An Observational Study of Maternal Parenting Behavior and Adolescent Social Anxiety

Cassandra R. Mick
cassm14@gmail.com

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ABSTRACT

AN OBSERVATIONAL STUDY OF MATERNAL PARENTING BEHAVIOR AND ADOLESCENT SOCIAL ANXIETY

Cassandra R. Mick, M.A.
Department of Psychology
Northern Illinois University, 2022
David P. Valentiner, Director

Parenting behaviors, especially maternal parenting behaviors, have been implicated in the etiology and maintenance of adolescent Social Anxiety Disorder and its symptoms for decades. Following calls from meta-analyses and literature reviews for observational measurement of parenting behaviors and preliminary results from a pilot study reviewed here, this investigation sought to evaluate the utility of the undermining autonomous relatedness (UAR) index of the Autonomy and Relatedness Coding System as a path through which maternal social anxiety symptoms are transmitted to adolescents. A racially and socioeconomically diverse sample of 64 early adolescents ($M_{age} = 12.37$; 53.1% White; 64.1% female) and their mothers from the United States participated in the investigation. Participants completed questionnaires and participated in video recorded discussions of hypothetical situations related to peer relationships. Results of the current study did not replicate those of the pilot study. Statistical and methodological explanations for this failure to replicate as well as future directions for research and clinical practice are discussed.
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CHAPTER 1
INTRODUCTION

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), a diagnosis of Social Anxiety Disorder (SAD) requires an individual to meet 10 criteria which describe their symptom presentation (American Psychiatric Association [APA], 2013). Specifically, for a period of at least six months, one must almost always display fear or anxiety about embarrassment, rejection, or negative judgment in one or more social situations which involve the possibility of scrutiny by others. Further, this fear or anxiety must be disproportionate to the actual threat of the social situation, cause clinically significant distress or functional impairment, and lead to avoidance of social situations or endurance of them with great distress. Additional notes are provided by the APA regarding SAD in children; that is, children’s anxiety may be expressed by crying, freezing, throwing tantrums, or failing to speak, and they must display fear or anxiety in response to situations involving both peers and adults (APA, 2013).

A diagnosis of social anxiety disorder is estimated to affect 8.6% of adolescents in the United States in their lifetime (Burstein et al., 2011), but social anxiety symptoms affect many more individuals (Knappe et al., 2011). The costs and consequences of SAD and social anxiety symptoms affect both individuals and society through loss of productivity, increased risk for alcohol abuse and dependency, general suffering, and impaired academic performance, among other negative outcomes (de Lijster et al., 2018; Fehm et al., 2008; Himle & Hill, 1991; Knappe
et al., 2011; Stein et al., 2017). Decades of research has searched for what factors might bring about, maintain, and successfully treat SAD. In this search, parenting has been consistently implicated as an important etiological and maintenance factor for social anxiety (e.g., Barber, 1996; Gómez-Ortiz et al., 2019).

More specifically, there is significant evidence from self-report studies that parent engagement in behaviors such as inducing guilt, manipulating emotional experiences, invalidating emotions or opinions, intruding, and other behaviors that discourage or prevent independent problem solving or psychological functioning positively predicts social anxiety symptoms. Allen and colleagues refer to these behaviors as undermining autonomy and undermining relatedness (or the hybrid construct undermining autonomous-relatedness [UAR]), and measure them using their observational coding system, the Autonomy and Relatedness Coding System (henceforth the Allen coding system; Allen et al., 2003). Observational studies, although limited in number at present (see McLeod et al., 2007), appear to support the argument that these types of behaviors influence social anxiety symptoms and even suggest that the true relation between these constructs may be stronger than is estimated by self-report methods (McLeod et al., 2007). Further, UAR has been evidenced to predict outcomes related to social anxiety such as feelings of closeness to peers, social competence, adolescent use of autonomous behaviors with peers, and perceived stress (Cook et al., 2015; Hare et al., 2014; Inguglia et al., 2015; McElhaney & Allen, 2001; Turner et al., 1993). Though initial support of the relation between UAR and social anxiety is promising, no studies have directly examined the relation between UAR and social anxiety. The parenting literature, especially with regard to its influence on child anxiety generally and social anxiety specifically, has called for more rigorous investigation for at least two major reasons (Barber, 2002). First, self-report data in general,
while useful, is fraught with limitations. Second, the volume of observational studies of parenting behaviors that invalidate a child’s emotional experience is low.

Taken together, more accurate estimation of the relation between child social anxiety symptoms and invalidating or invasive parenting behaviors requires further observational study of parent-child interactions using well-established coding systems which are representative of the complicated parenting dimensions which collectively facilitate both positive and negative outcomes for children. Given this need, the current study examines the effect of the constructs measured by the Allen coding system on child social anxiety symptoms. The roles of maternal social anxiety and maternal perception of adolescent social anxiety are also examined to investigate their unique contribution to social anxiety symptom presentation and related outcomes.

To provide a clear rationale for the current study, this introduction will include a brief review of the literature on social anxiety and social anxiety disorder, including its significance and consequences, contemporary etiological and maintenance models, and developmental considerations. Then, the Autonomy and Relatedness Coding System will be introduced (Allen et al., 2003 Allen et al., 1994), and a review of promoting and undermining autonomy and relatedness, including definitions, measurement, and relevant literature, will be provided. Next, literature on the role of parenting in social anxiety and social anxiety disorder will be reviewed. This review will primarily consist of evidence from the psychological control literature, as this is a form of invalidating and invasive parenting behavior that has been studied extensively in relation to child social anxiety. Statements about the definition and measurement of psychological control will be included to provide rationale for the use of this literature as a theoretical foundation for the influence of UAR on social anxiety. The methods, results, and
discussion of the findings of a pilot study using this coding system will then be presented, and the rationale and hypotheses for the current study will be stated. Finally, the methods, results, and discussion of the findings of the current study, including implications for further research and practical implications, will be discussed.

Social Anxiety Disorder and Social Anxiety

Definitions

It is essential to clarify definitions of both social anxiety disorder and social anxiety before reviewing the literature pertinent to the current study. Social anxiety disorder (SAD) is a condition described by the APA in the DSM-5. Social anxiety disorder is dichotomous and absolute, meaning that one either meets or does not meet the identified criteria for SAD in the DSM-5 at a given time. Those who meet criteria for SAD would be considered to experience symptoms at a clinical level. Social anxiety, however, is a broader, continuous construct representing the experience of a variety of symptoms consistent with SAD with no connotation of severity. That is, social anxiety can and is experienced by many people but to varying degrees on a spectrum, some of which may be considered disordered according to the DSM-5. Following a taxometric analysis of the latent structure of social anxiety, this paper and the current study will use the term social anxiety to refer to the full dimension of the experience of social anxiety symptoms (Boyers et al., 2017). When appropriate, SAD will be used to refer specifically to levels of social anxiety that are considered clinically significant in the DSM-5. It is also essential to note that the label for SAD previously used in the DSM-IV, social phobia, will be considered equivalent to SAD and may be used when discussing theory or research which predated DSM-5.
The prevalence of SAD has generally been found to increase as children move into adolescence (Beesdo et al., 2007; Burstein et al., 2011; Canino et al., 2004; Lawrence et al., 2015). The presence of SAD in adolescence has been shown to predict substance use in adulthood (Black et al., 2015; Buckner et al., 2008a; Buckner et al., 2008b). Adolescents with SAD report more feelings of loneliness than do same-age peers without the diagnosis, and one study reported that their likelihood of having been bullied was more than eight times higher than that of non-disordered adolescents (Beidel et al., 2007; Fernandez-Castelao et al., 2015; Ranta et al., 2009). Regarding school attendance, children and adolescents with anxiety disorders are frequently reported to have higher rates of school refusal or absence than those without anxiety disorders (e.g., de Lijster et al., 2018). Similarly, impairment at school is often reported by anxious children and adolescents. One study found that those with SAD reported experiencing the most school impairment of any of the anxiety disorders (Essau et al., 2000). If SAD is left untreated, it tends to persist into adulthood and create a variety of issues including decreased professional achievement, increased substance use, and decreased presence of meaningful social relationships (Beesdo-Baum et al., 2012; Bruch et al., 2003; Burstein et al., 2011; Katzelnick et al., 2001; Keller, 2003; Kessler et al., 2012).

Theories of Social Anxiety and SAD

A number of theories exist to explain how social anxiety and SAD function, including their development and maintenance. In order to gain a broad understanding of the literature on
the etiology and maintenance of social anxiety as it stands now, it is pertinent to review some existing theories here, particularly those which include parental influences in these processes.

Clark and Wells (1995)

Clark and Wells (1995) suggest that the core of social phobia is the fear of portraying oneself in an unfavorable way despite a marked desire to make a good impression. Their theoretical model, which is depicted in Figure 1, attempts to explain the processes underlying social situations involving someone with social phobia. The social situation is theorized to activate assumptions about the meaning of social interactions and behaviors, the consequences of performing inadequately, and the lack of social skill one possesses. This activation of assumptions leads to the individual perceiving social danger. This perception activates behavioral, somatic, and cognitive symptoms, as well as interacts transactionally with views of the self as a social object. Behavioral symptoms might include fleeing social situations or safety behaviors such as looking downward when speaking rather than at conversational partners, among others. Somatic symptoms experienced by those with social phobia are numerous and could be increased heart rate, labored breathing, excessive sweating, or numbness or tingling in extremities. Cognitive symptoms could include negative self-talk consistent with one’s assumptions of gross inadequacy when interacting with others, the vital importance of one’s performance in each social encounter, and the negative and maybe even permanent ramifications of subpar social skills. These behavioral, somatic, and cognitive symptoms serve as evidence that reinforces the maladaptive assumptions one holds, reinforce those beliefs, and ultimately create a cycle of social phobia (Clark & Wells, 1995). This theory is frequently tested and cited, and although the overview of it provided here is certainly not exhaustive, the model does not
explicitly identify how those with social anxiety come to hold the beliefs that give rise to the thoughts, actions, and symptoms described within it.

Figure 1. Clark and Wells’s (1995) Model of Processes Occurring Within an Individual with Social Phobia During a Feared Social Situation.
Rapee and Spence (2004) present a dimensional model of the etiology of social phobia, asserting that individuals are predisposed to fall at a certain point on the continuum of social anxiety with intervening factors moving an individual toward the higher or lower ends of the spectrum. Their model is depicted in Figure 2. Unlike some other models, this diathesis-stress approach emphasizes the importance of genetic origins of the disorder as a large determinant of an individual’s particular innate location along the social anxiety spectrum. This predisposed level of social anxiety is referred to as a “set point.” Other environmental issues purported to influence one’s set point are aversive social outcomes such as peer victimization experiences, traumas, and other negative life events, poor social skills, and parent influences. Additionally, parent influences also impact an individual’s social anxiety at any given time. Rapee and Spence (2004) cite particular types of behaviors, such as intrusive or invalidating parenting, as relevant to development of social anxiety, even noting that some studies have found even stronger effects of these behaviors on social anxiety symptoms than other forms of anxiety. This identification of parent influences as a significant contributor to an individual’s social anxiety is certainly important to the literature, but the reasons why certain parenting behaviors implicated in social anxiety (e.g., intrusive or invalidating behaviors) occur in the first place is still uncertain.

Ollendick and Benoit (2012)

Ollendick and Benoit (2012) attempt to fill this gap and offer greater specificity regarding the role of parenting behaviors in the development of social anxiety but are only partially successful. They propose a model driven by child behavioral inhibition and parental anxiety,
implicating these constructs as areas for further study and intervention. In the model, these factors influence one another and the development of SAD symptoms in children. Both parental anxiety and child behavioral inhibition influence the attachment between parent and child, the former prospectively and the latter transactionally. Additionally, Ollendick and Benoit (2012) posit that the effect of parental anxiety on child SAD could be mediated by multiple factors such as parent or child information processing and parenting practices. Overall, this model does not include sufficient specificity of parenting behaviors to assist in the development of intervention strategies. However, the Ollendick and Benoit (2012) model is important to the foundation of the
current study because it theorizes that parent’s own anxiety symptoms are a precursor to their parenting practices, including intrusive and invalidating behaviors. Figure 3 displays the causal model underlying Ollendick and Benoit’s (2012) theory.

