

Shorter communication

# New parenthood as a risk factor for the development of obsessional problems

Nichole Fairbrother<sup>a,\*</sup>, Jonathan S. Abramowitz<sup>b</sup>

<sup>a</sup>Centre for Healthcare Innovation and Improvement, E414A 4480 Oak Street, Vancouver, BC, Canada V6 H 3V4

<sup>b</sup>Department of Psychology, University of North Carolina at Chapel Hill, Campus Box 3270—Davie Hall, Chapel Hill, NC 27599 3270, USA

Received 11 March 2006; received in revised form 15 September 2006; accepted 26 September 2006

---

## Abstract

Research on emotional disturbance during pregnancy and the postpartum period has focused primarily on mood disorders and psychosis, yet preliminary evidence suggests that early parenthood is also associated with an increased risk for the development and exacerbation of obsessional problems. In this article we describe the nature of “postpartum obsessive-compulsive disorder” (ppOCD) and present a cognitive-behavioural model to account for these signs and symptoms. The model outlines features of early parenthood that might increase vulnerability to ppOCD and proposes a conceptual framework similar to that described in cognitive-behavioural models of OCD in general. The empirical status of the model described herein is discussed, along with suggestions for future research and implications for treatment.

© 2006 Elsevier Ltd. All rights reserved.

*Keywords:* Postpartum; Obsessions; Compulsions; OCD; Cognitive-behavioural

---

## Overview

Retrospective studies of individuals who develop obsessive compulsive disorder (OCD) have, with remarkable consistency, found that pregnancy and childbirth are cited more than other life events as triggers of OCD onset or exacerbation (e.g., [Buttolph & Holland, 1990](#); [Ingram, 1961](#); [Lo, 1967](#); [Maina, Albert, Bogetto, Vaschetto, & Ravizza, 1999](#); [Neziroglu, Anemone, & Yaryura-Tobias, 1992](#); [Pollitt, 1957](#)). Moreover, there is evidence that becoming a parent influences the themes of normal and clinical obsessional and compulsive behaviours among new mothers *and fathers* ([Abramowitz, Schwartz, & Moore, 2003](#)). Drawing on existing theoretical models of OCD, the present paper aims to explicate how factors related to becoming a new parent confer vulnerability to OCD and exert influence over the presentation of obsessive-compulsive (OC) symptoms.

### *Why postpartum OC symptoms?*

The postpartum period has long been associated with an increased risk for developing emotional disorders ([Kendell, McGuire, Connor, & Cox, 1981](#)), with depression and psychosis having received significant attention

---

\*Corresponding author. Tel.: +1 604 875 2000x5372; fax: +1 604 875 3124.

E-mail addresses: [nichole@interchange.ubc.ca](mailto:nichole@interchange.ubc.ca) (N. Fairbrother), [jabramowitz@unc.edu](mailto:jabramowitz@unc.edu) (J.S. Abramowitz).

in the research and clinical literature. In contrast, there has been much less interest in anxiety disorders. Evidence suggests, however, that overlooking anxiety disorders leads to a gross underestimate of the prevalence of postnatal psychological difficulties (Matthey, Barnett, Howie, & Kavanagh, 2003).

Several retrospective reports yield preliminary evidence that the perinatal period is associated with an increase in the incidence of OCD and the exacerbation of pre-existing OCD symptoms (for a review see Abramowitz, Schwartz, Moore, & Luenzmann, 2003). For example, no specific life events other than pregnancy and the postpartum have been identified as being predictably associated with OCD onset and exacerbation. Considerably stronger evidence supports the notion that pregnancy and delivery can influence the *content* of OC symptoms, which typically focuses on harm befalling the infant (Abramowitz, Khandker, Nelson, Deacon, & Rygwall, 2006; Abramowitz, Schwartz, & Moore, 2003; Wisner, Peindl, Gigliotti, & Hanusa, 1999). Consequently, the perinatal period represents an ideal occasion to study factors involved in the development and expression of OC symptoms. Clinical observations indicate that, as with OCD that occurs outside of the perinatal period, postpartum OCD (ppOCD) can cause significant personal distress and interfere with the individual's and family's functioning, including disruption of parent–infant bonding. Therefore, improving our understanding of how becoming a parent might increase vulnerability to this disorder can lead to a range of important health care initiatives such as prenatal detection of at-risk women, prevention programs for pregnant women with identified vulnerability factors, and the development of treatments specifically for ppOCD.

