

The Development of Obsessive Beliefs: The Influence of Parents' Beliefs and Parenting  
Style Characteristics

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## **ABSTRACT**

### **The Development of Obsessive Beliefs: The Influence of Parents' Beliefs and Parenting Style Characteristics**

(Under the direction of Jonathan S. Abramowitz, Ph.D.)

A number of factors, including maladaptive obsessive beliefs, may underlie the development of obsessive compulsive (OC) symptoms. It is unclear, however, how individuals come to adopt such beliefs. This study examined the relationship between parents' obsessive beliefs, parenting style characteristics, and children's obsessive beliefs in a sample of 440 college students, and 254 biological parents. Analysis revealed that parents' obsessive beliefs were unrelated to children's beliefs. Exposure to parenting style characteristics, such as enforcement of rigid rules and overprotective parenting, was associated with increased endorsement of obsessive beliefs. Thus, such parenting characteristics may be risk factors for the development of obsessive beliefs in young adults. With respect to this finding, additional longitudinal research is needed to clarify causal direction. This line of research could have important implications for identifying children at risk of developing OC symptoms, and for early interventions targeted towards parenting style characteristics and family dynamics.

This work is dedicated to my father, Pat, for sharing with me the joy he found in learning and to my dog, Destruktor, for keeping my lap warm during my long hours of writing.

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## **ABBREVIATIONS**

OC	Obsessive Compulsive
OCD	Obsessive Compulsive Disorder
OCCWG	Obsessive Compulsive Cognitions Working Group
OBQ	Obsessive Beliefs Questionnaire
PIRBS	Pathways to Inflated Responsibility Beliefs Scale
PANAS	Positive And Negative Affect Schedule



## THE DEVELOPMENT OF OBSESSIVE BELIEFS: THE INFLUENCE OF PARENTS' BELIEFS AND PARENTING STYLE CHARACTERISTICS

Obsessive Compulsive Disorder (OCD) is an anxiety disorder characterized by the presence of intrusive thoughts, images, and impulses which provoke anxiety (obsessions; e.g., the persistent fear that one is contaminated with “floor germs”) and compulsive behaviors (e.g., hand washing) which are performed to reduce obsessional anxiety, yet are excessive, inappropriate, and time consuming (American Psychiatric Association, 2000). OCD is often crippling and can result in serious functional impairments in domains of living such as work, school, and self-care activities. While laboratory and naturalistic studies support a psychological (cognitive/cognitive-behavioral) model of the *persistence* of obsessions and compulsions, very little research has examined psychological variables that might play a role in the etiology and development of this problem. This study, therefore, aims to address two sets of psychosocial factors hypothesized to play a role in the etiology OCD symptoms: obsessive beliefs, and parenting style characteristics.

### *Contemporary Psychological Models of OCD*

Early explanations for OCD were steeped in the psychodynamic approach and failed to hold up under empirical scrutiny. In the 1950s, conditioning models were adapted to explain obsessive-compulsive behavior (Dollard & Miller, 1950); yet remained unable to account for a number of aspects of the disorder, such as the development of obsessions

(e.g., the lack of traumatic conditioning events). Contemporary cognitive theories of OCD emerged during the 1980s and 1990s largely in response to problems with the earlier models, and are better able to explain the possible origins and thematic variety of obsessions. The basic cognitive model of OCD builds on Beck's (1976) cognitive specificity hypothesis, which proposes that emotions and behaviors such as anxiety and compulsive rituals arise as a consequence of maladaptive thinking patterns. Drawing from this idea, Salkovskis (1985, 1989) formulated a cognitive theory of OCD which begins with the well established finding that almost everyone occasionally experiences unwanted intrusive thoughts and ideas (e.g., an impulse to harm a loved one; Rachman & de Silva, 1978). The model posits that an individual's *interpretation* of these normally occurring intrusions determines whether the intrusion is simply dismissed by the person or whether it escalates into a clinical obsession. For example, interpreting the thought of harming a loved one as an indication that one is a very dangerous person who must be careful around others, will lead to anxiety and preoccupation with the unwanted thought. On the other hand, interpreting this thought as senseless "mental noise" will not lead to any distress.

To further illustrate, consider a woman who recently had a new baby and, while buckling the baby into a car seat, has an intrusive thought about the baby being killed in a car accident. While most parents would dismiss this thought as senseless mental noise, the woman believes the thought is a warning that she is a dangerous driver and should take extra precautions to ensure the safety of her baby. To prevent experiencing this distressing thought again, the woman refuses to drive with her baby in the car, avoids looking at the car seat, compulsively prays, and seeks reassurance from her husband and friends. Even though these behaviors temporarily alleviate her anxiety, they also remind her of the intrusive thought and

result in more frequent and intense intrusions (i.e., the thought becomes an anxiety-provoking obsession). Further, the woman engages in more and more compulsive ritualizing in attempt to neutralize this obsessional anxiety. Cross-sectional (Abramowitz, Whiteside, Lynam, & Kalsy, 2003; Freeston, Ladouceur, Gagnon, & Thibodeau, 1993; Obsessive Compulsive Cognitions Working Group [OCCWG], 2003; Salkovskis et al., 2000; Shafran, Thordarson, & Rachman, 1996), experimental (Rassin, Merckelbach, Muris, & Spaan, 1999), and prospective research (Abramowitz, Khandker, Nelson, Deacon, & Rygwall, 2006; Abramowitz, Nelson, Rygwall, & Khandker, 2007) provide evidence that the presence of dysfunctional beliefs, such as the tendency to equate thoughts and actions (e.g. thought action fusion), serve as a basis for the escalation of normal intrusive thoughts into clinical obsessions.

