
Figure 1.
Retrospective report of behavioral inhibition and symptoms of depression, social anxiety, and anxious arousal.
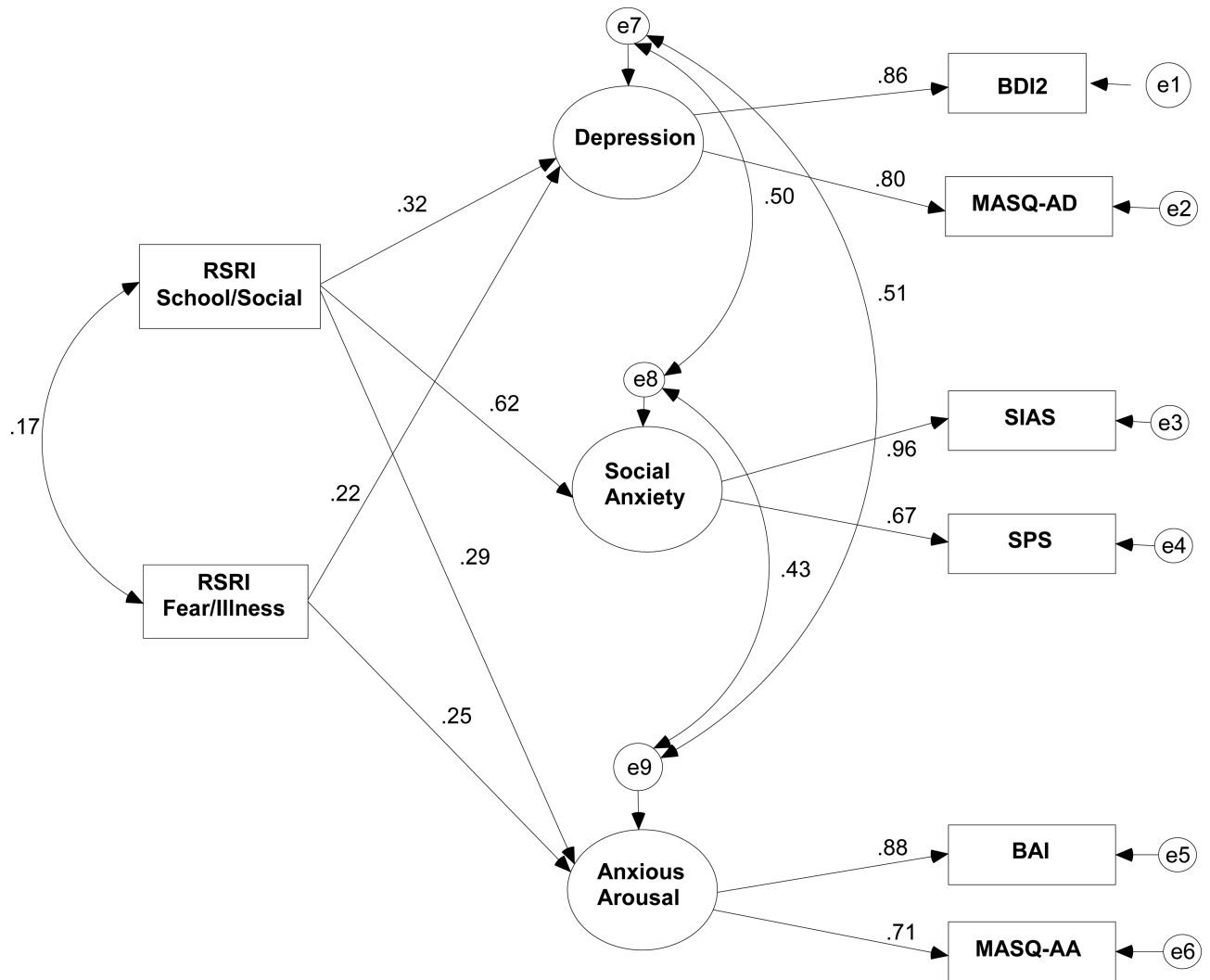
Figure 2.
Social versus non-social domains of behavioral inhibition and symptoms of depression,
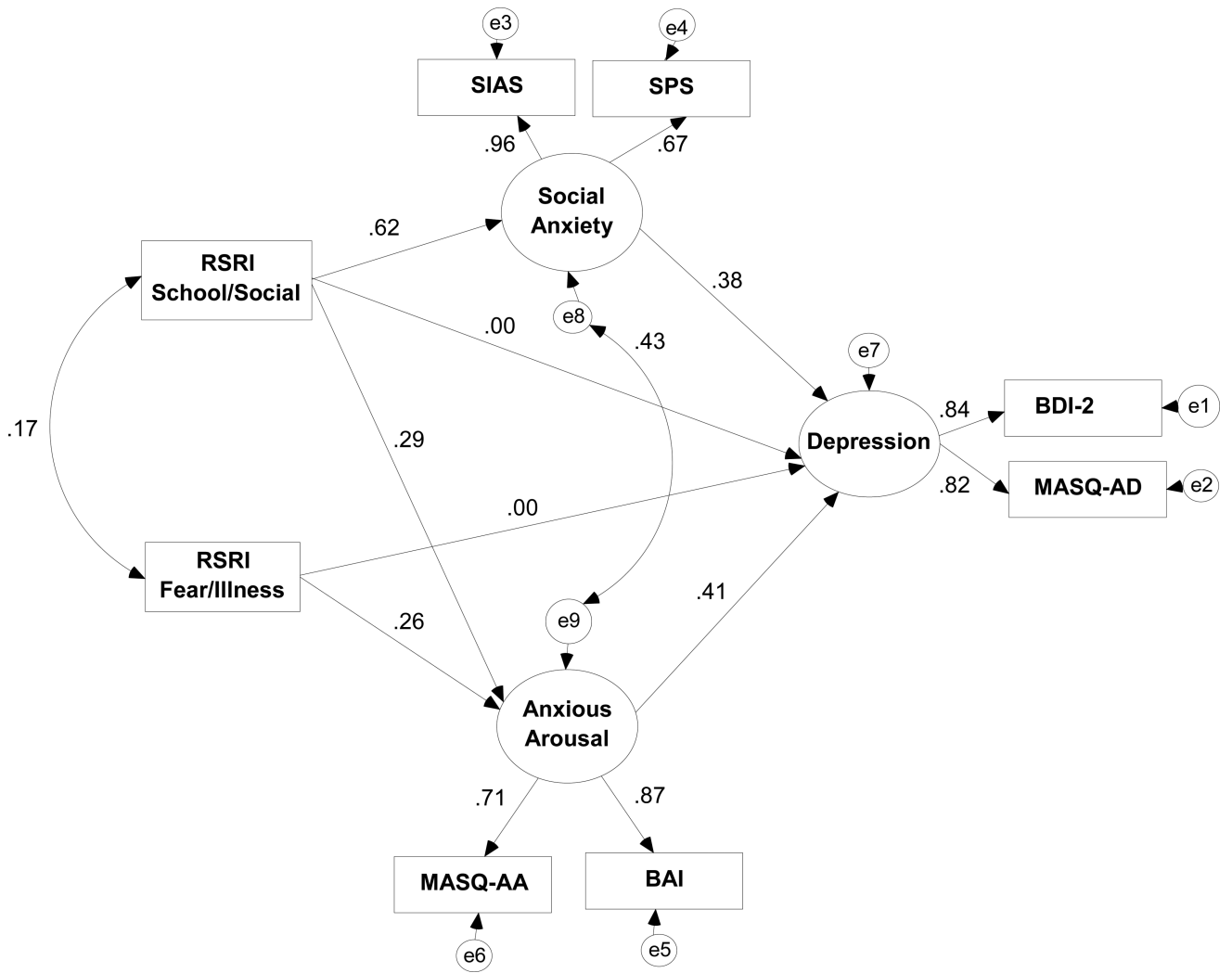social anxiety, and anxious arousal.