## Clinical features of ppOCD

### *Prevalence*

The lifetime prevalence of OCD in the general population is approximately 2% (Kessler et al., 2005). Whereas a number of studies have examined the *relationship* between pregnancy, delivery, and OCD symptoms (e.g., Buttolph & Holland, 1990), only one has reported the prevalence of OCD in a community postpartum sample. Wenzel, Haugen, Jackson, and Brendle (2005) found that 4 out of 147 childbearing women (2.6%) met diagnostic criteria for OCD at 8 weeks postpartum. In 3 of these women (2.0%), the OCD onset occurred after childbirth. An additional 8 of the 147 women (5.4%) reported subsyndromal levels of OCD, with 2 (1.4%) endorsing a postpartum onset of these subclinical symptoms. The proportion of women in this study who met criteria for OCD is more than double the 12-month prevalence rate of OCD in the general population (estimated at 1.0%; Kessler, Chiu, Demler, & Walters, 2005). However, because these findings are based on a small sample, they must be viewed with caution.

### *Symptom presentation*

Clinical reports consistently describe a rapid onset of ppOCD symptoms shortly following birth, typically involving distressing, unwanted, intrusive thoughts or images (i.e., obsessions) of accidental or intentional harm befalling the infant (see Abramowitz, Schwartz, Moore et al., 2003 for a review). Although the obsessions may be accompanied by overt compulsions such as checking and washing, situational avoidance (e.g., knives, bathing the child) and covert behaviours (thought suppression attempts, prayers) aimed at neutralizing the obsession or preventing a feared catastrophe appear to be more common.

Sichel, Cohen, Dimmock, and Rosenbaum. (1993) described 15 women with ppOCD who all evidenced disturbing intrusive thoughts of intentionally harming their newborns. None of these women, however, reported overt compulsive rituals. Specific obsessions included intrusive thoughts of stabbing the baby with a knife, images of sexually abusing the newborn, and ideas of drowning the baby in the bathtub. Afraid they might act upon these distressing obsessions, the patients developed avoidance patterns (e.g., refraining from bathing the baby). At 1-year follow-up, none of these women had developed overt compulsive rituals. Data from other case series' present a similar picture of ppOCD (e.g., Buttolph & Holland, 1990; Sichel, Cohen, Dimmock et al., 1993; Sichel, Cohen, Rosenbaum, & Driscoll, 1993).

### *ppOCD in new fathers*

Abramowitz, Moore, Carmin, Wiegartz, and Purdon (2001) described four previously healthy *fathers* who experienced a rapid onset of OCD symptoms coinciding with their partner's pregnancy or the birth of a child. The topography of these cases was similar to that described in studies of women with ppOCD: each of the fathers reported unwanted obsessional thoughts of being responsible for harming the unborn or newborn child. Investigating this phenomenon further, Abramowitz, Schwartz, and Moore (2003) surveyed 40 fathers of newborns and found that 58% of these men reported intrusive distressing infant-related thoughts. Overwhelmingly, the intrusions concerned the possibility of harm coming to the newborn (e.g., suffocation, choking). In a later study of 42 new fathers, about three-quarters reported distressing thoughts about accidents, SIDS, and suffocation (Abramowitz et al., 2006). Thoughts of intentionally harming the infant, contamination-related thoughts, and thoughts of losing the baby were somewhat less common. Although most new fathers reported only minor levels of distress associated with their intrusive thoughts, some indicated that the thoughts were of clinically significant duration and intensity, and produced noticeable impairment in functioning.