#### *Maladaptive Beliefs and OC Symptoms*

Research suggests that individuals who develop OC symptoms possess a common set of dysfunctional beliefs, such as those illustrated above, which lead them to systematically misinterpret normally occurring intrusive thoughts as dangerous (Salkovskis, 1985, 1989). Moreover, several specific domains of these “obsessive” beliefs are thought lead to the development of obsessions (OCCWG, 1997, 2003, 2005). These domains include:

- (1) *Overestimation of threat/inflated responsibility.* Individuals with OCD overestimate the probability and costs of negative events and believe they are personally responsible for causing or preventing harm associated with obsessional thoughts (e.g., “It is especially my duty to protect others from harm”).

(2) *Beliefs relating to the importance of and need to control thoughts.* Individuals with OCD believe that intrusive thoughts are very meaningful and imply that an event is likely to occur. They also believe that complete control over intrusions is necessary and possible. (e.g., “If I think about it, it might happen, so I should stop the *bad* thoughts”).

(3) *Perfectionism and intolerance of uncertainty.* Individuals with OCD feel the need for a guarantee of safety and perfection regarding their obsessional concerns. (e.g., “I must know for sure that everything will turn out OK”).

#### *Potential Origins of Obsessive Beliefs*

While the empirical evidence demonstrates that these types of obsessive beliefs play a role in the escalation of normally occurring intrusions into clinical obsessions (e.g., Abramowitz et al., 2007), the origin of these dysfunctional beliefs themselves remains unclear: Why do some people develop these types of maladaptive beliefs while others do not?

Genetic inheritance of a cognitive vulnerability to developing these types of maladaptive beliefs is one possible route of transmission. Genetic studies estimate heritability rates for OCD range from 2.6 to 11.7% for first degree probands (Nesdat, 2000). Until recently, genetics research focused exclusively on measuring heritability of symptoms rather than cognitive vulnerabilities. One recent twin study, however, found that 32% to 40% of the variance in dysfunctional obsessive beliefs is accounted for by genetic factors (Taylor, Afifi, Stein, Asmundson, and Jang, in press). Therefore, heritability contributes substantially to the intergenerational transmission of obsessive beliefs.

Observational learning, or modeling, is another likely agent of transmission. Research indicates that fears, in both animals and humans, can be learned by observing the behaviors and responses of others. For example, in a seminal study, Mineka and colleagues (1984) found that juvenile rhesus monkeys, who had observed their parents responding fearfully to snakes, later responded fearfully to snakes themselves without ever having had a direct conditioning experience. This fear of snakes persisted at three month follow-up and resulted in behavioral avoidance of both live snakes and toy snakes. Mineka and colleagues (1984) concluded that such vicarious fear acquisition happens in both humans and non-human primates, and suggested that parents should not display phobic behavior in front of their children in order to avoid inadvertently transmitting their irrational fears. In the case of obsessive beliefs, it may be impossible for parents to avoid confronting stimuli which provoke fearful responding. For example, a parent who believes that the world is a threatening and dangerous place would likely be unable to avoid modeling fearfulness and avoidance in front of their children because the world itself and everyday living experiences are perceived as threatening stimuli. Therefore, parental modeling of fearful and avoidant behavior is yet another possible mode of intergenerational transmission of obsessive beliefs.

In addition to genetic contributions and observational learning, the ways in which parents intentionally interact with their children (i.e., parenting) likely plays an important role in the transmission of obsessive beliefs. For example, Beck (1976) suggested that early socialization experiences are critical in determining whether or not a person forms attitudes which are conducive to the development of dysfunctional beliefs. More recently, Salkovskis and colleagues (1999) proposed that specific ways in which parents influence the childhood environment might place their children at a higher risk of adopting obsessive beliefs. They

described five “pathways” to the development of certain types of obsessive beliefs; three of which are addressed in the present study.

The first proposed “pathway” to obsessive beliefs emerges from family structures in which overly permissive or negligent parents give their children the burden of being responsible for taking care of the family’s welfare. This heightened responsibility may be communicated implicitly, such as in the case of parents who fail to provide for the basic needs of the child (e.g., food and shelter), or fail to implement rudimentary rules (e.g., rules about bed-times, curfews, etc). Alternately, heightened responsibility may be communicated explicitly, such as in the case of parents who repeatedly blame the child for negative outcomes (e.g., “look what you made me do now”) over which he or she never actually had any influence (e.g., an illness, divorce, death of a pet). In such instances, the child may literally be treated as a “scapegoat” for family problems.

How then does this type of environment lead to obsessive beliefs? Children raised in this type of environment are essentially conditioned to blame themselves and feel guilty for a wide range of realistically uncontrollable events. Given that the guilt, blame, and associated negative emotions are aversive to the child, the child becomes hyper-vigilante for potential sources of threat. This hyper-vigilance in turn leads the child to overestimate the likelihood of potential threats (e.g., “I notice bad things all the time, therefore bad things must be really likely to happen”) and previous experiences of being unfairly blamed lead the child to internalize responsibility for preventing such feared outcomes. Thus, this pathway leads directly to the *overestimation of threat/inflated responsibility* domain of obsessive belief.

Although, Salkovskis et al. (1999) refer to this first pathway as “heightened responsibility,” it actually captures a combination of several characteristics described in the

parenting literature: low levels of behavioral control and monitoring, lack of warmth, and high levels of permissiveness. Theory and previous research suggest that these negative parenting characteristics are connected with a variety of psychosocial problems in children and young adults (e.g., Baumrind, 1978; Barber, Olsen, & Shagle, 1994; Chambless, Gillis, Tran, and Steketee, 1996).

Salkovskis et al. (1999) argued that a second pathway to obsessive beliefs emerges when rigid and extreme codes of conduct are modeled and enforced. Family, school, and religious environments may be the source of these types of experiences. For example, if a child is repeatedly admonished by an authority figure (e.g., a teacher or parent) that certain thoughts are sinful, he or she may come to believe that one can and should control his or her thoughts at all times. Salkovskis et al. (1999) suggested that although parents are frequently the source of implicit and explicit communications of rigid rules or moral codes, any strong authoritarian person in the child's life may communicate these types of beliefs.