Figure 3.
Mediation model

Table 1

Descriptive Statistics and Correlations Among Study Measures

	Mean (SD)	Skew Statistic	Kurtosis Statistic	RSRI – Total	RSRI – School/ Social	RSRI – Fear/ Illness	MASQ – AA	MASQ – AD	SIAS	SPS	BAI	BDI - 2
RSRI – Total	2.26[#] (.46)	.92	2.08	-								
RSRI – School/ Social	2.46[#] (.66)	.61	.60	.79[*]								
RSRI – Fear/Illness	2.04[#] (.61)	1.09	2.75	.71[*]	.20	-						
MASQ-AA	25.47 (8.16)	1.49	2.29	.35[*]	.26[*]	.28[*]						
MASQ-AD	57.00 (15.50)	.18	−.34	.34[*]	.35[*]	.18	.28[*]	-				
SIAS	23.18 (13.61)	.71	.19	.51[*]	.59[*]	.17	.37[*]	.48[*]	-			
SPS	14.41 (11.38)	1.13	.87	.46[*]	.41[*]	.29[*]	.38[*]	.32[*]	.64[*]	-		
BAI	9.72 (8.04)	1.31	1.79	.38[*]	.29[*]	.29[*]	.67[*]	.37[*]	.40[*]	.42[*]	-	
BDI-2	9.36 (8.07)	1.20	1.71	.40[*]	.25[*]	.34[*]	.37[*]	.69[*]	.40[*]	.30[*]	.49[*]	-

Note.

[#] These scores have been calculated in accordance with the scoring system outlined by the authors of the orig Hegeman, Kaufman, Woods, & Jacobs, 1992); however, in order to facilitate comparison across previous research scoring guidelines) the scale means are: RSRI Total = 67.71, RSRI School/Social = 29.50, and RSRI Fear/Illness

[*] ps <.001; RSRI = Retrospective Self-Report of Inhibition, MASQ-AA = Mood and Anxiety Symptom Questionnaire–Anxious arousal subscale, MASQ-AD= Mood and Anxiety Symptom Questionnaire – Anhedonic Depression subscale, SIAS = Social interaction Anxiety Scale, SPS = Social Performance Scale, BAI = Beck Anxiety Inventory, BDI-2 = Beck Depression Inventory.