### *Overlap with depression*

Although both conditions can involve recurrent upsetting cognitions, an important phenomenological distinction between ppOCD and depression is that while obsessions are intrusive thoughts, images, or urges associated with fears of specific negative outcomes, depression is marked by overly general pessimistic thoughts and beliefs about the self, world, and future with frequent shifts in content. Two studies have examined the prevalence of OCD symptoms among women with postpartum depression, finding that upsetting infant-related obsessional thoughts are frequently present in postpartum depression (Jennings, Ross, Pepper & Elmore, 1999; Wisner et al., 1999). Abramowitz, Schwartz, and Moore (2003) found a modest relationship between the severity of unwanted maternal postpartum intrusive thoughts and the symptoms of depression. Perhaps, as suggested by Rachman (1997), there is a bi-directional relationship between OCD and depression. Depression can involve unwanted and upsetting negative thoughts that are similar to obsessions, and obsessions can produce high levels of distress, leading to a decrease in mood. Consistent with the latter ideas, Sichel, Cohen, Dimmock et al., (1993) found that 9 out of 15 women with ppOCD developed major depression 2–3 weeks *after* the onset of their OCD symptoms.

### *ppOCD versus postpartum psychosis*

It is also important to distinguish between the symptoms of ppOCD and those of postpartum psychosis since both disturbances can involve thoughts of harming the newborn. Despite the apparent topographical similarity in thought *content* (i.e., aggressive ideation), there are important distinctions between the two conditions. First, only 1–2 childbearing women out of 1000 experience postpartum psychotic symptoms such as hallucinations (e.g., “I saw smoke and fire coming from the baby's nose and ears”) and delusions (e.g., “The Devil is out to get the baby”) (Nonacs, 2005). Second, psychotic symptoms typically occur along with additional stereotypical symptoms such as loose associations, labile mood, agitation, and other “bizarre” beliefs and behaviours. Most importantly, the aggressive ideation in psychosis (a) is experienced as consistent with the person's delusional thinking and behaviour (*ego-syntonic*), (b) is *not* subjectively resisted (i.e., not associated with fears or compulsive rituals), and (c) is associated with an increased risk of actual aggressive behaviour.

In contrast, even the most unspeakable postpartum intrusive thoughts or obsessions are *not* associated with an increased risk of committing harm. Such thoughts are experienced as unacceptable and inconsistent with the person's typical behaviour and mindset (*ego-dystonic*); the person reports a *fear* of harm (including fears of *thinking* about harm). People with OCD do not have a history of acting out their obsessional thoughts, and instead engage in excessive avoidance and efforts to resist or neutralize their obsessions.

### *Parental anxiety disorders, parenting and infant development*

A large body of human subjects and animal research indicates an association between prenatal maternal stress and anxiety disorders, and long-term negative effects on the developing foetus and child (e.g., Huizink, Mulder, & Buitelaar, 2004). These effects include spontaneous abortion, preterm labour, craniofacial malformations, heart defects, growth retardation, and cognitive, behavioural and emotional problems. Children whose mothers have anxiety disorders are more likely to be behaviourally inhibited, insecurely attached, and to exhibit more internalizing behaviours, compared with children of mothers who do not suffer from anxiety (Manassis, Bradley, Goldberg, Hood, & Swinson, 1995). An increased prevalence of anxiety disorders among children of anxiety-disordered parents compared with children normal parents is also well documented (e.g., Black, Gaffney, Schlosser, & Gabel, 2003).

### **A cognitive-behavioural model of ppOCD**

Given the clinical features of ppOCD described above, a successful model of this phenomenon should be able to account for the following:

1. the rapid onset of symptoms occurring during the perinatal period,
2. the specificity in symptom presentation (i.e., why the predominance of obsessional thoughts concerning harm to the infant as opposed to contamination, hoarding, counting, somatic, or symmetry/ordering obsessions and compulsions?),
3. the presence of symptoms in mothers *and fathers* of newborns, and
4. the fact that most new parents experience intrusive distressing infant-related thoughts, but relatively few develop clinical OCD symptoms.

A useful model should also be scientifically testable and have implications for treatment.

Below, we outline a cognitive-behavioural hypothesis to account for the nature of ppOCD that draws heavily from existing cognitive-behavioural theories of obsessional problems (e.g., Rachman, 1997; Salkovskis, 1985). The model has as its centerpiece the notion that individuals who have recently become parents for the first time are especially vulnerable to developing certain types of OC symptoms. The model incorporates particular aspects of new parenthood (e.g., an increase in responsibility) that confer vulnerability to OCD, the role of misinterpretations of normally occurring intrusive infant-related thoughts, and responses to intrusive thoughts (i.e., attempts to deal with the obsession) that paradoxically maintain obsessional anxiety.