![Figure 3. Ollendick and Benoit’s (2012) Model of the Intergenerational Transmission of SAD.](image)

**The Role of Parenting**

**Parenting Within Each of the Models Described Above**

The theories reviewed here, representing the lion’s share of the theoretical foundation for studies of the etiology and maintenance of adolescent social anxiety, do not identify specific parenting behaviors. However, there are a number of ways in which parenting behaviors, including actions and both explicit and implicit verbal communications, might fit into each of the theories reviewed above. The assumptions activated by social situations, as indicated by Clark and Wells (1995), may be socially learned by adolescents as a result of observing their parents’
behaviors. Such assumptions then activate cognitions which are present before, during, and after social interactions. Regarding Rapee and Spence’s (2004) theory, the authors briefly review broad types of parenting behaviors thought to be relevant to both an individual’s set point and level of social anxiety at a given time, particularly emphasizing the promise shown in intrusive and invalidating behaviors as a unique contributor. However, reasons why such parenting behaviors occur is not addressed in their report. Ollendick and Benoit (2012) are the most specific in their model of child SAD. Not only do they identify a serial mediation model such that parenting practices affect child information processing which can then lead to child SAD, but Ollendick and Benoit (2012) also hypothesize that parental anxiety could be a catalyst for this process. Further, the parenting practices referenced by Ollendick and Benoit’s (2012) model could certainly include specific parenting behaviors such as those that either promote or undermine the development of volitional functioning.

**From Developmental Theory**

Developmental theory more explicitly identifies ways in which parenting and the family system affect social competencies and self-efficacy within a child. Interactions and relationships within the family form the basis from which children and adolescents learn to communicate and behave socially (Collins & Repinski, 1994; Sroufe et al., 1999). During adolescence, a key developmental process is the adolescent’s establishment of autonomy, or independent functioning, while maintaining relatedness, or relational connectedness (Cook et al., 2015). Efforts to establish these skills can lead to conflict within the parent-child relationship, especially when parental abilities to establish autonomy while maintaining relatedness are underdeveloped (Allen et al., 1994; Gure et al., 2006). Consequences of unsuccessful resolution and development
of this process include increased internalizing symptoms, risk behavior, and even changes in biological stress response (Cook et al., 2015; Inguglia et al., 2015; Turner et al., 1993).

Parenting behavior is clearly a broad construct with wide variability between the subtypes of actions it includes. The next section will identify parenting behaviors that are particularly pertinent to social anxiety and SAD as well as describe the existing literature investigating the associations and outcomes related to invalidating and intrusive parenting practices.

Specifying Parenting in the Current Study

Investigation into the effects of specific parenting dimensions, as opposed to typologies, has increased since Steinberg and colleagues’ (1989) disaggregation of authoritative parenting into its component parts. Although parenting dimensions are distinct from one another, their boundaries are often closely drawn and widely debated. Thus, relevant parenting dimensions warrant explicit explanation and definition here. Behavioral control as defined by Steinberg (1990) refers to parental limit setting and monitoring and is viewed as a necessary and healthy component of one’s parenting repertoire. On the other hand, attempts to influence or manipulate a child’s behavior or emotions through the use of intrusive and invalidating exercises such as inducing guilt; labeling expressions as unacceptable; withholding warmth, love, or support; or shaming a child have been termed psychological control (Barber, 1996). This parenting dimension has demonstrated its negative influence on child outcomes for decades, as it undermines a child’s development of autonomy and independence from their parents (Barber, Stolz, & Olsen, 2005). Relatedly, the construct of autonomy granting, which was conceptualized as the antithesis of psychological control until the early 2000s, refers to actions that encourage the process of individuation from parents by allowing developmentally appropriate self-
expression and involvement in decision making (Allen et al., 2003). These distinctions are particularly important to highlight because examination of parenting dimensions individually has the potential to contribute more specific information regarding the specialized effects each behavior may have on child outcomes (Barber, 2002; Steinberg et al., 1989; Silk et al., 2003).

At the same time, some researchers have suggested that it may be pertinent to consider some parenting dimensions simultaneously, meaning that they are measured independently but modeled simultaneously, so as to allow for contingent relations to be discovered (Barber, 2002; Silk et al., 2003). Two such dimensions are psychological control and autonomy granting, which Silk and colleagues (2003) confirmed via confirmatory factor analysis to be best considered as two separate constructs when each is measured using self-report data. Further, using structural equation modeling, they demonstrated that each construct shows distinct relations to child outcomes including significant negative (psychological control) and positive (autonomy granting) correlations to child self-concept. Silk and colleagues (2003) also found that psychological control positively correlates with internalizing problems while autonomy granting shows a non-significant correlation with internalizing problems. Further, Kunz and Grych (2013) found psychological control to predict child internalizing symptoms only under specific circumstances; in their study, observations of parental psychological control positively predicted child reports of internalizing symptoms only when parents were also observed to be low in autonomy granting. These results suggest that joint consideration of both psychological control and autonomy granting may provide further clarity into the mechanisms by which internalizing symptoms such as social anxiety come to be via parental socialization. Though it is beyond the scope of the current study, it would be pertinent for future research to consider how parenting behaviors which are conceptually related to autonomy granting, such as the behaviors
contributing to the promoting autonomous-relatedness scale of the Allen coding system, may moderate the effect of UAR or psychological control on adolescent social anxiety. This line of inquiry may be especially interesting in that it would demonstrate whether or not parenting behaviors relate to one another in the same way when measured via self-report as they do when measured via observation. While acknowledging the possibility that there may be differences in relations between constructs according to their measurement, prior research lends support to the notion that psychological control, as measured using self-report data such as in the Silk and colleagues (2003) factor analysis, may display similar associations with child outcomes as the conceptually similar construct UAR, as measured using observational data by the Allen coding system. Simultaneously, autonomy granting, as measured using self-report data as in the Silk and colleagues (2003) factor analysis, may display similar associations with child outcomes as the conceptually similar construct UAR, as measured by the Allen coding system.

Throughout this manuscript thus far, multiple mentions of the deleterious effects of psychological control behaviors on child and adolescent anxiety being demonstrated in existing research may naturally lead one to the question of why another study of intrusive and invalidating parenting practices would be valuable. The answer lies in three key methodological shortcomings of the majority of this literature. Firstly, most studies investigating parenting and child anxiety have utilized general parenting inventories rather than those that measure specific parenting behaviors. As mentioned above, both reviews and meta-analyses have called for examination of specific parenting behaviors due to the predictive power derived from the use of more descriptive measures of parenting (McLeod et al., 2007; Ollendick & Grills, 2016; Steinberg, 1990). Secondly, much of the work investigating the role of parenting in adolescent anxiety does not examine unique effects on the various forms of anxiety. Clearly there is some
shared variance in etiological and maintenance factors of anxiety disorders. However, drawing conclusions about each specific anxiety disorder and its symptoms poses a problem in that such aggregated analyses may not be descriptive enough to be optimally useful for prevention and treatment efforts for specific disorders and symptoms (Knappe et al., 2012; Scanlon & Epkins, 2015). Finally, the majority of studies examining these relations have been based on self-report data (Hare et al., 2015). One problem with this methodology involves the discrepancy seen between parent and child report of parenting behaviors and anxiety (Bögels & Brechman-Toussaint, 2006; Lebowitz, 2017). Additionally, mood-dependent recall and participant effects such as those motivated by social desirability may play a role in the responses of participants on self-report measures (Bögels & Brechman-Toussaint, 2006). Although self-report measures of parenting have significantly contributed to our knowledge of the relation between parenting behaviors and child social anxiety, observational measurement of specific parenting behaviors would be more informative at this phase of study on the topic. The limitations of self-report data have been demonstrated statistically. In a meta-analysis, methodological factors moderated the relation between parenting and child anxiety such that interview and questionnaire methods underestimated the magnitude of the association (McLeod et al., 2007). With observational methods, the weighted mean effect size of parenting on child anxiety was .28 compared to only .20 when self-report measures were used (McLeod et al. 2007).

A challenge facing researchers who desire to use observational measures to examine specific parenting behaviors is that there is not a gold standard parenting behavior observational coding system. The majority of research using observational coding systems have created their own protocols for the purposes of individual studies, operationalizing the behaviors of interest in their own unique way each time. As a direct result of this practice, comparison between studies
positing to measure and examine the same parenting behaviors and, therefore, generalizability and consolidation of knowledge on this topic are severely compromised. Part of this issue lies in the nomenclature and operationalization of parental behaviors. Consider overcontrolling behaviors for example. Some believe that there are separable behavioral and psychological control phenomena under this umbrella. Others use autonomy, autonomy granting, promoting autonomy, etc., to refer to the antithesis of psychological control while still others have argued that psychological control and autonomy should be treated as orthogonal (Soenens et al., 2009). Some use terms like overinvolvement or helicopter parenting to describe higher levels of control. Sometimes no operational definitions are provided for the terms chosen by researchers. At other times, definitions are provided, but two sets of authors often use different terms while their operationalizations are essentially inextricable. Still other times, definitions are provided, and two sets of authors use the same term but rely upon meaningfully different operational definitions. Because of this addled nature of conceptualization of parenting constructs and measurement, it makes most sense to consider and compare the operationalizations, that is the substance of the constructs, used in specific studies when forming the basis for new work, as it provides the most accurate depiction of the relations between behaviors that occur in families. The following section describes the utility of an observational coding system, the Autonomy and Relatedness Coding System (Allen coding system), as the parenting behaviors it measures are conceptually similar to those most relevant to social anxiety symptoms. Additionally, the next section offers this coding system as a potential solution to methodological inconsistencies in measuring psychological control qualitatively. The subsequent section also reviews the literature using the Allen coding system with an emphasis on studies including variables relevant to social anxiety and SAD.
The Autonomy and Relatedness Coding System

The Autonomy and Relatedness Coding System (Allen et al., 2003) is an observational coding system used to analyze discussions of conflicts between parents and their adolescent children. The coding system organizes behaviors into 10 broad categories which were originally separated into four dimensions. However, recent research has suggested that two- or three-factor solutions are a better fit. The two-factor solution consists of promoting autonomous-relatedness (PAR) and undermining autonomous-relatedness (UAR; Samuolis et al., 2006) while the three-factor solution separates the UAR factor into undermining autonomy (UA) and undermining relatedness (UR; Allen et al., 2003).

Behaviors that increase the promoting autonomous-relatedness score fall under five broad categories: stating reasons clearly for disagreeing; confidence in stating thoughts and opinions; genuinely querying; validating, agreeing with, or positively reacting to the other person; and displaying engaged interaction. Behaviors subsumed under stating reasons clearly for disagreeing include making statements to advance one’s own position in an argument with more vague statements contributing less to this score than thoroughly followed up points. Confidence in stating thoughts and opinions indicates the degree to which an individual displays assertiveness or commitment to their point of view without hesitation or tentativeness. Genuine queries are questions that display a true interest in what the other person is saying. Along the same lines, behaviors that validate, show agreement, or demonstrate a positive reaction to another person could come in the form of direct agreement, noting that something they did or said is important, laughing at a joke they made, or genuinely compromising. Displaying engaged
interaction could include actively responding to the other person’s point of view, conveying empathy, or finishing the other person’s sentences in a positive way.

Higher parental promoting autonomous-relatedness scores, and therefore the presence of behaviors which support autonomy and relatedness in children, are generally consistent with positive outcomes. In the earliest study using the Autonomy and Relatedness Coding System, Allen et al. (1994) found that autonomous-relatedness as displayed by mothers and fathers positively predicted ego development and self-esteem in their 14-year-old adolescents. Similarly, adolescents’ displays of autonomous-relatedness toward their parents positively predicted their own ego development and self-esteem.

Behaviors that would undermine autonomy fall under three broad categories including placating or recanting, overpersonalizing, and pressuring. Placating or recanting occurs when a person does not engage in a discussion or concedes when motivated by a desire to stop talking about the conflict at hand. Overpersonalizing behaviors include mimicking the other person, falsely characterizing the other person or their behaviors through exaggeration, suggesting that the other person’s reasoning is due to a personal flaw, inducing guilt in the other person, or stating that the other person should act or behave in a certain way because the speaker does. Pressuring behaviors include asking rhetorical questions, asking leading questions, communicating incredulity or impatience verbally or nonverbally, displaying condescension or sarcasm, using statements of ultimate position, repeating a question or statement, or threatening retaliation for the statements or behaviors of the other person.

Behaviors that would increase the undermining relatedness score fall under two broad categories including distracting, ignoring, or cutting off and making hostile or devaluing statements. Behaviors are coded as distracting, ignoring, or cutting off when statements or
actions communicate a lack of interest in or willingness to hear the other person’s points of view. Ways that this lack of interest might be communicated are by interrupting or shutting down conversation on a particular topic. Hostile or devaluing statements are those that are attacking of the other person, rude, mean, disdainful, or otherwise insulting. In the two-factor solution, behaviors contributing to both the UA and UR factors are considered simultaneously as contributing to the broader UAR factor.