In what ways do experiences with rigid morals and codes of conduct lead to the development of obsessive beliefs? Take the example of religious doctrines that suggest that one can "sin by thought." In other words, thinking something bad (e.g., thinking about committing adultery) is morally equivalent to actually doing something bad (e.g., actually sleeping with someone other than your spouse). In such cases, sometimes punishment is even threatened if the "mental offender" does not atone for their thoughts (e.g. by saying Hail-Mary). Therefore, children raised in environments that endorse these types of practices learn that thinking "bad thoughts" is morally wrong and means something about them as a person. Furthermore, they learn that they could be punished for having "bad thoughts," which implies that they should be able to control them. Thus environments characterized by rigid

and extreme codes of conduct foster obsessive beliefs related to *the importance of and need to control thoughts* domain.

Although Salkovskis et al. (1999) refer to this pathway as “rigid rules,” it closely resembles the parenting construct of psychological control. Psychological control is generally viewed as a risk factor for the development of psychopathology and evidence suggests that high levels of parental psychological control are associated with the emergence of internalizing symptoms in adolescents (Barber, 1996). On the other hand, parenting characterized by psychological autonomy-granting appears to be related to healthy psychological development during adolescence (Silk, Morris, Kanaya, & Steinberg, 2003).

Finally, Salkovskis and colleagues (1999) proposed that a third pathway to obsessive beliefs emerges when parents withhold too much responsibility from their children. Such parents, often characterized as “helicopter moms or dads,” tend to be overly anxious, believe that their children are not competent to handle the dangers of the world, and communicate this sentiment to their children (Salkovskis et al., 1999). Because children in such an environment are never allowed the responsibility of making decisions for themselves, when they inevitably grow up and are confronted with responsibility, these children are hypersensitive to it and easily overwhelmed by it. Thus, children raised in this type of environment would be at risk of developing OCD when they leave home for the first time (e.g., to go to college).

As in Salkovskis et al.’s (1999) first pathway, the mechanism here for moving from this type of environment to obsessive beliefs is the development of hyper-vigilance. Because children raised in this type of environment have not internalized a sense of self-efficacy related to handling daily responsibilities, they equate responsibility with the likelihood of



failure. Consequently, they become hyper-vigilant for responsibility because it is perceived as threatening. These children then overestimate how bad the consequences of failing to handle responsibility would be. This pathway then is associated with the *Overestimation of threat/inflated responsibility* domain of obsessive belief. Additionally, this pathway is likely to be associated with *intolerance of uncertainty* beliefs. Overprotective parents emphasize the importance of guaranteeing safety at all costs because the consequences of not seeking a guarantee are perceived as dire (e.g., we must triple check the door locks at night or else someone might break in and murder us). Consequently, uncertainty is paired with threat and not permitted in the home. As a result, the child never learns that he/she can in fact tolerate a reasonable degree of uncertainty.

Salkovskis' et. al's (1999) third pathway is referred to as the "overprotection" pathway and, as the name would suggest, it captures the parenting constructs of overprotection and high levels of behavioral control. Although some degree of behavioral control, or limit setting, is often characterized as a healthy parenting approach; the term "overprotection" suggests that parents whose style fits into this pathway are exerting an excessive degree of behavioral control over their children. A large body of research from both OCD and parenting perspectives supports the theory that overprotective parenting is a risk factor for the development of OC symptoms and general psychopathology. For example, the parents of individuals with OC symptoms are consistently rated as more overprotective than the parents of symptoms free individuals (Frost, Steketee, Cohn, and Griess, 1994) and the parents of individuals diagnosed with depression or depressive symptoms (Cavedo and Parker, 1994; Yoshida, Taga, Matsumoto, and Fukui, 2005).

Overall, the parenting characteristics described in these pathways are known risk factors for general psychosocial problems including: OC symptoms, depression, and other internalizing symptoms (e.g., Baumrind, 1978; Barber et al., 1994; Chambless, Gillis, Tran, and Steketee, 1996).), why then might these pathways, or combinations of parenting characteristics, specifically lead to obsessive beliefs and not to other psychosocial problems? Take, for example, the heightened responsibility pathway. The neglectful parenting style associated with the heightened responsibility pathway could lead to depressive symptoms, other internalizing symptoms, and/or obsessive beliefs. It is the pairing of heightened responsibility (i.e., maladaptive parenting) with observational learning of obsessive beliefs that is responsible for making this pathway a specific, rather than general, risk factor for the development of obsessive beliefs. In other words, parents' obsessive beliefs provide a framework within which children interpret other experiences, such as criticism and neglect. Therefore, across all three pathways described above, general psychosocial maladjustment is certainly one possible outcome. The combination, however, of parental expression of obsessive beliefs with pathways parenting styles puts children at a higher risk of developing obsessive beliefs than if they had only been exposed to parental obsessive beliefs *or* pathways style parenting. Thus the influence of maladaptive parenting characteristics should be examined together with parental obsessive beliefs.

Given that previous prospective research suggests that obsessive beliefs predict OC symptoms (Abramowitz et al., 2006), understanding the origins of obsessive beliefs could help decode the complex etiology of OCD. The present study therefore focused on the relationship between parenting characteristics and obsessive beliefs and had two main aims.