#### *Overview*

We propose that:

1. The perinatal period lowers the threshold for OCD development/exacerbation by bringing with it a sudden and dramatic increase in *responsibility* for a *vulnerable* and *highly cherished* infant;
2. this increase in responsibility sets the stage for the misinterpretation of normally occurring upsetting intrusive infant-related thoughts as highly significant, threatening, and as otherwise requiring attention in order to prevent some feared negative behavioural or moral consequence; and
3. overt and covert behavioural patterns that develop in response to the intrusive thoughts (e.g., checking the baby, avoidance of the child, thought suppression attempts) contribute to the maintenance of the obsessional distress.

#### *Psychological vulnerability factors associated with new parenthood*

We propose that the perinatal period is associated with a dramatic increase in one's sense of responsibility and one's perception of threat (i.e., the probability of a negative outcome and the seriousness of the outcome).

This, in turn, creates especially fertile grounds for the development of obsessional problems by setting the stage for the misinterpretation of otherwise harmless postpartum intrusive thoughts as threatening. From the perspective of cognitive theory (e.g., Beck & Emery, 1985), an inflated sense of responsibility and a tendency to overestimate the probability of harm function as core beliefs that underlie the misinterpretation of intrusive thoughts as discussed below.

#### *Overestimates of responsibility*

We propose that pregnancy and childbirth evoke (especially for first time parents) a sudden (as opposed to gradual) increase in feelings of responsibility for preventing harm. Factors that contribute to this include the abrupt increase in caregiving responsibilities and simultaneous decrease in the role of healthcare providers immediately following childbirth. A number of authors have proposed that exaggerated estimates of responsibility for preventing harm are important in the development and maintenance of OCD. Salkovskis (1985), for example, argued that the appraisal of normally occurring intrusive thoughts as indicating responsibility for causing or preventing harm leads to obsessional anxiety and neutralizing behaviours characteristic of OCD.

#### *Overestimates of threat*

Cognitive models of OCD propose that the tendency to overestimate the severity and likelihood of threat underlie the development of OCD (e.g., Frost & Steketee, 2002). Indeed, new parenthood is characterized by the arrival of a vulnerable and precious person in one's life. Further, parents are bombarded with information about numerous risks to their highly dependant and seemingly fragile and vulnerable newborn (e.g., car seats, sleeping habits, cribs, choking, etc.), and we propose that those who develop ppOCD have come to highly exaggerate these risks. The ubiquity of potentially threatening situations also provides frequent triggers for intrusive thoughts of possible harm.

#### *First-time parenting versus parenting of subsequent offspring*

We propose that first-time parents are more vulnerable to ppOCD symptoms than are parents experiencing the births of subsequent children. Specifically, we suggest the new responsibilities bestowed on first-time parents during the transition from "not parent" to "parent" are both qualitatively different and of a greater magnitude than the increase in responsibility that comes with the arrival of a second (and subsequent) offspring. For most individuals, first-time parenting requires the development and use of new behavioural and emotional skills in the context of sustaining a highly valued new life that cannot sustain itself. As such, the emotional impact of the arrival of second and subsequent offspring is predicted to be significantly less than was the case for one's first-born.

#### *Normal harm-related intrusive thoughts*

Research indicates that people with and without OCD experience unwanted intrusive (obsession-like) thoughts on a regular basis (e.g., Rachman & de Silva, 1978). Such thoughts occur at especially high rates during times of life stress (e.g., Horowitz, 1975) and can be evoked by stimuli that serve as reminders of possible harm (e.g., the sight of a knife evokes intrusions about stabbing someone). As reviewed above, upsetting intrusions pertaining to the infant are very common among new parents (e.g., Abramowitz et al., 2003), perhaps due to the ubiquity of reminders of the infant's vulnerability and the potential for harm. For example, putting the infant to sleep, fastening the car seat buckle, carrying the infant down the stairs or on a balcony, and turning on a baby monitor.