Recognizing the need for observational study of parenting and child social anxiety symptoms and measurement selection based upon operational definitions, the current study identifies the Allen coding system (Allen et al., 2003) as a potentially useful measure of parenting behaviors relevant to child social anxiety. The hybrid construct referred to as UAR as operationalized by Allen and colleagues in their coding system is conceptually similar to psychological control, which is frequently implicated in child internalizing symptoms (see review below). In 1996, Barber operationalized psychological control in a seminal manuscript, describing it as “parenting practices that constrain, invalidate, and manipulate a child’s psychological and emotional experience and expression.” The manuscript served to establish the previously quoted definition of psychological control as well as validate a self-report measure of it titled the Psychological Control Scale – Youth Self-Report (PCS-YSR). The final instrument contained eight items representing parental psychological control as Barber defined it. Examination of the items comprising the PCS-YSR and the description of the UAR codes provided in the Allen coding system manual draws clear parallels between the constructs. The next paragraphs of this section outline this consistency item by item. However, it is essential to explicitly state that this manuscript is not a suggestion that Barber’s conceptualization of the construct of psychological control and Allen and colleagues’ conceptualization of UAR are
identical, as no empirical, psychometric examination to explore this is included in the current study. This manuscript, especially the following paragraphs outlining consistencies between the two constructs, are simply included to inform the reader why the psychological control literature (with its call for observational investigation of parenting behaviors) would be relevant to inform the current study. Rather, this manuscript and the current study seek to investigate the impact of specific parenting behaviors which limit an adolescent’s independent and developmentally appropriate emotional regulation and functioning, regardless of what such behaviors may be called collectively. To be sure, this manuscript is concerned with the impact of parenting behaviors on adolescent social anxiety and includes background information on both the debate surrounding taxonomic issues and the psychological control literature solely for the purpose of demonstrating that an adequate overview of the current research on the impact of parenting behaviors which limit independent and developmentally appropriate emotional regulation and functioning on social anxiety symptoms has been conducted.

The PCS-YSR asks respondents to use a one to three scale to rate how much like their mother or father each of the eight statements is after reading the anchor “My mother (father) is a person who…” The Allen UAR codes matching PCS-YSR items one through three are similar. Item one is “changes the subject, whenever I have something to say.” Parental UAR codes consistent with this item are “placating/recanting” and “distracting/ignoring/cutting off the other person.” Specifically, “placating/recanting” might occur in this context if a parent says, “Alright, Johnny,” or “Yeah, fine. Do it your way,” in an effort to stifle the adolescent, while distracting/ignoring/cutting off would be much more blatant or brusque. Items two and three of the PCS-YSR are “finishes my sentences whenever I talk,” and “often interrupts me.” As is clear
in its name, the UAR code “distracting/ignoring/cutting off the other person” is also consistent with both of these items.

Like items one through three, PCS-YSR items four through eight are mirrored in similar Allen codes. The fourth PCS-YSR item is “acts like she (he) knows what I’m thinking or feeling,” which maps onto two of the types of behaviors classified under the Allen code titled “pressuring others to agree.” The first type of UAR behaviors captured by this code is “statements of ultimate position” such as those beginning with “Obviously…” or “Of course…” The second type is “acting as if no disagreement exists or assuming the other person agrees when it is not clear that they do.” Item five on Barber’s (1996) measure, “would like to be able to tell me how to feel or think about things all the time,” fits with the UAR code for “overpersonalizing/blurring the boundary between the person and their position.” Within this code, “using [one]self or another person as an example or equating [one’s] own or other’s views or experiences with reasons” the other should agree with one’s argument is applicable here. Allen and colleagues (2003) describe such behaviors as “I am this way, so you should be too.” The sixth PCS-YSR item is “is always trying to change how I feel or think about things.” The relevant Allen code for UAR which represents this item is “pressuring others to agree.” Nine subcategories of behavior are specified within this code by Allen and colleagues; they are rhetorical questions; leading questions; sarcasm, impatience, condescension, or incredulity; non-verbal signs of incredulity, frustration, or impatience; statements of ultimate position, direct challenges to another person’s position; repeating a question/statement two or more times when the desired answer was not given; acting as if no agreement exists or assuming the other person agrees when it is not clear that they do; and threatening retaliation for another’s statement or views, also known as tit-for-tat. PCS-YSR item seven is “blames me for other family members’
problems.” This item is consistent with both “attacking the speaker rather than what they say,” a behavior nested under the UAR code for overpersonalizing/blurring, and “hostile or devaluing statements toward another.” The eighth and final item on the PCS-YSR is “brings up my past mistakes when she (he) criticizes me.” Just like item seven, item eight represents aspects of the overpersonalizing/blurring and hostile/devaluing statements UAR codes. Within overpersonalizing/blurring, past mistakes might be brought up in a disagreement by providing hypothetical situations that make assumptions about another’s expected future behavior with some implication about their behavioral patterns or character. Past mistakes may also be used against someone in this way by falsely characterizing them with exaggerated statements about their character or behavior.

This document is not the first to note the similarities between psychological control and UAR. For example, Hare and colleagues (2015) state that there is “conceptual overlap” between maternal psychological control and those behaviors undermining autonomy and relatedness. Although this overlap has yet to be studied empirically, comparison of the operational definitions of these two similar constructs via examination of the items used to measure them provides conceptual justification to draw inferences from the psychological control literature to form theoretical foundation for the current study using an observational measure of maternal UAR. The remainder of this section provides a brief overview of studies examining autonomy and relatedness generally with special emphasis placed on those with theoretical relevance to social anxiety.

To our knowledge, the Allen codes have not been used to predict social anxiety symptoms. However, they have been used to describe associations with a variety of variables related to social anxiety and SAD. Inguglia and colleagues (2015) found that adolescent and
emerging adult anxiety symptoms were significantly negatively correlated with adolescent perceptions of parental promotion of relatedness. Similarly, Turner and colleagues (1993) found that parent-child relationships characterized by low parental promotion of autonomy and relatedness were associated with greater adolescent risk behavior.

Looking specifically at the Allen codes that contribute to promoting or undermining autonomy (i.e., promoting: stating reasons clearly for disagreeing and displaying confidence in conveying thoughts and opinions; undermining: placating or recanting, overpersonalizing, and pressuring), McElhaney and Allen (2003) found that adolescents displaying higher levels of autonomy (in other words, those with higher scores on the promoting autonomy codes) during disagreements with their mothers had closer peer relationships and were rated as more socially competent and accepted by their peers compared to adolescents whose autonomy was lower. Hare and colleagues (2015) found that adolescents’ perceptions of maternal psychological control at age 13 (using the CRPBI) predicted residualized decreases in their displays of autonomy with their mothers at age 16. This prediction remained significant after controlling for displays of autonomy with their mothers at age 13, maternal undermining autonomy and relatedness behaviors at age 13, and adolescents’ perceptions of maternal psychological control at age 16. The same pattern was demonstrated in an analysis predicting adolescents’ use of autonomous behaviors with peers at age 16, a worrisome discovery considering the need, especially in adolescence, for children to fight peer pressure.

Regarding the relatedness Allen codes, Cook and colleagues (2015) found that the relation between adolescent perceived stress and maternal undermining relatedness during a conflict interaction task predicted the highest adolescent systolic blood pressure during the task. Further, this group’s systolic blood pressure was still significantly higher when compared to
adolescents’ who reported even higher perceived stress but whose mothers did not undermine relatedness during the task, speaking to the unique effect of undermining relatedness on adolescents’ biological stress response.

**Psychological Control**

The ways in which parents exert psychological control over their children and the degree to which they do so are among the parenting behaviors most relevant to child social anxiety (Gómez-Ortiz et al., 2019). The relation between psychological control and social anxiety is consistently and widely demonstrated, but its nature is still unclear, as various studies place psychological control slightly differently in their models and include different mediators and moderators. However, across the many characterizations of overcontrolling parenting behaviors, the overarching message communicated by the literature is that psychological control plays an important role in the development and maintenance of child anxiety (Wei & Kendall, 2014b). At the most basic level, it appears that excessive parental control and child anxiety symptoms correlate somewhere between .13 and .48, with most estimates falling between .20 and .31 (Loukas et al., 2005; Hudson & Rapee, 2001; Rogers et al., 2020; Rudolph & Zimmer-Gembeck, 2014; Wei & Kendall, 2014a). A meta-analysis of 23 studies by van der Bruggen and colleagues (2008) reported an even larger effect size of excessive parental control on child anxiety, though, estimating it at .58. Obviously, this range is very large, and it illustrates the inconsistencies in results across the literature. It has been suggested that these inconsistencies in effect size estimates are at least in part explained by sampling or methodological differences (e.g., children with a diagnosis of an anxiety disorder versus nonclinical samples, use of general anxiety measures versus specific inventories, differences in measurement of parenting; Wei & Kendall,
2014b). The self-report, correlational data reviewed thus far provides a foundation of knowledge, but more sophisticated methods and designs are needed at this phase of study on parental psychological control and social anxiety.

Providing slightly more detailed information, Asbrand and colleagues (2017) found that parents of children with SAD used controlling behaviors more frequently than those whose children did not display social anxiety symptoms. In an observational study of mothers and early adolescents participating in tangram construction, mothers of children with SAD intervened significantly more, regardless of the demands of the situation such as the apparent level of child anxiety or child solicitation of the mother for help (Asbrand et al., 2017). These parents also touched more puzzle pieces than the parents of children without SAD (Asbrand et al., 2017). Additionally, Wei and Kendall (2014a) reported significantly higher mean levels of maternal psychological control in their sample of children and adolescents with SAD than in their undiagnosed sample. Relatedly, a latent class analysis by Rogers and colleagues (2020) showed significantly elevated levels of anxiety among adolescents whose mothers displayed “moderate stable” levels of psychological control, or psychological control which was high at baseline and remained stable across the study period.

In order to investigate potential causal relations between parental overcontrol and social anxiety, researchers have employed a variety of regression and path analyses in their research. In a self-report study of 1,110 children, Knappe and colleagues (2012) found that maternal overprotection predicted risk for a social phobia diagnosis over and above paternal overprotection and the interaction. Maternal psychological control has also been shown to outperform child demographics and other parenting variables such as acceptance and firm control in predicting child social anxiety symptoms (Wei & Kendall, 2014a). In a longitudinal
study, recollections of maternal overprotection uniquely explained six percent of the variance in social anxiety symptoms at Time 2 when controlling for social anxiety at Time 1 (Spokas & Heimberg, 2009). Although more substantive than correlational work, these results do not address the mechanism of how parent behaviors lead to social anxiety in their children.

To address this “how” question, many researchers are considering mediation models. Such models posit that excessive parental control contributes to child social anxiety by causing a number of intervening cognitive variables that then lead to social anxiety. Most often, these models propose that excessively controlling parenting communicates a message to the child about themselves or their abilities which contributes to a perceived inability to deal with social situations and anxieties without assistance from parents or use of safety behaviors.

In one study, the direct relation between parental overcontrol and child anxiety was no longer significant when the indirect path through child perceived competence was accounted for (Affrunti & Ginsburg, 2012b). Interpretation bias, though, was not as powerful of a mediator this relation, as the direct relation between parental overcontrol and child anxiety remained significant despite the inclusion of the indirect path (Affrunti & Ginsburg, 2012a). Similarly, accounting for child external locus of control significantly mediated the relation between maternal overcontrol and child anxiety (Becker et al., 2010). Creveling-Benefield and Varela (2019) suggested that psychological control may give rise to maladaptive schemas within the child that include themes of disconnection/rejection or impaired autonomy/performance. Beliefs included in these schemas may be that no one cares or understands the child (disconnection/rejection), or that the child is unable to problem solve independently or even get by on their own (impaired autonomy/performance). Endorsement of the beliefs representing these schemas significantly mediated the relation between parental psychological control and
anxiety in participants ages 9-18 (Creveling-Benefield & Varela, 2019). Child negative self-esteem and emotion suppression have also been implicated as significant mediators of the relation between maternal psychological control and child social anxiety, results which are especially impactful given the large sample size of 2,060 children (Gómez-Ortiz et al., 2019).

The question of what leads parents to engage in the intrusive behaviors believed to give rise to anxiety in their offspring is also important. As noted above during discussion of theories of social anxiety and SAD, parent social anxiety is one possible catalyst for excessively controlling parenting behaviors that promote the development of child and adolescent social anxiety. Many studies report significant correlations between parent and child anxiety symptoms and include comments in their literature reviews that children of parents with anxiety disorders are more likely to be diagnosed with anxiety disorders themselves. These studies also review the mechanisms through which researchers believe anxiety is transmitted from parent to child, such as those reviewed in the preceding paragraphs of this section. However, few explicitly test the effect of parent anxiety symptoms on offspring anxiety symptoms; rather, they assume that parent anxiety symptoms are the culprit behind anxiety-promoting parenting and focus their investigations on exactly how parenting translates to anxiety in children and adolescents. These efforts to understand mediators or moderators of the parental control-child anxiety relation are not misplaced; however, future research should attempt to examine the broader cycle of the development of anxiety in children and adolescents beginning with what leads to anxiety-promoting parenting behavior in the first place, namely parental anxiety symptoms.