First, we aimed to investigate the nature of the relationship between parents' obsessive beliefs and their young adult children's obsessive beliefs. If a significant correlation exists between parents' and offspring's obsessive beliefs, then this may help to reaffirm that intergenerational transmission is one source for these types of beliefs. Second, we aimed to examine the relationship between parental endorsement of obsessive beliefs and the pathways experiences described by Salkovskis et al. (1999; i.e., rigid rules, heightened responsibility, and overprotection) in order to determine whether pathways experiences function as an additive risk factor for the development of OC symptoms above and beyond the effects of exposure to maladaptive parental beliefs. We elected to use an additive risk model in this case because we did not expect that negative parenting characteristics (i.e., pathways experiences) alone could *account* for a relationship between parents' and children's obsessive beliefs. Evidence and prior theory suggest that modeling of fearfulness and avoidance by parents (Mineka, 1984) and genetic sources of vulnerability (Taylor, Afifi, Stein, Asmundson, and Jang, in press) are likely the primary means by which obsessive beliefs are transmitted intergenerationally. Thus, in our conceptualization rather than functioning as the primary method of transmission, negative parenting characteristics (such as pathways experiences) reinforce other learning experiences and thereby increase the risk that a child will ultimately endorse obsessive beliefs.

For example, consider a mother with moderate levels of obsessive beliefs who engages in parenting characteristic of the heightened responsibility pathway (e.g. neglectful parenting). This mother will likely model some fearfulness and avoidance in the presence of their child (e.g. the child sees her mother pray frequently in response to having doubts or

worries). Exposure to such vicarious learning experiences should be sufficient to transmit maladaptive beliefs from parent to child (Mineka, 1984). In addition, however, this particular mother engages in neglectful parenting (e.g., the child has to fix dinner or the family goes hungry) and the child develops an additional heightened sensitivity to responsibility (e.g., hyper-vigilance for responsibility and overestimation of threat associated with responsibility). This sensitivity to responsibility then compounds with the child's previous learning experiences (e.g., seeing her mother pray) and the child ultimately endorses even higher levels of obsessive beliefs than she would have otherwise.

Based on this model, we proposed three hypotheses. First, we hypothesized that the strength of parents' obsessive beliefs would be positively correlated with the strength of their children's obsessive beliefs. Second, on the basis of Salkovskis et al.'s (1999) theory of the transmission of maladaptive beliefs, and previous research which shows a link between certain parenting characteristics (e.g., overprotection, lack of warmth etc.) and OC symptoms (Cavedo & Parker, 1994; Chambless et al., 1996; Frost et al., 1994; Yoshida et al., 2005), we also hypothesized that childhood experiences characterized by the types of parenting described by Salkovskis et al. (1999; i.e., pathways parenting experiences) would be correlated with higher levels of endorsement of obsessive beliefs. Third, given a relationship between parents' and participants' obsessive beliefs, we hypothesized that exposure to pathways parenting experiences would increase the risk of participants endorsing higher levels of obsessive beliefs over and above the risk posed by parental endorsement of obsessive beliefs. More specifically, young adults whose parent(s) endorsed obsessive beliefs *and* whose parents engaged in high levels of pathways parenting (e.g., heightened

responsibility, rigid rules, or overprotection) would endorse even higher levels of obsessive beliefs than would young adults whose parent(s) endorsed obsessive beliefs but did not engage in high levels of maladaptive parenting.

## Methods

### *Participants & Procedures*

Given that obsessive beliefs occur on a continuum of severity and are present in both clinical and nonclinical individuals alike, we elected to examine our hypotheses in a large non-clinical sample of individuals from the UNC-CH Introductory Psychology Participant Pool. This afforded us a large participant sample, as well as a greater ability to generalize our findings to the population at large, rather than just to individuals with clinical OCD. Since our interests lie in the development of *beliefs*, as opposed to clinical *symptoms*, we felt this approach was most appropriate. Also, below, we refer to the students taking part in this study as the “participants,” and their parents as “parents.”

All study procedures conformed to American Psychological Association ethical guidelines for research. Prior to data collection, this study was approved by the University of North Carolina, Chapel Hill (UNC-CH) Institutional Review Board. Participants in this study consisted of undergraduates enrolled in an introductory psychology course and their parents. In return for completing a set of online self-report questionnaires, students received course credit. An alternative writing assignment was available to students who did not wish to participate in research. After giving informed consent, all participants completed a battery of online questionnaires. Research indicates that OC symptom and belief measures administered via the internet are psychometrically equivalent to paper forms of such measures (Coles,

Cook, & Blake, 2007). Before completing any questionnaires, participants were asked to provide contact information for their parent(s). Information was solicited for both biological and adoptive parents. Parents for whom contact information was provided were subsequently contacted by email and asked to go online to complete a set of retrospective self-report questionnaires about their beliefs and parenting style. In return for participating, parents were entered into a drawing for a chance to win a \$100 gift card.

The overall participant sample consisted of 440 undergraduate students (153 male, 287 female) aged 18 -22 years (mean = 18.96,  $SD = 1.13$ ). Three additional individuals appeared to be outliers, based on their age, and were excluded from analysis (the excluded individuals ranged in age from 25 to 29 years). These individuals were excluded because their recollection of childhood experiences was a variable of interest and the relatively longer amount of time since childhood may have biased their memory and subsequent responding. The majority of the student participants were Caucasian ( $n = 346$ ), 46 were African American, 11 Latino, 7 Native American, 21 Asian, and 14 identified as "Other."

The overall parent sample consisted of 151 biological mothers, 104 biological fathers, and 1 adoptive father. The adoptive father was excluded from the present analysis. Mothers ranged in age from 35 – 62 (mean = 50.23,  $SD = 4.64$ ) and fathers ranged in age from 41 – 69 (mean = 52.66,  $SD = 5.11$ ). The majority of the mothers ( $n = 130$ ) and fathers ( $n = 100$ ) were Caucasian, 11 mothers and 4 fathers were African American, 3 mothers were Latino, 4 mothers and 1 father were Asian, and 1 mother identified as "Other." In addition to a standard set of demographic questions, parents were asked respond to several questions designed to assess the nature of their relationship with their child (the participant from whom we solicited the parent's contact information). Parents were asked to estimate the percentage

of time they spent in the same household as their child, how often they were the primary care-giver for their child and the primary disciplinarian of their child. Mothers reported living in the same house as their child for 89.24% ( $SD = 29.86$ ) of the time while the child was growing up, and fathers for 95.09% ( $SD = 15.90$ ) of the time. Mothers reported being “the parent responsible for disciplining” their child for 75.89% ( $SD = 30.16$ ) of the time and fathers, for 65.26% ( $SD = 24.82$ ) of the time. Finally, mothers reported being “the primary care provider” for their child for 78.61% ( $SD = 29.50$ ) of the time and fathers reported being the primary care-giver for 52.42% ( $SD = 28.80$ ) of the time.