#### *Faulty appraisals of intrusions*

Consistent with well-articulated cognitive-behavioural models of OCD (e.g., Salkovskis, 1985), we propose that postpartum obsessional problems arise when new parents misinterpret normally occurring infant-related intrusive thoughts as highly significant based on (a) an inflated sense of responsibility for causing or preventing harm, and (b) overestimates of the probability and severity of harm to the infant.



For example, consider a new mother with an unwanted thought to shake her infant who will not stop screaming. Whereas most parents would appraise this unsettling idea as meaningless (e.g., “I might be angry right now, but I know I would never do *that*”), a parent who develops ppOCD will misappraise this intrusion in a catastrophic way that evokes obsessional fear (e.g., “This thought means I am a dangerous person who must take extra precautions to ensure that I don’t do anything terrible”).

### *Maintaining factors*

Threat-related interpretations of intrusive thoughts about harm befalling one’s infant are thought to evoke a range of responses including avoidance, concealment, attempts to suppress the upsetting thought, and other overt (checking) and covert (praying) safety-seeking behaviours that function to reduce obsessional distress as well as the perceived risk associated with the intrusive thought. For example, a new mother, while carrying her infant up a flight of stairs, has images of tossing the infant down the steps. She then *holds the infant tighter in her arms* to prevent acting on the unwanted image.

Previous authors have elucidated the role of situational avoidance, thought suppression, and safety-seeking behaviours in the maintenance of obsessional problems (e.g., Salkovskis, 1985). Newth and Rachman (2001) have described the role of concealment of obsessions. Briefly, such responses are negatively reinforced by the immediate (albeit temporarily) reduction in distress they engender. However, such responses also increase the frequency of obsessional thoughts by drawing undue attention toward the intrusions. Moreover, the responses prevent the unambiguous disconfirmation of faulty appraisals of obsessional thoughts. That is, when no feared outcome occurs following safety-seeking behaviour, the parent attributes this non-occurrence directly to the safety-behaviour instead of realizing that the intrusive thoughts are unrelated to feared outcomes. The individual who conceals his/her obsessions never learns that such thoughts are universal experiences. This preserves the faulty core beliefs pertaining to threat and responsibility and maintains the misinterpretation of otherwise harmless intrusive thoughts.

### *How well does the model account for ppOCD?*

The present model of ppOCD accounts for the rapid onset (or worsening) of OCD symptoms during pregnancy and the postpartum by postulating increased vulnerability to developing inflated estimates of responsibility and threat during these periods. In addition, the life stress associated with these periods is proposed to give rise to upsetting intrusive thoughts regarding the infant that might then be misinterpreted based on mistaken beliefs about responsibility and threat. Thus, the model also accounts for the observed predominance of obsessional thoughts concerning harm to the infant (as opposed to hoarding, counting, somatic, or symmetry/ordering obsessions and compulsions). The occurrence of ppOCD symptoms in new mothers *and fathers* is explained by the model in that intrusive thoughts and psychological processes that give rise to ppOCD (i.e., misinterpretation, the effects of avoidance or safety seeking) are universal and not dependant on biological factors associated with pregnancy and delivery that would be relevant only to the childbearing female. Finally, the model provides an explanation for why the majority of new parents experience distressing infant-related thoughts—and may in fact engage in low levels of safety-seeking behaviours (such as checking on the infant)—yet relatively few develop clinical ppOCD symptoms. In particular, the presence of such thoughts does not in and of itself lead to OCD; one must catastrophically misinterpret the meaning and significance of such thoughts, and habitually engage in efforts to forestall the perceived consequences of them, in order to develop clinical OCD symptoms.

### **Empirical support for the model and future research directions**

The conceptual model outlined above leads to several testable hypotheses, which if supported, would lend validity to the proposed model. In this section we clarify such propositions and discuss any available and relevant empirical support. Hypotheses that have yet to be tested are discussed in terms of directions for future research.

**Hypothesis 1.** Parents experience an increase in perceived responsibility and the tendency to overestimate the probability and severity of harm leading up to and following the birth of a child; and this increase is larger for first-time parents, as compared to parents who have already raised a newborn.