A preliminary examination of the association of this coding system dimension with social anxiety symptoms was conducted in a pilot study. A brief description of the methods and results, and a brief discussion of findings from this pilot study are presented in the next section.
CHAPTER 2

PILOT STUDY

Methods

Participants

The pilot study was conducted using a portion of a larger study of 70 mother-adolescent dyads. Other manuscripts provide further description of the sample and methods used in the pilot study (Gerardy et al., 2015; Hauck et al., 2019; Mounts & Valentiner, 2021; Salaam et al., 2022; Valentiner & Mounts, 2017). This pilot study used 51 of the 70 dyads, excluding those whose videos could not be coded due to technical issues or failure to comply with instructions for the task. Participants were recruited from communities in rural northern Illinois via advertisement on parenting social media groups, flyers placed at local businesses and distributed to schools, and email listservs of previous research participants. Adolescents between the ages of 10 and 15 years old were recruited \((M = 12.38, SD = 1.65)\), and no restrictions were placed on the ages of mothers. Mothers ages ranged from 30 to 58. There were also no restrictions based on race, ethnicity, or gender. The sample of adolescents consisted of 24.7% Black participants, 2.7% Asian participants, 15.1% Hispanic/Latinx/o/a participants, 52.1% White participants, 1.4% of participants endorsing another race (4.1% of mothers did not report their adolescents’ race). Fifty-one percent of adolescents were female, and 49% were male. Socioeconomic statuses of the participants was diverse, with 40% reporting an annual family income of $50,000 or less,
38% reporting $50,001 to $100,000, and 22% reporting more than $100,000. Further, 2% of adolescents’ mothers obtained education less than a high school diploma, 43.1% between a high school diploma and a two-year degree, 21.6% a four-year degree, and 33.3% beyond a four-year degree. Six point one percent of adolescents’ fathers have obtained education less than a high school diploma, 53% between a high school diploma and a two-year degree, 12.2% a four-year degree, and 24.5% beyond a four-year degree. Regarding adolescent social anxiety symptoms in the pilot study sample, normative data based on a community sample of 4,916 Australian children and adolescents aged 8 to 15 years suggests a mean score on the social anxiety subscale of the SCAS-C of 6.06 (SD = 3.61; Spence, n.d.-a). In the pilot study, approximately 35.4% of the adolescent sample rated their social anxiety symptoms above 6.0. For the SCAS-P, data from an Australian community sample of 1,857 parents with both male and female children aged 7 to 13 years produced a mean score on the social anxiety subscale of 4.39 (SD = 3.23; Spence, n.d.-b). In the pilot study, approximately 44.2% of the mothers in the sample rated their adolescents’ social anxiety symptoms above 4.0. T-Scores are also provided by the authors of the SCAS-C and SCAS-P to indicate potential clinical elevation in symptoms (Spence, n.d.-c; n.d.-d). For both versions of the measure, the authors suggest a T-Score of 60 as a conservative clinical cutoff, which corresponds to scores one standard deviation above the mean (or individuals at or above the 84th percentile) of others of the same age and gender. In the pilot sample, 22.8% of female adolescents and 16% of male adolescents reported scores at or above the clinical cutoff.
on the SCAS-C, and 25.9% of mothers of female adolescents and 16% of mothers of male adolescents reported scores at or above the clinical cutoff on the SCAS-P.

Procedure

Procedures were approved by the Institutional Review Board (IRB). The pilot study is a portion of a larger study of mother-adolescent relationships. Participants came into the research lab for data collection and first provided informed consent (mothers) or informed assent (adolescents) for study participation. Mothers and adolescents then completed questionnaires on demographics and mother-adolescent conflicts about peers which they had actually experienced (Mounts, 2007; 2011). Participants then went into a separate room of the lab designed to look like a home living room environment to complete three interaction tasks. The first was playing a game of their choice together. The order in which dyads completed the second and third interaction tasks was counterbalanced in the sample. The second task was about actual adolescent-mother conflicts about peer relationships which were reported during the earlier self-report portion of the study (Mounts, 2007; 2011). Codes from this interaction were used in the pilot study. The subject of adolescent peer relationships was chosen for this task because it has been demonstrated that adolescents tend to view social relationships within the personal domain rather than under the purview of parental authority and therefore may elicit conflict (Smetana & Metzger, 2008). The third task was about hypothetical situations involving typical peer relationship issues. Dyads were instructed to speak to one another as they would in their own homes during all interaction tasks. Participants remained in the mock living room to complete to complete four games of Cyberball (Williams & Jarvis, 2006), a research paradigm used to mimic social exclusion. Participants then returned to the original lab space to complete another set of
self-report measures independent of one another. Finally, dyads were compensated $50 for their participation.

Measures

Demographics

Mothers answered demographic questions about themselves and their adolescent. In this pilot study, only adolescent age, adolescent sex, and adolescent race were used. In analyses, adolescent age and sex were treated as continuous variables while adolescent race was dummy coded (0 = White, 1 = Non-White).

Adolescent Social Anxiety

The Spence Children’s Anxiety Scale – Child and Parent Versions (SCAS-C and SCAS-P; Spence, 1997) are two, 44-item measures designed to assess a variety of anxieties in children including generalized anxiety, panic/agoraphobia, social phobia, separation anxiety, obsessive-compulsive disorder, and physical injury fears. The SCAS-C is a self-report measure of a child’s own anxiety symptoms, while the SCAS-P is a parent-report measure of a child’s anxiety symptoms (Appendix A). Each item is rated on a 4-point Likert scale ranging from 0 to 3 (0=never, 1=sometimes, 2=often, 3=always), and the score for each subscale is determined by summing the responses to the included items. Both the full measure and the social anxiety subscale have demonstrated at least adequate reliability. Spence (1997) reported a reliability coefficient of .93 for the full measure while Spence (1998) reported coefficients of .73 (generalized anxiety), .82 (panic/agoraphobia), .70 (social phobia), .70 (separation anxiety), .73
(obsessive-compulsive disorder), and .60 (physical injury fears). In the pilot study, Cronbach’s alpha for the social phobia subscale was .93 for the child version and .84 for the parent version.

**Maternal Parenting Behaviors**

The Autonomy and Relatedness Coding System (Allen et al., 2003; Allen coding system) is an observational coding system measuring autonomy- and relatedness-promoting and undermining behaviors during family conflict (Appendix C). The system is designed to assess interactions between dyads. For a more comprehensive description of the behaviors measured by the Allen coding system and their corresponding Allen codes, see pages 17 to 19 of this manuscript. Both two- and three-factor solutions have been found in the Allen coding system. The two-factor solution includes promoting autonomous-relatedness and undermining autonomous-relatedness, while the three-factor solution separates the undermining factor into individual undermining autonomy and undermining relatedness components. Following Samuolis and colleagues (2006), the two-factor solution was used in the pilot study. For parents, they reported an intraclass correlation coefficient (ICC) of .77 and a Cronbach’s α value of .74 on the UAR subscale (Samuolis et al., 2006). Of note, both coders as well as the expert coder who trained one of the coders were White.

This coding system was applied to video recorded interactions between a mother and her adolescent. See the Procedure section above for more detailed information. No researchers were present during discussion. To code the discussions, one graduate student self-trained on the Allen coding system and coded all 51 mother-adolescent dyads. Another graduate student was trained by a coder with years of experience using the Allen coding system. This student first read the coding manual and applied it to training videos that had already been coded. Then, this student
met with the trained coder to discuss both general and specific questions and resolve
disagreements. When the trainer felt adequate progress had been made, this coder began
applying the system to nine reliability dyads. Overall, nine of the 51 dyads, or 17.6% of the
participants, were coded by both researchers. To test interrater reliability, an ICC estimate for the
maternal UAR variable was calculated using the Statistical Package for the Social Sciences
(SPSS) Version 27 based on a single-rating, absolute-agreement, two-way mixed effects model.
The ICC fell within the moderate range at .73 (Koo and Li, 2016).

Results

All analyses were conducted using SPSS. In all regression analyses, adolescent social
anxiety symptoms was the outcome variable. The reporter of adolescent social anxiety symptoms
(i.e., mother or adolescent) is noted with the discussion of each individual analysis. Table 1
presents correlations among all pilot study variables. The correlations of three demographic
variables (adolescent age, adolescent sex, and adolescent ethnicity) with adolescent social
### Table 1

Pearson Correlations Among Pilot Study Variables

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<tr>
<td>1. Generalized Anxiety</td>
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<td>2. Panic/Agoraphobia</td>
<td>.73**</td>
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<td>3. Social Phobia</td>
<td>.73**</td>
<td>.57**</td>
<td>-</td>
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<tr>
<td>4. Separation Anxiety</td>
<td>.54**</td>
<td>.73**</td>
<td>.63**</td>
<td>-</td>
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<tr>
<td>5. Obsessive-Compulsive</td>
<td>.57**</td>
<td>.71**</td>
<td>.60**</td>
<td>.63**</td>
<td>-</td>
<td></td>
<td></td>
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<td>6. Physical Injury</td>
<td>.38**</td>
<td>.43**</td>
<td>.35*</td>
<td>.54**</td>
<td>.30*</td>
<td>-</td>
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<td>7. Maternal UAR(^{a})</td>
<td>.17</td>
<td>.10</td>
<td>.31*</td>
<td>.30*</td>
<td>.11</td>
<td>.05</td>
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<td>8. Age</td>
<td>-.01</td>
<td>-.18</td>
<td>.13</td>
<td>-.13</td>
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<td>9. Sex</td>
<td>-.22</td>
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<td>-.25</td>
<td>-.29*</td>
<td>-.22</td>
<td>-.18</td>
<td>-.09</td>
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<td>10. Ethnicity</td>
<td>.20</td>
<td>.08</td>
<td>.20</td>
<td>.27</td>
<td>.05</td>
<td>-.01</td>
<td>.34*</td>
<td>.01</td>
<td>-.12</td>
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<tr>
<td>11. Social Phobia – MR(^{b})</td>
<td>.09</td>
<td>-.04</td>
<td>.04</td>
<td>.02</td>
<td>-.11</td>
<td>.12</td>
<td>.01</td>
<td>-.14</td>
<td>-.24</td>
<td>.13</td>
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*Note.* All anxiety variables were reported by the adolescent unless otherwise noted.

*\(^{a}\)UAR = undermining autonomous-relatedness; \(^{b}\)MR = mother report of adolescent symptoms

*\(p < .05; \quad **p < .01\)
anxiety symptoms reported by both the adolescent’s mother and the adolescent themselves were examined to determine whether or not their influence would need to be controlled for in regression analyses. No demographic variables were significantly correlated with either adolescent or mother reports of adolescent social anxiety symptoms; thus, no demographic variables were controlled for in further analyses.

In a regression analysis, maternal UAR significantly predicted adolescents’ reports of their own social anxiety ($R^2 = .10, p = .03$). To investigate specificity of the contribution of maternal UAR to adolescent social anxiety symptoms, regression analyses were conducted using each of the remaining SCAS-C subscales as dependent variables. Maternal UAR did not significantly predict adolescent generalized anxiety, panic/agoraphobia, obsessive-compulsive disorder, or physical injury fears ($p$s = .24 to .75), but it was significant in predicting adolescent separation anxiety ($\beta = .30, t = 2.14, p = .04$).

An analysis of indirect effects was also conducted using Model 4 from the PROCESS macro (Hayes, 2013). The indirect effect of mothers’ ratings of their adolescents’ social anxiety symptoms through maternal UAR was non-significant ($p = .86$).

Discussion

Pilot study regression analyses support the hypothesis that maternal UAR predicts adolescent social anxiety symptoms similarly to psychological control, an often-studied construct in the literature. Additionally, there is promising evidence from this pilot study that the contribution of maternal UAR is unique to only some subtypes of anxiety. These maternal behaviors significantly predicted both adolescent social anxiety and separation anxiety. To further examine the potential role of maternal UAR in adolescent separation anxiety, the current
study investigated whether or not the relation described in the pilot study can be replicated in a new sample of adolescents and their mothers.
CHAPTER 3
THE CURRENT STUDY

Purpose of the Study

Using self-report data, observational data, and a new sample of mothers and adolescents, the current study attempted to replicate the results demonstrated in the pilot study and extend its findings to comment on potential paths through which social anxiety may be transmitted from mother to child. Specifically, a model of indirect effects was tested whereby mothers’ ratings of their own social anxiety predicts their ratings of their adolescent’s social anxiety, which then predicts maternal UAR behavior and, finally, predicts adolescent ratings of their own social anxiety. See Figure 4 for a visual representation of the proposed model.