For purposes of data analysis this sample was split into two secondary samples: one for analysis of mother-child relationships and a second for analysis of father-child relationships. Subsample 1 consisted of 104 mother - participant dyads. In order to be included in this sample, the participant’s biological mother must have responded to the full battery of online questionnaires. A list-wise deletion was performed and all participants whose mother did not respond, or did not complete the entire battery, were excluded ( $n = 333$ ). Thirty-four of the participants in this sample were male and 70 female. Participant age ranged from 18 to 22 years (mean = 18.88,  $SD = .94$ ) and mother age ranged from 41 to 62 years (mean = 50.49,  $SD = 4.26$ ). The majority of participants in this subsample were Caucasian ( $n=91$ ), six were African America, one Latino, two Asian, and four self reported as “other.” Similarly, the majority of mothers were Caucasian ( $n=91$ ), six were African America, two Latino, three Asian, and two self reported as “other.”

Subsample 2 consisted of 67 participant - father dyads. As with subsample 1, in order to be included in this subsample, the participant’s biological *father* must have responded to the full battery of online questionnaires. A list-wise deletion was performed and all

participants whose father did not respond, or did not complete the entire battery were excluded ( $n = 370$ ). Twenty-four of the participants in this subsample were male, and 43 female. Participant age in this subsample ranged from 18 to 22 years ( $\text{mean} = 18.87$ ,  $SD = .80$ ), and father age ranged from 43 to 69 years ( $\text{mean} = 52.30$ ,  $SD = 4.93$ ). The majority of participants in this subsample were Caucasian ( $n=64$ ), two were African American, and one Native American. Similarly, the majority of fathers were Caucasian ( $n=65$ ), and two were African American. Twenty-nine participants were represented in both subsample 1 and subsample 2, indicating that for these individuals both their biological mother and father responded to the survey. Because all participants are not represented in *both* subsamples, comparisons cannot be made between mother's and father's influence with regards to the transmission of obsessive beliefs.

### *Measures*

*Obsessive Beliefs.* The Obsessive Beliefs Questionnaire (OBQ; OCCWG, 2005) is a 44-item questionnaire which measures dysfunctional beliefs thought to contribute to the onset of OC-symptoms. It contains three subscales: (a) threat overestimation and responsibility (OBQ-T/R), (b) importance and control of intrusive thoughts (OBQ-I/CT), and (c) perfectionism and need for certainty (OBQ-P/C). Previous research, however, has not supported the notion that these subscales measure unique factors. Thus, as in previous research (Abramowitz et al., 2006) we used the OBQ total score as our measure of obsessive beliefs. Used in this way, the OBQ possesses good validity, internal consistency, and test-retest reliability. The psychometric properties of the OBQ are described in OCCWG (2005). In the present sample, the OBQ possessed excellent internal consistency ( $\alpha = .93$ ). The OBQ was completed by both students and parents.



*Affect:* The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) consists of two 10-item mood scales (e.g. positive affect [PA] and negative affect [NA]). Each mood scale contains ten affect related words (e.g. irritable, interested) and asks participants to rate “the extent to which you generally feel this way” on a five point Likert-type scale which ranges from “1 very slightly or not at all” to “5 extremely.” The PANAS possesses good internal consistency convergent and discriminate validity, and test-retest reliability (Watson et al., 1988). The PANAS was completed by both students and parents. In the present sample, both scales of the PANAS possessed good internal consistency (PA,  $\alpha = .86$ ; NA,  $\alpha = .86$ ).

*Parenting:* The Pathways to Inflated Responsibility Scale (Coles & Schofiels, 2008) is a 47-item retrospective self report assessing experiences thought to serve as pathways to the development of inflated responsibility beliefs (Salkovskis et al., 1999). The PIRBS contains four subscales measuring: heightened responsibility, rigid rules, overprotection, and actions caused/influenced. The instrument has good internal consistency, retest reliability, and convergent and divergent validity. A version of this questionnaire is also available for parents. This version requires parents to retrospectively report on their child’s environment and experiences as they were growing up. The parent version also includes 47 items and contains the same for subscales described above. Students completed the original version of the PIRBS and parents completed the parent version. In the present sample, all three subscales of interest possessed good internal consistency (HR,  $\alpha = .89$ ; RR,  $\alpha = .91$ ; OP,  $\alpha = .86$ ).

## Results

### *Preliminary analyses.*

Descriptive statistics, including means and standard deviations, for participants and parents on all relevant study measures are presented in Table 1 (for subsample 1) and Table 2 (for subsample 2). The tolerance diagnostics among predictor variables were all within acceptable limits, indicating that multicollinearity was not a problem in these analyses. According to Norusis (1998) tolerance values  $< .01$  indicate multicollinearity. For all regressions in the present study, all tolerance values were  $> .10$ .

### *Relationships between Pathways to Inflated Responsibility and Obsessive Beliefs among Participants*

Correlations between participant's OBQ score and each of the PIRBS subscales were as follows for subsample 1: PIRBS-HR = .18 ( $p$  n.s.), PIRBS-RR = .27 ( $p > .01$ ) PIRBS-OP = .30 ( $p > .01$ ). For subsample 2, correlations were as follows: PIRBS-HR = .18 ( $p$  n.s.), PIRBS-RR = .13 ( $p$  n.s.), PIRBS-OP = .32 ( $p > .01$ ).