To date, we are not aware of research testing this hypothesis empirically. To do so would require a prospective study in which first-time expecting parents, and those expecting subsequent children, are recruited when they are still planning their pregnancy and then followed through the postpartum period. Using a mixed quasi-experimental design, these individuals would be compared on their responses on measures of inflated responsibility and the tendency to overestimate threat both longitudinally (within groups) as well as between groups. In a similar design, one could also test the hypothesis that expecting parents whose pregnancies were planned would evidence higher scores compared to those whose pregnancies are unplanned.

**Hypothesis 2.** Individuals who (before the birth of a child) hold an inflated sense of responsibility and tendency to overestimate threat will evidence more severe ppOCD symptoms relative to individuals who do not hold such beliefs.

This hypothesis was examined in a prospective study by [Abramowitz et al. \(2006\)](#) in which 85 expecting mothers and fathers were followed from 3 months before childbirth until 3 months postpartum. Eighty-nine percent of these individuals reported distressing postpartum intrusions and 85% reported having used neutralizing strategies in response to these thoughts. Moreover, prenatal scores on a measure that assessed the tendency to inflate responsibility and overestimate threat (i.e., the Obsessive Beliefs Inventory; [Frost & Steketee, 2002](#)) predicted the severity of OC symptoms in the postpartum even after controlling for pre-existing OC symptoms, anxiety, and depression. These data support the model proposed here and suggest that inflated estimates of responsibility and threat confer vulnerability to ppOCD.

**Hypothesis 3.** Individuals who misinterpret as significant the presence and meaning of intrusive infant-related postpartum thoughts will report more severe ppOCD symptoms than individuals who do not misinterpret such intrusions.

[Abramowitz, Nelson, Rygwall, & Khandker \(in press\)](#) reported data to support this hypothesis. In their study, 76 first-time mothers and fathers who reported infant-related postpartum intrusive thoughts during the first postpartum month were assessed for the tendency to misinterpret these intrusions as meaningful or significant using the Interpretation of Intrusions Inventory ([Frost & Steketee, 2002](#)). These individuals were re-assessed for OC symptoms at between 3 and 4 months postpartum. Results indicated that the tendency to negatively interpret the presence and meaning of unwanted intrusive infant-related thoughts early in the postpartum period was predictive of OC symptoms later in the postpartum, even after controlling for baseline levels of obsessions and compulsions.

**Hypothesis 4.** Individuals who employ avoidance, safety-seeking or other strategies to neutralize postpartum intrusive thoughts will evidence more postpartum obsessional symptoms relative to those who do not engage in such safety-seeking behaviours.

Although this hypothesis has not yet been examined in a postpartum sample, results from several studies support the hypothesis that safety-seeking behaviours have deleterious effects on OC symptoms. An experimental study by [Salkovskis, Thorpe, Wahl, Wroe, and Forrester \(2003\)](#), for example, revealed that compared to OCD patients instructed to count backwards from 20 when exposed to their most distressing obsessional thought, patients instructed to perform covert neutralization strategies in response to their obsession reported more distress and stronger urges to neutralize when subsequently exposed to this obsession.

### **Role of biological factors in ppOCD**

Because of the close relationship to biological events (i.e., pregnancy and delivery), biological hypotheses of ppOCD have been proposed (for a review see [Abramowitz, Schwartz, Moore et al., 2003](#)). Generally, these models posit that ppOCD arises from fluctuations in specific hormones (e.g., oxytocin) during the perinatal

period, leading to a dysregulation in serotonin functioning. Biochemical models are often set up as competitors with psychological models; with biological data often cited as “underlying” psychological experiences. Yet whereas research on neurochemistry provides valuable information that may not be obtainable with self-report or behavioural measures, it does not justify reducing psychological concepts to biological events. Consistent with this view, our cognitive-behavioural model assumes that although the implementation of cognitive and behavioural phenomena within biology is important to study (and will lead to a richer understanding of ppOCD), the fundamentally psychological experience of ppOCD requires a fundamentally psychological explanation.