Figure 4. Hypothesized Predictive Relations Between Study Variables.
Hypotheses

Considering the conceptual overlap between psychological control and UAR and keeping the results of the pilot study in mind, the present study employed a new, slightly larger sample of mother-adolescent dyads to test the following hypotheses. To extend this work, potential intervening cognitive and behavioral factors facilitating the relation between maternal social anxiety and adolescent social anxiety were explored. Specifically, hypotheses are offered based on the parental beliefs about anxiety literature which demonstrates that parental anxiety affects perception of child anxiety (for example, see Francis and Chorpita, 2010, 2011; Manley and Francis, 2021). Ollendick and Benoit’s (2012) model of the intergenerational transmission of social anxiety disorder is consistent with this literature, as it posits that the effect of parental anxiety on child anxiety is mediated by factors including parent information processing (see Figure 3). Existing data suggesting that parental fear of negative child evaluation (FNCE), or worry that one’s child will be rejected or act in a way that is embarrassing, also lends support to the current study’s hypotheses, as it has been evidenced that FNCE mediates the relation between maternal social anxiety and over-involved and negative parenting (de Vente et al., 2011). This pattern is also reflected by Ollendick and Benoit (2012); another mediator included in their model of the parent anxiety-child SAD relation is parenting practices, which is placed serially immediately after parent information processing (referenced just above; see Figure 3). Where applicable, paths corresponding to Figure 1 are referenced with hypotheses.

Contextual Hypotheses

1. Mothers’ UAR behaviors will be significantly positively correlated with:
a. Adolescents’ self-report of their social anxiety symptoms

b. Mothers’ self-report of their social anxiety symptoms

2. Adolescents’ self-report of their own social anxiety symptoms will be significantly positively correlated with mothers’ self-report of their own social anxiety symptoms

Primary Hypotheses

1. Mothers’ ratings of their own social anxiety symptoms will significantly positively predict mothers’ ratings of their adolescent’s social anxiety symptoms (path a).

2. Mothers’ ratings of their own social anxiety symptoms will significantly positively predict adolescents’ reports of their own social anxiety symptoms through mothers’ ratings of their adolescent’s social anxiety symptoms and mothers’ observed UAR behaviors (path abf).

3. Mothers’ ratings of their own social anxiety symptoms will significantly positively predict adolescents’ reports of their own social anxiety symptoms through mothers’ ratings of their adolescents’ social anxiety symptoms (path ac).

4. Mothers’ ratings of their own social anxiety symptoms will significantly positively predict adolescents’ reports of their own social anxiety symptoms through mothers’ UAR behaviors (path df).

5. Mothers’ ratings of their own social anxiety symptoms will significantly positively predict adolescents’ reports of their own social anxiety symptoms (path e).
Analytic Strategy

The model depicted in Figure 4 was analyzed using the PROCESS macro for SPSS Version 27 (Hayes, 2013). Within this program, Model 6 was fit using two intervening variables, with mother’s rating of their social anxiety as the predictor ($X$) variable, adolescent’s rating of their social anxiety as the outcome variable ($Y$), and mother’s rating of adolescent social anxiety and mother’s observed UAR behavior as the intervening variables ($M_1$ and $M_2$, respectively). Prior to conducting PROCESS analyses, correlations between each variable of interest and demographic variables including adolescent age, adolescent gender, and adolescent ethnicity were examined, and variables demonstrating significant correlations were controlled for in PROCESS analyses (described in the Results section).

Methods

Participants

The current study was conducted using a new sample of 64 mother-adolescent dyads which was a part of a larger study (no pilot study participants were included in the current study). It is essential to acknowledge that, due to data collection restrictions imposed by the COVID-19 pandemic, the current study’s sample size is not significantly different from that of the pilot study. As such, the statistical power to test the current study’s hypotheses may impact results. Five dyads were excluded from analyses including variables from the interaction task due to technical issues with their videos which made them unable to be coded or failure to comply with instructions for the interaction task. Consistent with recruitment in the pilot study, participants were again recruited from communities in rural northern Illinois via advertisement on parenting
social media groups, flyers placed at local businesses and distributed to schools, and email listservs of previous research participants. Adolescents between the ages of 11 and 14 years old were recruited ($M = 12.37, SD = 0.98$), and no restrictions were placed on the ages of mothers. There were also no restrictions based on race, ethnicity, or gender. The sample of adolescents consisted of 31.3% Black participants, 3.1% Asian participants, 12.5% Hispanic/Latinx/o/a participants, and 53.1% White participants. In the sample, 64.1% were female, and 35.9% were male. Socioeconomic statuses of the participants are diverse, with 40.6% reporting an annual family income of $50,000 or less, 40.7% reporting $50,001 to $100,000, 18.7% reporting more than $100,000. Further, 4.7% of adolescents’ mothers have obtained education less than a high school diploma, 37.5% between a high school diploma and a two-year degree, 26.6% a four-year degree, and 28.2% beyond a four-year degree. Three point one percent of mothers did not report their level of education. Six point three percent of adolescents’ fathers have obtained education less than a high school diploma, 54.7% between a high school diploma and a two-year degree, 15.6% a four-year degree, 12.5% beyond a four-year degree, and 10.9% obtaining unknown levels of education due to failure to complete the item or lack of knowledge by the participant. Regarding mother social anxiety symptoms in the current sample, 20.3% of mothers were at or above the recommended clinical cutoff score on the SIAS-SF (Fergus et al., 2012). Regarding adolescent social anxiety symptoms in the current sample, normative data based on a community sample of 4,916 Australian children and adolescents aged 8 to 15 years suggests a mean score on the social anxiety subscale of the SCAS-C of 6.06 ($SD = 3.61$; Spence, n.d.-a). In the current study, approximately 53.1% of the adolescent sample rated their social anxiety symptoms above 6.0. For the SCAS-P, data from an Australian community sample of 1,857 parents with both male and female children aged 7 to 13 years produced a mean score on the social anxiety
subscale of 4.39 (SD = 3.23; Spence, n.d.-b). In the current study, approximately 60.9% of mothers rated their adolescents’ social anxiety symptoms above 4.0. T-Scores are also provided by the authors of the SCAS-C and SCAS-P to indicate potential clinical elevation in symptoms (Spence, n.d.-c; n. d.-d). For both versions of the measure, the authors suggest a T-Score of 60 as a conservative clinical cutoff, which corresponds to scores one standard deviation above the mean (or individuals at or above the 84\textsuperscript{th} percentile) of others of the same age and gender. In the current sample, 34.1\% of female adolescents and 30.4\% of male adolescents reported scores at or above the clinical cutoff on the SCAS-C, and 31.7\% of mothers of female adolescents and 34.8\% of mothers of male adolescents reported scores at or above the clinical cutoff on the SCAS-P.

Procedure

Procedures were approved by the Institutional Review Board (IRB). The current study is a portion of a larger study of mother-adolescent relationships. Participants came into the research lab for data collection and first provided informed consent (mothers) or informed assent (adolescents) for study participation. Mothers and adolescents then completed self-report measures in separate rooms. Mothers completed questionnaires inquiring about their own and their adolescents’ demographic characteristics and conflicts that may have occurred between them and their adolescents. Adolescents completed questionnaires inquiring about conflicts that may have occurred between them and their mothers, feelings of loneliness, friendship quality, and self-perception. Participants were then outfitted with equipment to measure physiological data, specifically their heart and respiration rates.

Physiological data was collected during three games of Cyberball (Williams & Jarvis, 2006), a research paradigm used to mimic social exclusion. Participants went into a separate
room of the lab which was designed to look like a home living room environment and were told that another adolescent participating in the study in a different location in the building would be playing three online games of catch with them. After each game, mothers and adolescents independently completed questionnaires about their experience with the game. Physiological equipment was then removed, and participants remained in the mock living room to complete three 10-minute interaction tasks.

The first was about hypothetical situations that may occur between mothers and adolescents, the second was about bullying situations that adolescents may experience, and the third was about disagreements that may occur between mothers and adolescents regarding adolescent social relationships. Phrasing of the subject of the third interaction task as one of “disagreements” was changed in the current study. In the pilot study, this interaction task was referred to as one of “conflicts,” and the decision was made to use a milder descriptor in the current study due to difficulty mothers and adolescents had in labeling their experiences as conflicts. Eight prompt cards were provided to the dyads prior to each interaction task, and the order of the prompt cards were randomly assigned among the participants. Dyads were instructed to speak to one another as they would in their own homes and keep their discussion limited to the issues described on the prompt cards. Participants then returned to the original lab space to complete another set of self-report measures. Finally, dyads were compensated $50 for their participation.
Measures

Demographics

Mothers answered demographic questions about themselves and their adolescents. Consistent with the pilot study, the current study used only adolescent age, adolescent sex, and adolescent race were used. In analyses, adolescent age and sex were treated as continuous variables while adolescent race was dummy coded (0 = White, 1 = Non-White).

Adolescent Social Anxiety

Consistent with the pilot study, the SCAS-C and SCAS-P were used in the current study to measure adolescent anxiety symptoms in a variety of domains including generalized anxiety, panic/agoraphobia, social phobia, separation anxiety, obsessive-compulsive disorder, and physical injury fears. Both the parent report (i.e., mothers’ reports of adolescents’ social anxiety symptoms) and the self-report (i.e., adolescents’ reports of their own social anxiety symptoms) versions were used. In the current study, Cronbach’s alpha for the social phobia subscale was .76 for the child version and .80 for the parent version.

Maternal Social Anxiety

Maternal social anxiety measures, which were not used in the pilot study, were added in the current study. Two companion measures were used which measure general social interaction anxiety symptoms and performance anxiety symptoms separately, though it is beyond the scope of this study to offer differential predictions for interaction and performance anxiety. Rather, hypotheses for the current study are offered based upon the broad construct of maternal social
anxiety which overlaps most clearly with social interaction anxiety (see the Contextual Hypotheses and Primary Hypotheses sections above).

The Social Interaction Anxiety Scale – Short Form (SIAS-SF; Fergus et al., 2012) is a six-item measure of social interaction anxiety in adults. Responses are provided based on a five-point scale from 0 (not at all) to 4 (extremely) and represent the degree to which the individual experiences anxiety under a variety of social circumstances. Psychometric properties of the SIAS-SF have been demonstrated to be adequate and comparable to those of the full-length measure in previous research (Cronbach’s alpha = .88; Le Blanc et al., 2014; Fergus et al., 2014). In the current study, Cronbach’s alpha for the SIAS-SF was .82.

The Social Phobia Scale – Short Form (SPS-SF; Fergus et al., 2012) is a six-item measure of performance anxiety in adults. Responses are provided based on a five-point scale from 0 (not at all) to 4 (extremely) and represent the degree to which the individual experiences anxiety under a variety of social performative circumstances. Psychometric properties of the SPS-SF have been demonstrated to be adequate and comparable to those of the full-length measure in previous research (Cronbach’s alpha = .87; Le Blanc et al., 2014; Fergus et al., 2014). In the current study, Cronbach’s alpha for the SPS-SF was .74.

Maternal Parenting Behaviors

Consistent with the pilot study, the two-factor solution of the Allen coding system was used to examine the parenting behaviors of mothers during the conflict discussion interaction task (Allen et al., 2003; Samuolis et al., 2006). Of note, all coders, including the two coders used in the current study and the expert coder who trained them, are White. The Allen coding system was applied to video recorded interactions between a mother and her adolescent. See Procedure
section above for more detailed information. No researchers were present during discussion. To code the discussions, two graduate students were trained by a coder with years of experience using the Allen coding system. The students first read the coding manual and applied it to training videos that had already been coded. Then, these students met with the trained coder to discuss both general and specific questions and resolve disagreements. When the trainer felt adequate progress had been made, the coders began applying the system to participant dyads. One coder coded 22 dyads independently, the other coder coded 23 dyads independently, and both coders coded an additional 14 dyads for reliability. To test interrater reliability, an ICC estimate for the maternal UAR variable was calculated using the Statistical Package for the Social Sciences (SPSS) Version 27 based on a single-rating, absolute-agreement, two-way mixed effects model. The ICC fell within the moderate range at .70 (Koo and Li, 2016).

Results

To maximize sample size for each analysis, pairwise deletion was used, resulting in different sample sizes between analyses. Two-tailed significance tests were used and alpha was set to .05. All analyses were conducted using IBM SPSS version 27. Correlations were conducted using bootstrapping with 5000 iterations. Tests of indirect effects were conducted using Hayes’s (2013) PROCESS macro with bootstrapping with 5000 iterations to address concerns about non-normal distributions (Preacher & Hayes, 2008).