### *Relationships between Participants' and Parents' Obsessive Beliefs*

Correlations between participants' and parents' scores on the OBQ were .14 for mothers and .11 for fathers. Neither correlation was statistically significant ( $ps > .05$ ), indicating that participants OBQ scores were unrelated to their parents' scores.

### *Relationship between Participant's Obsessive Beliefs and their own and their Parent's report of Pathways to Inflated Responsibility*

Correlations between participants' OBQ score and their parents' scores on the parental version of the PIRBS (PIRBS-PV) are presented in Table 3. As can be seen, there were no significant associations between participants' OBQ scores and any of their mother's

PIRBS-PV scores. However, participant's OBQ scores were weakly to moderately, but significantly, correlated with their father's PIRBS-PV RR, HR, and OP scores.

To explore the relationship between participant's perception of pathways experiences and their parent(s)' perception of the pathways experiences they believe their child had, we computed correlations between participant and parent PIRBS scores. Both mother's and father's PIRBS subscale scores were weakly to moderately correlated with the participant's corresponding RR, HR, and OP subscale scores. Correlations ranged from .25 to .38 and were similar in magnitude for mothers and fathers within each subscale.

*Testing the Additive Influence of Pathways (Parenting) Experiences over and above the Effects of Parent's Obsessive Beliefs*

In accordance with our additive hypothesis, three sets of regression equations were computed to examine whether the three proposed pathways to obsessive beliefs (HR, RR, OP) functioned as an additive risk factor, above parental endorsement of maladaptive beliefs, for participant endorsement of obsessive beliefs.

For the first model, parent's PANAS negative affect (NA) score was entered into the first block in order to control for parental affect. Parent's OBQ score was entered into the second block in order to investigate possible effects of parental endorsement of obsessive beliefs. PIRBS rigid rules (RR), as reported by the participant, was entered into the third block in order to test for possible additive effects of this environmental pathway over and above parent's obsessive beliefs. In this manner one equation was computed for mothers and another for fathers.

The second, and third sets of models followed as described above with the exception that in step three, PIRBS heightened responsibility (HR), and PIRBS overprotection (OP)

respectively, were entered in place of PIRBS-RR. In this manner three equations were computed for subsample 1 (mothers) and subsample 2 (fathers). The results of each model for each pathway will be described below for subsample 1 and subsample 2. A summary of the step 3 model statistics for mother's OBQ as a predictor and father's OBQ as a predictor are presented in tables 5 (for subsample 1) and 6 (for subsample 2) respectively.

*The Additive Effect of Heightened Responsibility.* For mothers, in step 1 the PANAS-NA did not significantly predict child's OBQ score. In step 2, inclusion of mother's OBQ score did not add significant additional variance ( $R^2$  change = .02,  $p$  n.s.). In step 3, the inclusion of the heightened responsibility pathway did not add significant additional variance ( $R^2$  change = .03,  $p$  n.s.).

For fathers, in step 1, PANAS-NA did not significantly predict child's OBQ score. In step 2, inclusion of father's OBQ score did not add significant additional variance ( $R^2$  change = .02,  $p$  n.s.). In step 3, the inclusion of the heightened responsibility pathway did not add significant additional variance ( $R^2$  change = .03,  $p$  n.s.).

*The Additive Effect of Rigid Rules.* For mothers, in step 1 the PANAS-NA did not significantly predict participant OBQ score. In step 2, inclusion of mother OBQ score did not add significant additional variance ( $R^2$  change = .02,  $p$  n.s.). In step 3, however, the inclusion of the rigid rules pathway significantly predicted participant OBQ score ( $R^2$  change = .07,  $p$  < .01).

For fathers, in step 1, PANAS-NA did not significantly predict participant OBQ score. In step 2, inclusion of father OBQ score did not add significant additional variance ( $R^2$  change = .02,  $p$  n.s.). In step 3, the inclusion of the rigid rules pathway did not add significant additional variance ( $R^2$  change = .02,  $p$  n.s.).

*The Additive Effect of Overprotection.* For mothers, in step 1 the PANAS-NA did not significantly predict child's OBQ score. In step 2, inclusion of mother's OBQ score did not add significant additional variance ( $R^2$  change = .02,  $p$  n.s.). In step 3, the inclusion of the overprotection pathway added significant additional variance ( $R^2$  change = .08,  $p < .01$ ).

For fathers, in step 1, PANAS-NA did not significantly predict child's OBQ score. In step 2, inclusion of father's OBQ score did not add significant additional variance ( $R^2$  change = .02,  $p$  n.s.). In step 3, the inclusion of the overprotection pathway added significant additional variance ( $R^2$  change = .09,  $p < .05$ ).

### Discussion

The purpose of the present study was to examine the individual and joint impact of two factors hypothesized to contribute to the development of obsessive beliefs: parental endorsement of obsessive beliefs, and childhood pathways experiences. Childhood pathways experiences are elements of the social learning environment, such as parenting style characteristics and accidental traumatic events, which are thought to foster learning of maladaptive obsessive beliefs. In the present study we elected to focus on the pathways which specifically tap parenting style characteristics (e.g. rigid rules, heightened responsibility, and overprotection). While some research indicates that there is a link between parents' and children's obsessive beliefs (e.g., Jacobi, Calamari, and Woodard, 2006) no research has examined the role of parents' obsessive beliefs in conjunction with pathways experiences. Given that obsessive beliefs could be transmitted from parents to children both explicitly (via parents verbally expressing their beliefs to their children) and implicitly (via parenting characteristics such as those taped by Salkovskis et al.'s [1999] pathways experiences) both of these modes of transmission should be studied in conjunction with one

and other. Genetic inheritance of trait anxiety, and modeling of fearfulness and avoidance likely account for a large portion of the intergenerational transmission of obsessive beliefs. Thus, it is unlikely that pathways experiences alone could mediate this relationship. Instead, we hypothesized that pathways experiences would act as an additive risk factor for the transmission of such beliefs from parent to child.