Table 2 presents means, standard deviations, and correlations among adolescent demographic variables and adolescent anxiety variables. Correlations of adolescent age, adolescent sex, and adolescent ethnicity with adolescent social anxiety symptoms reported by
Table 2

Pearson Correlations Among Adolescent Demographic and Anxiety Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Adolescent Age</td>
<td>64</td>
<td>12.37</td>
<td>0.98</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>2. Adolescent Sex</td>
<td>64</td>
<td>0.64</td>
<td>0.48</td>
<td>.05</td>
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<td></td>
<td></td>
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<tr>
<td>3. Adolescent Ethnicity</td>
<td>64</td>
<td>0.47</td>
<td>0.50</td>
<td>.15</td>
<td>-.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Adolescent Social Anxiety – Mother Report</td>
<td>64</td>
<td>5.36</td>
<td>2.91</td>
<td>.21</td>
<td>.14</td>
<td>-.18</td>
<td></td>
</tr>
<tr>
<td>5. Adolescent Social Anxiety – Self-Report</td>
<td>64</td>
<td>7.02</td>
<td>3.65</td>
<td>.30*</td>
<td>.20</td>
<td>-.13</td>
<td>.27*</td>
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</tbody>
</table>

*Note. Adolescent Sex coded as female = 0, male = 1. Adolescent Ethnicity coded as white = 0, non-white = 1. *p < .05.
both the adolescent’s mother and the adolescent themselves were examined to determine whether or not their influence would need to be controlled for in further analyses. Adolescent age was significantly negatively correlated with adolescent-reported adolescent social anxiety symptoms \((r = .30, p = .02)\). No other correlations of these demographic variables with the main study variables were significant. Thus, adolescent age was included as a covariate in PROCESS analyses.

**Contextual Hypotheses**

Table 3 presents means, standard deviations, and correlations among the main study variables. Hypothesis 1a was not supported, as mothers’ UAR behaviors were neither positively nor significantly correlated adolescents’ self-report of their social anxiety symptoms \((r = -.01, p = .93)\). Hypothesis 1b was not supported, as mothers’ UAR behavior was neither positively nor significantly correlated with mothers’ self-report of their social interaction anxiety symptoms \((r = -.05, p = .70)\) and was positively, though not significantly, correlated with mothers’ self-report of their performance anxiety symptoms \((r = .06, p = .67)\). Further, Hypothesis 2 was not supported; adolescents’ self-report of their own social anxiety symptoms was positively, though not significantly, correlated with mothers’ self-report of their own social anxiety symptoms for both social interaction anxiety \((r = .14, p = .29)\) and performance anxiety \((r = .08, p = .54)\).

**Primary Hypotheses**

Results of two PROCESS analyses testing the five primary hypotheses can be found in Figure 5 (analysis including mother social interaction anxiety symptoms) and Figure 6 (analysis
Table 3

Pearson Correlations Among Key Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tbody>
<tr>
<td>1. Mother Social Interaction Anxiety</td>
<td>64</td>
<td>5.42</td>
<td>4.00</td>
<td>-</td>
<td>.75**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Mother Performance Anxiety</td>
<td>64</td>
<td>5.05</td>
<td>3.72</td>
<td>.75**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Adolescent Social Anxiety – Mother Report</td>
<td>64</td>
<td>5.36</td>
<td>2.91</td>
<td>.21</td>
<td>.14</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Mother Observed UAR Behaviors</td>
<td>59</td>
<td>.21</td>
<td>.25</td>
<td>-.05</td>
<td>.06</td>
<td>-.14</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Adolescent Social Anxiety – Self-Report</td>
<td>64</td>
<td>7.02</td>
<td>3.65</td>
<td>.14</td>
<td>.08</td>
<td>.27*</td>
<td>-.01</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>6. Mother Observed UA Behaviors</td>
<td>59</td>
<td>.19</td>
<td>.24</td>
<td>.09</td>
<td>.23</td>
<td>.10</td>
<td>.67***</td>
<td>.06</td>
<td>-</td>
</tr>
<tr>
<td>7. Mother Observed UR Behaviors</td>
<td>59</td>
<td>.24</td>
<td>.47</td>
<td>-.14</td>
<td>-.10</td>
<td>-.27*</td>
<td>.82***</td>
<td>-.06</td>
<td>.13</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001.
Figure 5. Results Using Mother Social Interaction Anxiety as Independent Variable in PROCESS Model 6.

Total indirect effect of mother social interaction anxiety on adolescent self-reported social anxiety 95% CI [-.07, .15]
Indirect effect of mother social interaction anxiety on adolescent self-reported social anxiety through mother-reported adolescent social anxiety 95% CI [-.07, .15]
Indirect effect of mother social interaction anxiety on adolescent self-reported social anxiety through mother’s UAR behaviors 95% CI [-.04, .03]
Indirect effect of mother social interaction anxiety on adolescent self-reported social anxiety through mother-reported adolescent social anxiety and mother’s UAR behaviors 95% CI [-.02, .02]

Note. N = 59. 95% confidence intervals reported in brackets following the point estimate for each coefficient. Adolescent age included as a covariate.
Figure 6. Results Using Mother Performance Anxiety as Independent Variable in PROCESS Model 6.

Total indirect effect of mother performance anxiety on adolescent self-reported social anxiety 95% CI [-.06, .16]
Indirect effect of mother performance anxiety on adolescent self-reported social anxiety through mother-reported adolescent social anxiety 95% CI [-.04, .15]
Indirect effect of mother performance anxiety on adolescent self-reported social anxiety through mother’s UAR behaviors 95% CI [-.06, .06]
Indirect effect of mother performance anxiety on adolescent self-reported social anxiety through mother-reported adolescent social anxiety and mother’s UAR behaviors 95% CI [-.02, .01]

Note. N = 59. 95% confidence intervals reported in brackets following the point estimate for each coefficient. Adolescent age included as a covariate.
including mother performance anxiety symptoms). In the first PROCESS analysis, mother-reported adolescent social anxiety symptoms (M1) and maternal UAR behaviors (M2) were treated as mediators between mother social interaction anxiety (X) and adolescent self-reported social anxiety symptoms (Y) using Model 6, and adolescent age was included as a covariate. The total indirect effect of mother social interaction anxiety symptoms was not significant ($b = .04, 95\% \text{ CI} [-.07, .15]$). However, Hypothesis 1 was supported, as mothers’ ratings of their own social interaction anxiety symptoms positively and significantly predicted mothers’ ratings of their adolescent’s social anxiety symptoms ($b = .23, 95\% \text{ CI} [.04, .42]$). Hypothesis 2 was not supported, as mothers’ ratings of their own social interaction anxiety did not positively or significantly predict adolescents’ ratings of their own social anxiety symptoms through mothers’ ratings of their adolescents’ social anxiety symptoms and mothers’ observed UAR behaviors ($b = -.00, 95\% \text{ CI} [-.02, .02]$). Hypothesis 3 was not supported, as mothers’ ratings of their own social interaction anxiety symptoms positively, but not significantly, predicted adolescents’ reports of their own social anxiety symptoms through mothers’ ratings of their adolescents’ social anxiety symptoms ($b = .04, 95\% \text{ CI} [-.07, .15]$). Hypothesis 4 was not supported, as mothers’ ratings of their own social interaction anxiety symptoms did not positively or significantly predict adolescents’ reports of their own social anxiety symptoms through mothers’ observed UAR behaviors ($b = -.00, 95\% \text{ CI} [-.04, .03]$). Hypothesis 5 was not supported; mothers’ ratings of their own social interaction anxiety symptoms positively but not significantly predicted adolescents’ reports of their own social anxiety symptoms ($b = .22, 95\% \text{ CI} [-.02, .45]$).

In the second PROCESS analysis, mother-reported adolescent social anxiety symptoms (M1) and maternal UAR behaviors (M2) were treated as mediators between mother performance anxiety (X) and adolescent self-reported social anxiety symptoms (Y), also using Model 6, with
adolescent sex again included as a covariate. No significant findings emerged from this analysis, including the total indirect effect of mother performance anxiety on adolescent self-reported social anxiety symptoms ($b = .04, 95\% \text{ CI } [-.06, .16]$). Specifically, Hypothesis 1 was not supported, as mothers’ ratings of their own performance anxiety symptoms positively, but not significantly, predicted mothers’ ratings of their adolescent’s social anxiety symptoms ($b = .19, 95\% \text{ CI } [-.03, .40]$). Hypothesis 2 was not supported, as mothers’ ratings of their own performance anxiety did not positively or significantly predict adolescents’ ratings of their own social anxiety symptoms through mothers’ ratings of their adolescents’ social anxiety symptoms and mothers’ observed UAR behaviors ($b = -.00, 95\% \text{ CI } [-.02, .01]$). Hypothesis 3 was not supported, as mothers’ ratings of their own performance anxiety symptoms positively, but not significantly, predicted adolescents’ reports of their own social anxiety symptoms through mothers’ ratings of their adolescents’ social anxiety symptoms ($b = .04, 95\% \text{ CI } [-.04, .15]$). Hypothesis 4 was not supported, as mothers’ ratings of their own performance anxiety symptoms positively, but not significantly, predicted adolescents’ reports of their own social anxiety symptoms through mothers’ observed UAR behaviors ($b = .00, 95\% \text{ CI } [-.06 , .06]$). Hypothesis 5 was not supported, as mothers’ ratings of their own performance anxiety symptoms positively, but not significantly, predicted adolescents’ reports of their own social anxiety symptoms ($b = .12, 95\% \text{ CI } [-.15, .39]$). Considering the results of both PROCESS analyses together, the associations found in the pilot study were much larger than those found in this sample.

**Follow-Up Analyses**

In order to investigate potential statistical explanations for the failure to replicate findings from the pilot study, independent samples $t$-tests were conducted to compare the means of
adolescent social anxiety symptoms and the means of maternal UAR behaviors in the pilot study and the current study. No significant differences emerged between the mean levels of adolescents’ ratings of their own social anxiety symptoms ($t(113) = -1.36, p = .18$; pilot study $M = 6.14, SD = 3.29$; current study $M = 7.02, SD = 3.65$). However, the mean of mothers’ ratings of their adolescents’ social anxiety symptoms were significantly, though slightly, higher in the current study than in the pilot study ($t(114) = -2.00, p = .05$; pilot study $M = 4.35, SD = 2.59$; current study $M = 5.36, SD = 2.91$). Additionally, the mean of maternal UAR behaviors was significantly lower in the current study than in the pilot study ($t(108) = 10.81, p < .001$; pilot study $M = 3.40, SD = 2.10$; current study $M = 0.21, SD = 0.25$).

The failure to replicate pilot study findings seems to be due, in part, to the restricted variability of maternal UAR behaviors in the current sample ($s^2 = .06$). This index is a component of the two-factor solution of the Allen coding system and can be further subdivided into two components of the three-factor solution: the undermining autonomy (UA) and undermining relatedness (UR) indices. Five specific behavioral codes comprise the UAR or UA and UR indices. In the three-factor solution, codes D, E, and F constitute the UA index, and codes J and K constitute the UR index. In the two-factor solution, all five of these codes constitute the UAR index. Examination of these five codes revealed limited variance as well. Particularly, of the 59 mothers in the sample, only 6 mothers had scores on the D and E codes which were above 0, and only 8 mothers had a score on the K code which was above 0. As such, the limited variance of the D and E codes in this sample contributed to the limited variance of the UA index, and the limited variance of the K code in this sample contributed to the limited variance of the UR index. The limited variance on all three of these three codes (D, E, and K) contributed to the limited variance of the UAR index which, in turn, undermined the power of
this variable to produce meaningful results in this sample. The effect of the limited variance in
the K code is further demonstrated by the correlation between mothers’ reports of their
adolescent’s social anxiety symptoms and the UR factor; the disproportionate number of mothers
with a 0 for the K code resulted not in a non-significant positive correlation but a significant
negative one ($r = -.27, p = .04$). Additionally, the correlation between the UR factor and
adolescent reports of their own social anxiety symptoms was also negative, though
nonsignificant. It should also be noted that the reliability of the UR index in the current sample
was low, with an ICC of .28. Though the reliability of the UA index was acceptable at .91, the
overall reliability of the UAR factor was .70.