The first hypothesis that parents obsessive beliefs would predict participants' obsessive beliefs was not supported—parents' and participants' obsessive beliefs were not significantly correlated. There are several plausible explanations for this unexpected finding. First, previous research indicates that parents' and children's obsessive beliefs are correlated both in clinical and non-clinical samples; however, there is only evidence of significant relationships for certain domains of belief and these domains have varied across studies. For example, Jacobi, Calamari, and Woodard (2006) found that inflated beliefs about responsibility, the overestimation of threat, and the importance of (and need to control) thoughts, but not perfectionism and intolerance of uncertainty, were modestly correlated in a sample of adolescents and their biological parents. Additionally, in a clinical sample of adults with OCD, Rector, Cassin, Richter, and Burroughs (2009) found that patients and their relatives reported significantly elevated levels of responsibility and threat beliefs, but not perfectionism and uncertainty beliefs, or beliefs about the importance of and need to control thoughts. Given these inconsistencies, it is possible that certain domains of belief, which are captured by the OBQ, are unrelated between parents and their offspring.

A second consideration is that the parent sample was self-selected. Thus, it is possible that only the healthiest, highest functioning parents responded to the survey. It is also possible that parents who felt that they modeled dysfunctional behaviors and/or beliefs to

their children chose *not* to respond due to social stigma. Finally, parents might have deliberately endorsed items by giving what they perceived to be the most socially appropriate answers. Unfortunately it is not possible for us to determine the characteristics of the parents who were invited but chose not to participate.

Although previous research indicates that individuals in the general, non-affected population often endorse obsessive beliefs (OCCWG, 2003), familial transmission of these types of maladaptive beliefs may function differently in families where a member or members are actually affected by OCD. For example, the strength of endorsement and/or the breadth of obsessive beliefs endorsed may be important factors in determining whether transmission occurs. It is possible that parents of healthy college students simply do not endorse obsessive beliefs strongly enough or do not endorse a wide enough range of obsessive beliefs for transmission from parent to child to occur. Future research should examine the role of strength of belief endorsement and number of domains of belief endorsed.

It is also possible that insight into the unrealistic or unhealthy nature of obsessive beliefs may play a role in explaining our findings. Non-anxious parents, unlike those with OCD or other anxiety disorders, may recognize that some of the beliefs they hold are unrealistic or anxiety provoking and thus actively seek to shelter their children from these types of beliefs (e.g. a parent may in part believe that the world is a dangerous place but may seek *not* to convey this to their child because they do not want their child to be fearful or avoidant). In the present study we did not ask parents if they sought to conceal any of their beliefs. Future research should examine whether parents try to conceal maladaptive obsessive beliefs and what the effects of concealment are.

The second hypothesis that pathways experiences during childhood would be correlated with obsessive beliefs, was supported— in subsample 1 (mother-participant dyads), both rigid rules (RR), and overprotective parenting (OP) were associated with participant endorsement of obsessive beliefs. Heightened responsibility (HR), however, was not significantly correlated with obsessive beliefs. Therefore, participants from subsample 1 who were raised in environments characterized by high levels of rigid rules and/or a high degree of overprotective parenting were more likely to endorse obsessive beliefs than participants who were not. In subsample 2 (father-participant dyads) only overprotection was associated with participant endorsement of obsessive beliefs. Therefore, participants from subsample 2 who were raised in environments characterized by high levels of overprotective parenting were more likely to endorse obsessive beliefs than participants who were not.

First, the finding that exposure to overprotective parenting is associated with obsessive belief endorsement in a non-clinical sample extends findings from research with clinical samples which indicates that higher levels of overprotective parenting are associated with greater OC symptomology and an earlier age of OCD onset (Chambless, Gillis, Tran, and Steketee, 1996; Yoshida, Taga, Matsumoto, and Fukui, 2005). Further, this finding is consistent with the idea that overprotective parenting can negatively influence the cognitive schemas of youngsters. Salkovskis and colleagues (1999) suggested that overprotective parents communicate to their children that they believe that the child is not competent to handle the dangers of the world. Overprotective environments, therefore, are thought to foster a general sensitivity to responsibility that may be cued by events that demand a greater responsibility for oneself or others. Leaving home for the first time to go to college and live



independently should thus cue obsessive beliefs about responsibility in young adults who were exposed to overprotective childhood environments. Accordingly, as seen here, a connection between overprotective parenting and obsessive beliefs should be particularly evident in young adult samples.

Second, the finding that exposure to rigid rules is associated with obsessive belief endorsement supports Salkovskis et al.'s (1999) assertion that exposure to rigid rules in childhood fosters beliefs that intrusive thoughts are very meaningful and that complete control over intrusions is necessary and possible. (e.g., "If I think about it, it might happen"). This finding also supports previous research with non-clinical samples which has found associations between rigid rules and obsessive beliefs (Coles et al., 2008). While the data here are not sufficient to assert causal direction, they may inform hypotheses in future research geared towards examining the role of rigid rules longitudinally. It should also be noted that the rigid rules pathway only emerged as a significant predictor for mothers and not fathers. Because only a small minority of participants in this sample had both a mother *and* father respond to our survey, we cannot directly compare mother and father influence with relation to pathways experiences. Still, it might be interesting to examine the impact of the disciplinarian role with relation to rigid rules. In this sample, mothers more often reported that they were the primary disciplinarian in the family. Therefore, rule-setting may have been a lower base rate activity amongst fathers in our sample and consequently we had less power to detect an effect of rigid rules for fathers than for mothers. Further research is needed to parse apart the differential impact of mothers and fathers with relation to pathways experiences.