A post-hoc power analysis was also conducted using G*Power version 3.1.9.6 (Faul et
al., 2007) to estimate the power obtained in the current study for the path analysis predicting
adolescent self-reported social anxiety symptoms based upon mother social anxiety symptoms,
mother-reported adolescent social anxiety symptoms, and maternal UAR behaviors. This
analysis estimated that the power to detect a moderately sized effect ($f^2 = 0.15$) at a significance
criterion of $\alpha = .05$ with a sample of $N = 64$ was 0.71 for this path analysis. In other words, the
likelihood of detecting a moderate effect in this path analysis if one existed in the current study’s
sample was 71%. Compared to the standard .80 or 80% cutoff, the current study was
underpowered to detect an effect. When an a priori power analysis was conducted to estimate the
sample size needed to detect a moderately sized effect $f^2 = 0.15$) at a significance criterion of $\alpha$
= .05 for the same, three-predictor path analysis, it revealed a necessary sample size of $N = 90$. 
CHAPTER 4
DISCUSSION

This study sought to examine potential paths through which social anxiety may be transmitted from mother to child using a model that included indirect effects. A pilot study uncovered an interesting observation such that more maternal UAR behavior predicted higher adolescent-reported social anxiety symptoms, an observation consistent with results of self-report studies and with prior theory. The current study attempted to replicate and extend this finding by investigating intervening factors that may shed light on the process by which social anxiety symptoms are transmitted between mother and adolescent. Specifically, a model from mothers’ ratings of their own social anxiety (measured by social interaction and performance anxiety questionnaires) symptoms to adolescent ratings of their own social anxiety symptoms through mothers’ ratings of their adolescent’s social anxiety symptoms and maternal UAR behavior was used. This investigation used direct observation of mothers’ behavior rather than self- or adolescent-report measures in an effort to answer the call for such methodology in the literature. Hypotheses included positive correlations among mother-rated adolescent social anxiety symptoms, mothers’ UAR behaviors, and adolescent self-reported social anxiety symptoms. Moreover, it was hypothesized that mothers’ ratings of their own social anxiety symptoms would significantly positively predict adolescents’ reports of their own social anxiety symptoms through mothers’ ratings of their adolescent’s social anxiety symptoms and mothers’ observed UAR behaviors. However, hypotheses were broadly unsupported. The following
sections will discuss details of the results of the current study, commenting specifically on explanations for its failure to replicate, other limitations, directions for future research in this area, and implications for clinical practice.

Overall, it appears that the current study’s failure to replicate is partly due to limited variance in the maternal UAR behaviors variable. The variance of maternal UAR behaviors was only .06 in the current sample, leaving analyses involving this variable severely underpowered to detect an effect. That is, the mothers in this sample showed surprisingly low levels of hostile or devaluing statements toward the adolescent, restricting the ability of this study to meaningfully investigate this pathway through which social anxiety may be transmitted from mother to adolescent. In comparison, the variance of maternal UAR behaviors in the pilot study sample was 4.39. Further, Guo and Slesnick (2018) reported standard deviations of 1.53 for maternal UA and 1.07 for maternal UR in their study of mothers diagnosed with substance use disorders, making the respective variances of these indices approximately 2.34 and 1.14. Contrary to hypotheses and prior evidence (i.e., pilot study results) correlations between UAR and mother social interaction or performance anxiety were nonsignificant. Nonsignificant findings also emerged from analyses directly predicting maternal UAR behaviors based upon mother performance anxiety, mother interaction anxiety, and mother-reported adolescent social anxiety.

The power of tests of associations among other study variables was not affected by the limited variance in maternal UAR behaviors. Specifically, correlations between adolescent-rated social anxiety symptoms and mother social interaction or performance anxiety were nonsignificant but unaffected by maternal UAR. The correlations observed among these variables in the current study, though nonsignificant, are in the predicted (positive) direction, meaning that higher levels of mother symptoms were associated with higher levels of both
mother-reported and self-reported adolescent symptoms. This directional observation is consistent with the conclusions of prior literature, meaning that the discrepancy between the prior literature and this study’s results lies in effect size; the correlations between adolescent and mother social anxiety symptoms were smaller in the current sample (r = .14 and r = .08 for mother interaction and performance anxiety, respectively) than is typically observed for these variables (e.g., r = .40; Burstein et al., 2010). One potential explanation for this difference in effect size may be sampling error. In addition, mothers’ perceptions of adolescent social anxiety also did not predict adolescent self-reported social anxiety. This finding may be evidence of the informant discrepancy often observed between parent and child reports of child anxiety symptoms, meaning that mothers and children often disagree when reporting on child symptoms. Further, mother performance anxiety did not significantly predict mothers’ perceptions of adolescent social anxiety as hypothesized. The specificity of measurement of mothers’ performance anxiety symptoms compared to the broader measurement of their perceptions of adolescent social anxiety symptoms including both performance and interaction anxieties may explain the weak association among these variables. That is, mothers with high levels of performance anxiety, given the specificity of symptoms to performance situations, may not be impacted such that their view of their adolescents’ social anxiety symptoms in both interaction and performance situations is affected. Consistent with this potential interpretation, mother interaction anxiety was significantly associated with the way that mothers perceived their adolescents’ social anxiety (defined more broadly) in the current study. Though the measurement of mothers’ symptoms was narrower while that of adolescents’ symptoms was broader, the strength of the prediction held nonetheless. This finding may indicate that social interaction anxiety symptoms have a particularly salient influence on maternal perception of social anxiety
symptoms broadly. Interaction anxiety might share more of the common variance with social anxiety than does performance anxiety, meaning that it is more central to the construct of social anxiety than is performance anxiety (Hook & Valentiner, 2002).

Other Limitations

In addition to the restricted variance of one of the key variables of interest in this study, a few other limitations should be noted. First, the small sample size limited the power to detect effects. Obtaining large samples sizes in observational studies is often challenging due to the more intensive time requirements for both researchers and participants when compared to self-report designs. The need to travel to the lab in-person was another barrier potentially impacting participants’ willingness to take part in this study. Moreover, in the case of this study specifically, the onset of the COVID-19 pandemic led to the discontinuation of data collection sooner than anticipated. Second, the cross-sectional design precludes an ability to draw firm conclusions about the direction of effects. For example, the relation between mothers’ social interaction anxiety and mothers’ perceptions of their adolescent’s social anxiety symptoms fit the proposed model suggesting that the former positively predicted the latter. However, the fact that data for both variables were collected simultaneously necessitates an acknowledgement of the possibility of other explanations for this association (Maxwell, Cole, & Mitchell, 2011). Third, the data collection methods used in this study may have impacted both self-report and observational data. The paper and pencil self-report methods which were used to evaluate the social anxiety symptoms of participants in this study may have been impacted by social desirability effects such that symptoms were underreported. Similarly, unconcealed observation of the mother-child dyads may have led to either social desirability effects or evaluation
apprehension, thus leading participants to behave differently during the study than they might when they are not being recorded. Fourth, both coders in the current study as well as the expert coder who trained them were White. The perspective of White coders in evaluating the interaction between mothers and/or adolescents of other races may have impacted how behaviors were interpreted and therefore coded in the current study.

Two key changes to study procedures from the pilot study to the current study should be noted for their potential influence on the current study’s failure to replicate. In the pilot study, the interaction task for which UAR behaviors were coded occurred before Cyberball, and maternal UAR behaviors significantly predicted adolescent-reported social anxiety symptoms. In the current study, the procedure was changed such that mothers experienced their adolescents being excluded by peers in games of Cyberball prior to the interaction task for which UAR behaviors were coded, and no significant result was found. Consistent with the explanation that the limited variance of the maternal UAR variable in the current study underlies many of the nonsignificant results, it is possible that seeing their adolescents being socially excluded in Cyberball primed mothers to behave more gently, or use less UAR behaviors than they may have otherwise, during the interaction task. In both studies, the interaction tasks were focused on conflicts or disagreements between mothers and adolescents regarding adolescent social relationships. However, after pilot study participants had difficulty identifying real-life differences in opinion regarding peer relationships as “conflicts” to use in conversation for the interaction task, key changes were made to the protocol in the current study. Rather than use real-life conflicts identified by mothers and adolescents, dyads were asked to discuss “disagreements” about adolescent peer relationships as if they were occurring between them. Moving from this real-life discussion of conflicts to a hypothetical discussion of disagreements may have meaningfully
attenuated the intensity of the interactions between mothers and adolescents such that UAR behaviors were not elicited.

Future Directions and Implications

This study’s null results should not be taken as evidence disconfirming the conclusions of prior work demonstrating the deleterious effects of parenting behaviors which invalidate a child’s emotional experience. Rather, future studies should continue to use observational methods to investigate the role that parenting behavior might play in the transmission of anxiety symptomatology from parent to child, as evolution in methodology is needed to move this field of research forward. Moreover, future studies should consider employing the Allen coding system to examine interactions between parents and children for these purposes given its established and validated status, a rarity in the limited observational studies in the literature currently. In addition, guidelines provided to participants for interaction tasks in future studies should be refined so as to maximize the likelihood of conversation during which emotionally-invalidating behaviors might emerge.

Though the current study’s results were not significant, further research with improved methodology may have important implications for prevention and intervention efforts, a few examples of which are worth mentioning here. If engagement in UAR behaviors by parents is found to significantly impact the etiology or maintenance of anxiety symptoms in children, parent training programs could be developed to provide guidance on how to implement more positive parenting practices for children across development. Potential targets of such interventions may be considering the perspective of the child from a developmental lens, practicing emotion regulation strategies during parent-child conflict, and restructuring statements
to express validation of emotions and communicate relevant parenting messages. If further study reveals that emotionally-invalidating parenting such as UAR is rooted, at least in part, in parents’ own social anxiety symptoms, interventions to treat parent social anxiety symptoms or designed to minimize the impact of parent social anxiety symptoms on parenting behavior could be designed to help to address the transmission of social anxiety.

Conclusion

Though the current study did not replicate pilot study findings or demonstrate maternal UAR behaviors as a link between mother and adolescent social anxiety, this topic is still promising for future research with practical implications for the treatment of social anxiety. Further study should continue to employ observational methods for assessing emotionally-invalidating maternal behaviors. Sample size and characteristics should also be at the forefront when planning future investigation of these topics to ensure that adequate power to detect effects is present and that a sample with adequate variance is recruited.
REFERENCES


APPENDIX A

SPENCE CHILDREN’S ANXIETY SCALES
Spence Children’s Anxiety Scale – Child Version

Please put a circle around the word that shows how often each of these things happen to you. There are no right or wrong answers.

1. I worry about things.
   Never    Sometimes    Often    Always
2. I am scared of the dark.
   Never    Sometimes    Often    Always
3. When I have a problem, I get a funny feeling in my stomach.
   Never    Sometimes    Often    Always
4. I feel afraid.
   Never    Sometimes    Often    Always
5. I would feel afraid of being on my own at home.
   Never    Sometimes    Often    Always
6. I feel scared when I have to take a test.
   Never    Sometimes    Often    Always
7. I feel afraid if I have to use public toilets or bathrooms.
   Never    Sometimes    Often    Always
8. I worry about being away from my parents.
   Never    Sometimes    Often    Always
9. I feel afraid that I will make a fool of myself in front of people.
   Never    Sometimes    Often    Always
10. I worry that I will do badly at my schoolwork.
    Never    Sometimes    Often    Always
11. I am popular amongst other kids my own age.
    Never    Sometimes    Often    Always
12. I worry that something awful will happen to someone in my family.
    Never    Sometimes    Often    Always
13. I suddenly feel as if I can’t breathe when there is no reason for this.
    Never    Sometimes    Often    Always
14. I have to keep checking that I have done things right (like the switch is off, or the door is locked).
    Never    Sometimes    Often    Always
15. I feel scared if I have to sleep on my own.
    Never    Sometimes    Often    Always
16. I have trouble going to school in the mornings because I feel nervous or afraid.
    Never    Sometimes    Often    Always
17. I am good at sports.
    Never    Sometimes    Often    Always
18. I am scared of dogs.
   Never  Sometimes  Often  Always
19. I can’t seem to get bad or silly thoughts out of my head.
   Never  Sometimes  Often  Always
20. When I have a problem, my heart beats really fast.
   Never  Sometimes  Often  Always
21. I suddenly start to tremble or shake when there is no reason for this.
   Never  Sometimes  Often  Always
22. I worry that something bad will happen to me.
   Never  Sometimes  Often  Always
23. I am scared of going to the doctors or dentists.
   Never  Sometimes  Often  Always
24. When I have a problem, I feel shaky.
   Never  Sometimes  Often  Always
25. I am scared of being in high places or lifts (elevators).
   Never  Sometimes  Often  Always
26. I am a good person.
   Never  Sometimes  Often  Always
27. I have to think of special thoughts to stop bad things from happening (like numbers or words).
   Never  Sometimes  Often  Always
28. I feel scared if I have to travel in the car, or on a bus or train.
   Never  Sometimes  Often  Always
29. I worry what other people think of me.
   Never  Sometimes  Often  Always
30. I am afraid of being in crowded places (like shopping centres, the movies, buses, busy playgrounds).
   Never  Sometimes  Often  Always
31. I feel happy.
   Never  Sometimes  Often  Always
32. All of a sudden I feel really scared for no reason at all.
   Never  Sometimes  Often  Always
33. I am scared of insects or spiders.
   Never  Sometimes  Often  Always
34. I suddenly become dizzy or faint when there is no reason for this.
   Never  Sometimes  Often  Always
35. I feel afraid if I have to talk in front of my class.
   Never  Sometimes  Often  Always
36. My heart suddenly starts to beat too quickly for no reason.
37. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of.
   Never          Sometimes          Often          Always

38. I like myself.
   Never          Sometimes          Often          Always

39. I am afraid of being in small closed places, like tunnels or small rooms.
   Never          Sometimes          Often          Always

40. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order).
   Never          Sometimes          Often          Always

41. I get bothered by bad or silly thoughts or pictures in my mind.
   Never          Sometimes          Often          Always

42. I have to do some things in just the right way to stop bad things happening.
   Never          Sometimes          Often          Always

43. I am proud of my school work.
   Never          Sometimes          Often          Always

44. I would feel scared if I had to stay away from home overnight.
   Never          Sometimes          Often          Always

45. Is there something else that you are really afraid of?
   Yes            No

Please write down what it is
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

How often are you afraid of this thing?
   Never          Sometimes          Often          Always
Spence Children’s Anxiety Scale – Parent Version

Below is a list of items that describe children. For each item please circle the response that best describes your child. Please answer all the items.

1. My child worries about things.
   Never                       Sometimes                       Often                       Always
2. My child is scared of the dark.
   Never                       Sometimes                       Often                       Always
3. When my child has a problem, (s)he complains of having a funny feeling in his/her stomach.
   Never                       Sometimes                       Often                       Always
   Never                       Sometimes                       Often                       Always
5. My child would feel afraid of being on his/her own at home.
   Never                       Sometimes                       Often                       Always
6. My child is scared when (s)he has to take a test.
   Never                       Sometimes                       Often                       Always
7. My child is afraid when (s)he has to use public toilets or bathrooms.
   Never                       Sometimes                       Often                       Always
8. My child worries about being away from us/me.
   Never                       Sometimes                       Often                       Always
9. My child feels afraid that (s)he will make a fool of him/herself in front of people.
   Never                       Sometimes                       Often                       Always
10. My child worries that (s)he will do badly at school.
    Never                       Sometimes                       Often                       Always
11. My child worries that something awful will happen to someone in our family.
    Never                       Sometimes                       Often                       Always
12. My child complains of suddenly feeling as if (s)he can’t breathe when there is no reason for this.
    Never                       Sometimes                       Often                       Always
13. My child has to keep checking that (s)he has done things right (like the switch is off, or the door is locked).
    Never                       Sometimes                       Often                       Always
14. My child is scared if (s)he has to sleep on his/her own.
    Never                       Sometimes                       Often                       Always
15. My child has trouble going to school in the mornings because (s)he feels nervous or afraid.
    Never                       Sometimes                       Often                       Always
16. My child is scared of dogs.
Never  Sometimes  Often  Always
17. My child can’t seem to get bad or silly thoughts out of his/her head.
Never  Sometimes  Often  Always
18. When my child has a problem, (s)he complains of his/her heart beating really fast.
Never  Sometimes  Often  Always
19. My child suddenly starts to tremble or shake when there is no reason for this.
Never  Sometimes  Often  Always
20. My child worries that something bad will happen to him/her.
Never  Sometimes  Often  Always
21. My child is scared of going to the doctor or dentist.
Never  Sometimes  Often  Always
22. When my child has a problem, (s)he feels shaky.
Never  Sometimes  Often  Always
23. My child is scared of heights (e.g., being at the top of a cliff).
Never  Sometimes  Often  Always
24. My child has to think special thoughts (like numbers or words) to stop bad things from happening.
Never  Sometimes  Often  Always
25. My child feels scared if (s)he has to travel in the car, or on a bus or train.
Never  Sometimes  Often  Always
26. My child worries what other people think of him/her.
Never  Sometimes  Often  Always
27. My child is afraid of being in crowded places (like shopping centres, the movies, buses, busy playgrounds).
Never  Sometimes  Often  Always
28. All of a sudden my child feels really scared for no reason at all.
Never  Sometimes  Often  Always
29. My child is scared of insects or spiders.
Never  Sometimes  Often  Always
30. My child complains of suddenly becoming dizzy or faint when there is no reason for this.
Never  Sometimes  Often  Always
31. My child feels afraid when (s)he has to talk in front of the class.
Never  Sometimes  Often  Always
32. My child complains of his/her heart suddenly starting to beat too quickly for no reason.
Never  Sometimes  Often  Always
33. My child worries that (s)he will suddenly get a scared feeling when there is nothing to be afraid of.
Never  Sometimes  Often  Always
34. My child is afraid of being in small closed places, like tunnels or small rooms.
<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.</td>
<td>My child has to do some things over and over again (like washing his/her hands, cleaning or putting things in a certain order).</td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
</tr>
<tr>
<td>36.</td>
<td>My child gets bothered by bad or silly thoughts or pictures in his/her head.</td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
</tr>
<tr>
<td>37.</td>
<td>My child has to do certain things in just the right way to stop bad things happening.</td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
</tr>
<tr>
<td>38.</td>
<td>My child would feel scared if (s)he had to stay away from home overnight.</td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
</tr>
<tr>
<td>39.</td>
<td>Is there anything else that your child is really afraid of?</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Please write down what it is, and fill out how often (s)he is afraid of this thing:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
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<tr>
<td></td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
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<tr>
<td></td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
<td>Always</td>
</tr>
</tbody>
</table>
APPENDIX B

SOCIAL INTERACTION ANXIETY SCALE – SHORT FORM
Social Interaction Anxiety Scale – Short Form (SIAS-SF)

Instructions: Indicate the degree to which you feel the statement is characteristic or true of you.

1. I become tense if I have to talk about myself or my feelings.
   Not at all  Slightly  Moderately  Very  Extremely

2. I tense-up if I meet an acquaintance in the street.
   Not at all  Slightly  Moderately  Very  Extremely

3. I feel tense if I am alone with just one other person.
   Not at all  Slightly  Moderately  Very  Extremely

4. I am nervous mixing with people I don’t know well.
   Not at all  Slightly  Moderately  Very  Extremely

5. When mixing in a group I find myself worrying I will be ignored.
   Not at all  Slightly  Moderately  Very  Extremely

6. I am tense mixing in a group.
   Not at all  Slightly  Moderately  Very  Extremely
Social Phobia Scale – Short Form (SPS-SF)

**Instructions:** Indicate the degree to which you feel the statement is characteristic or true of you.

1. I get nervous that people are staring at me as I walk down the street.
   - Not at all
   - Slightly
   - Moderately
   - Very
   - Extremely

2. I fear I may blush when I am with others.
   - Not at all
   - Slightly
   - Moderately
   - Very
   - Extremely

3. I would get tense if I had to sit facing other people on a bus or a train.
   - Not at all
   - Slightly
   - Moderately
   - Very
   - Extremely

4. It would make me feel self-conscious to eat in front of a stranger at a restaurant.
   - Not at all
   - Slightly
   - Moderately
   - Very
   - Extremely

5. I get tense when I speak in front of other people.
   - Not at all
   - Slightly
   - Moderately
   - Very
   - Extremely

6. I worry my head will shake or nod in front of others.
   - Not at all
   - Slightly
   - Moderately
   - Very
   - Extremely
APPENDIX C

AUTONOMY AND RELATEDNESS CODING SYSTEM
Autonomy and Relatedness Coding System: 
Undermining Autonomous Relatedness (UAR) Index

This reference contains information adapted from the Autonomy and Relatedness Coding System Manual, Version 2.14 and should not be used in place of the full manual. The full manual may be requested from Dr. Joseph P. Allen, Hugh Kelly Professor of Psychology at the University of Virginia in Charlottesville, Virginia, USA.

Code D: Placating/Recanting

“This code includes behaviors which inhibit productive discussion of an issue by saying a statement that you don't mean (i.e., pretending to agree/change your position) in order to placate the other person and/or de-escalate the argument.

Scores in this category are derived by considering two dimensions--1) the degree to which the coder thinks the speaker is (internally) convinced vs. unconvinced by the other person's arguments and 2) the amount of specificity vs. ambiguity that exists regarding the speaker's commitment to a new position...If the person recants/placates on the same issue more than once, code it once at the highest level instance.” Individual statements are coded from 0 to 4. Guidelines are provided for combining the convinced vs. unconvinced and specificity vs. ambiguity dimensions for each statement into a quantitative score. The manual notes that, for minor points, codes should be assigned based on these guidelines and then cut in half. Overall scores for Code D are determined using a unique algorithm and range from 0 to 4 in 0.5 point intervals.

Code E: Overpersonalizing/Blurring the boundary between the person and their position

This category refers to statements which “treat the disagreement as being in some respect a "fault" or feature of the person's disagreeing rather than a difference in ideas and reasons. By not separating the person from the disagreement, it becomes difficult to discuss differences reasonably--it is no longer enough for someone to come to see another person's position, rather someone must give in in an important way. Who will give in becomes more important than exploring why a person took the position they took.” Potential ways in which statements may be counted under this code include enlisting an outside person’s opinion or behavior; forcing a role upon/characterizing the other person (such as mimicking them, presenting hypothetical situations, forcing a role upon them, or falsely characterizing them); attacking the other person rather than addressing what they say; asserting one’s own limits as definitive by pleading helpless or invoking guilt; or using oneself or another person as an example or equating one’s own or others’ views or experiences with reasons for one’s argument. Individual statements are coded from 0 to 4 in 0.5 point intervals. Overall scores for Code E are determined using a unique algorithm and range from 0 to 4 in 0.5 point intervals.
Code F: Pressuring others to agree

This category refers to “…statements that implicitly or explicitly pressure [the other person] to change their mind by making it uncomfortable for them not to do so.

The determining feature of pressuring is whether [one person’s] statement is likely to make it uncomfortable for [the other person] to maintain their position. However, do not confuse a confident, reasoned statement promoting one's own position with pressuring…Pressuring may be done in a variety of ways; both the form/content and style are important to consider…The tone of a pressuring statement usually is sarcastic and/or implies disbelief, implicitly or explicitly suggesting that the other person's position/behavior is invalid/inappropriate…and at the extreme, ridiculous…Pressuring may also be done non-verbally through facial expressions and verbalizations that convey sentiments of impatience, disgust, incredulity/disbelief…Higher scores are reached by combinations of statements throughout the discussion.” Potential ways in which statements may be counted under this code include the use of rhetorical questions; leading questions; sarcasm, impatience, condescension, or incredulity; non-verbal incredulity, frustration, or impatience; statements of ultimate position; direct challenges to the other person’s position; repeating a question or statement two or more times when the desired answer was not given by the other person; acting as if no disagreement exists or assuming that the other person agrees when it is not clear that they do; or tit-for-tat exchanges. Individual statements are coded from 0 to 2.5, though the manual notes that a single statement scoring a 2.5 is fairly rare. Overall scores for Code J are determined using a unique algorithm and range from 0 to 4 in 0.5 point intervals.

Code J: Distracting/Ignoring/Cutting off the other person

“This category refers to actions which ignore or cut off another person. The more statements explicitly communicate a lack of interest in the other’s statements, and/or a lack of willingness to hear what the other is saying, the higher the score for J. In addition to being more distracting, higher level statements are likely to annoy, hurt, irritate or frustrate the other person because they are not being heard…In general, interruptions which occur when both parties start to speak at the same time don't get counted. Don't count interjections--defined as statements which are a) limited to a few words, b) don't interrupt the flow of the other person's speech AND c) don't appear intended as the beginning of a longer statement…Distracting statements that attempt to bring someone who is off topic back onto topic can be scored, depending on the extent to which such statements reflect a lack of caring/sensitivity towards the other person. The underlying core of the J code is that one person is communicating a lack of willingness to listen to the other…” Individual statements are coded from 0 to 4 in 0.5 point intervals. Overall scores for Code J are determined using a unique algorithm and range from 0 to 4 in 0.5 point intervals.
Code K: Hostile/Devaluing statements toward the other person, either explicitly or implicitly

“This category refers to devaluing statements which would be reasonably expected (at least slightly) to leave the other person feeling annoyed, hurt, or worse about themselves. This category includes statements which are rude, hostile, mean, disdainful or devaluing toward the other person or their statements. Anger which does not include any one of the above is NOT scored under this category.

This category includes behaviors which attack the other person. Coders should keep in mind that speakers are disagreeing about important and difficult issues, and that they may often address problems with each other's behavior. To be considered for this scale, a statement must go beyond straightforward criticism of and/or displeasure with the other person to those that are more insulting, pejorative and hurtful of the other person's feelings…Both tone and content are important to consider when scoring.” Individual statements are coded from 0 to 4 in 0.5 point intervals. Overall scores for Code K are determined using a unique algorithm and range from 0 to 4 in 0.5 point intervals.