Relating to the absence of a relationship between heightened responsibility and obsessive beliefs, one concern is that heightened responsibility experiences appeared to be positively skewed, where as both rigid rules and overprotection appeared to be normally distributed. That is, very few individuals in this sample reported experiencing high levels of heightened responsibility as a child. It is unclear why this ceiling effect is present in this particular sample. It is possible that higher levels of heightened responsibility experiences are only represented in clinical samples. Future studies should replicate this research using clinical samples in order to clarify this issue.

Our third hypothesis, that pathways experiences would act as an additive risk factor for obsessive beliefs over and parents' obsessive beliefs, was not supported and indeed could not be tested in the present study since no relationship existed between parents' obsessive beliefs and participants' obsessive beliefs in our data. Therefore it remains unclear what impact pathways experiences have on the transmission of obsessive beliefs from parents to children. This hypothesis was formed on the basis of previous studies using clinical samples that did find a relationship between parents' and children's obsessive beliefs (Jacobi et al., 2006; Rector et al., 2009). Therefore, future research might test this hypothesis in clinical samples where a more robust relationship between parents' and children's beliefs would be expected.

Despite this, these findings do suggest that even where there is no relationship between parents' and children's beliefs, pathways parenting experiences are associated with whether or not children endorse obsessive beliefs. Although these findings are preliminary they suggest that parent training could be an important preventative measure in families in which a child is at a higher risk of developing OCD, such as families where a parent or

sibling already has an OCD diagnosis. Future research should focus on studying longitudinally whether parenting is causally linked to the prospective risk of developing obsessive beliefs and OC symptoms. Subsequent to longitudinal or experimental confirmation of these findings, research efforts should center on the development and evaluation of interventions focused on parenting.

In summary, the results of the present study suggest that the presence of obsessive beliefs amongst parents may not have a strong impact on children's obsessive beliefs in non-clinical samples. However, the ways in which parents actively interact with and rear their children may be more influential in making them susceptible to maladaptive beliefs. Additive risk models should be reexamined in clinical samples where a clearer relationship between parents' and children's maladaptive beliefs exists. Further, longitudinal research aimed at examining the relationship between parenting and the emergence of obsessive beliefs is needed in order to determine the direction of causality. If longitudinal or experimental research replicates the present pattern of findings, this line of research could have important implications for identifying children at risk of developing OC symptoms, and for early interventions targeted towards parenting style factors and family dynamics.

Table 1

*Means and Standard Deviations on Study Measures for Subsample 1*

Measure	Mean (SD)	
	Participants	Mothers
OBQ		
Total Score	136.85 (34.24)	124.01 (31.01)
PIRBS		
Rigid Rules	11.01 (4.13)	11.39 (4.11)
Heightened Responsibility	3.97 (3.46)	3.31 (3.02)
Overprotection	7.06 (3.51)	7.42 (2.65)
PANAS-NA	19.29 (5.80)	18.19 (5.87)

*Note.* OBQ = Obsessive Beliefs; PIRBS = Pathways to Inflated Responsibility Scale; PANAS = Positive and Negative Affect Scale.

Table 2

*Means and Standard Deviations on Study Measures for Subsample 2*

Measure	Mean (SD)	
	Participants	Fathers
OBQ		
Total Score	137.01 (39.47)	125.64 (32.06)
PIRBS		
Rigid Rules	11.40 (3.43)	10.79 (3.91)
Heightened Responsibility	3.84 (3.02)	4.56 (2.75)
Overprotection	7.51 (3.07)	7.21 (3.15)
PANAS-NA	19.70 (6.62)	16.24 (4.26)

*Note.* OBQ = Obsessive Beliefs; PIRBS = Pathways to Inflated Responsibility Scale; PANAS = Positive and Negative Affect Scale.

Table 3

*Pearson Correlations between Participant OBQ Scores and Parent PIRBS Scores*

Participant's OBQ score	Parents		
	PIRBS-PV (RR)	PIRBS-PV (HR)	PIRBS-PV (OP)
r with mother- subsample 1	.17	.13	.00
r with father- subsample 2	.31*	.26*	.27*

*Note.* \*  $p < .05$ , \*\*  $p < .01$ . OBQ = Obsessive Beliefs Questionnaire;  
PIRBS-PV = Pathways to Inflated Responsibility Scale, Parent Version.

Table 4

*Model Summary Statistics for Step 3 of the Regressions Predicting Participant's OBQ Scores: Subsample 1*

Variables	B	SE	Beta	<i>t</i>
Analysis 1				
Mother's negative affect	.35	.58	.06	.61
Mother's OBQ	.14	.11	.13	1.32
Rigid rules	2.22	.79	.27	2.80**
Analysis 2				
Mother's negative affect	.35	.58	.06	.61
Mother's OBQ	.14	.11	.13	1.32
Heightened responsibility	1.71	.97	.17	1.77
Analysis 3				
Mother's negative affect	.35	.58	.06	.61
Mother's OBQ	.14	.11	.13	1.32
Overprotection	2.90	.96	.30	3.02**

*Note.* \*  $p < .05$ , \*\*  $p < .01$ . These analyses included only participants from subsample 1.

Table 5

*Model Summary Statistics for Step 3 of the Regressions Predicting Participant's OBQ Scores: Subsample 2*

Variable	B	SE	Beta	T
Analysis 1				
Father's negative affect	-.51	1.15	-.06	-.44
Father's OBQ	.20	.17	.17	1.20
Rigid rules	1.76	1.44	.15	1.22
Analysis 2				
Father's negative affect	-.51	1.15	-.06	-.44
Father's OBQ	.20	.17	.17	1.20
Heightened responsibility	2.26	1.61	.17	1.41
Analysis 3				
Father's negative affect	-.51	1.15	-.06	-.44
Father's OBQ	.20	.17	.17	1.20
Overprotection	3.90	1.55	.30	2.51*

*Note.* \*  $p < .05$ , \*\*  $p < .01$ . These analyses included only participants from subsample 2.



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