### Treatment implications

Treatment implications of the present model of ppOCD are similar to those of cognitive-behavioural models of OCD in general, particularly those models that focus on obsessions (e.g., Rachman, 1997). In brief, treatment for ppOCD should help patients to modify erroneous interpretations of normal postpartum intrusive thoughts and eliminate avoidance, concealment, and all safety-seeking behaviour that paradoxically prevents the self-correction of the erroneous interpretations. The application of cognitive-behavioural treatment techniques, such as psychoeducation, cognitive therapy, exposure, and response prevention, to meet these aims in the specific case of ppOCD has been described elsewhere (Abramowitz, Larsen, & Moore, 2005).

### Conclusions

Continual adaptations of theoretical models to explain the various presentations of OCD move the field toward more a more complete understanding of this disorder and a more individualized approach to treatment (McKay et al., 2004). We present a theoretical explanation of new, first-time parenthood as a time of increased risk for the development or exacerbation of OCD and an adaptation of existing cognitive-behavioural formulations to the understudied area of ppOCD. We hope that this theoretical work provokes additional empirical study leading to a resolution of the as yet untested hypotheses and a fuller explanation of this unique and understudied form of OCD.

### Acknowledgments

We would like to thank Drs. Sheila Woody and S. Rachman for their invaluable input.

### References

- Abramowitz, J., Larsen, K., & Moore, K. (2005). Treatment of anxiety disorders in pregnancy and the postpartum. In V. Hendrick (Ed.), *Psychiatric disorders in pregnancy and the postpartum: principles and treatment* (pp. 83–108). Totowa, NJ: Humana Press.
- Abramowitz, J. S., Khandker, M., Nelson, C. A., Deacon, B. J., & Rygwall, R. (2006). The role of cognitive factors in the pathogenesis of obsessive-compulsive symptoms: A prospective study. *Behaviour Research and Therapy*.
- Abramowitz, J. S., Moore, K. M., Carmin, C., Wiegartz, P., & Purdon, C. (2001). Obsessive-compulsive disorder in males following childbirth. *Psychosomatics*, *42*, 429–431.
- Abramowitz, J., Nelson, C., Rygwall, R., & Khandker, M. (in press). The cognitive mediation of obsessive-compulsive symptoms: a longitudinal study. *Journal of Anxiety Disorders*.
- Abramowitz, J. S., Schwartz, S. A., & Moore, K. M. (2003). Obsessional thoughts in postpartum females and their partners: Content, severity and relationship with depression. *Journal of Clinical Psychology in Medical Settings*, *10*, 157–164.
- Abramowitz, J., Schwartz, S., Moore, K., & Luenzmann, K. (2003). Obsessive-compulsive symptoms in pregnancy and the puerperium: A review of the literature. *Journal of Anxiety Disorders*, *17*, 461–478.
- Beck, A., & Emery, G. (1985). *Anxiety Disorders & Phobias: A Cognitive Perspective*. New York: Basic.
- Black, D. W., Gaffney, G. R., Schlosser, S., & Gabel, J. (2003). Children of parents with obsessive-compulsive disorder—a 2-year follow-up study. *Acta Psychiatrica Scandinavica*, *107*, 305–313.
- Buttolph, M. L., & Holland, A. D. (1990). Obsessive-compulsive disorder in pregnancy and childbirth. In M. A. Jenike, L. Baer, & W. E. Minichiello (Eds.), *Obsessive-compulsive disorder: Theory and management*. Chicago: Year Book Medical Publishers.
- Frost, R., & Steketee, G. (2002). *Cognitive approaches to obsessions and compulsions*. Amsterdam: Elsevier.
- Horowitz, M. J. (1975). Intrusive and repetitive thoughts after experimental stress. *Archives of General Psychiatry*, *32*, 1457–1463.



- Huizink, A. C., Mulder, E. J. H., & Buitelaar, J. K. (2004). Prenatal stress and risk for psychopathology: Specific effects or induction of general susceptibility? *Psychological Bulletin*, *130*, 115–142.
- Ingram, I. M. (1961). Obsessional illness in mental hospital patients. *Journal of Mental Science*, *107*, 382–402.
- Jennings, K. D., Ross, S., Pepper, S., & Elmore, M. (1999). Thoughts of harming infants in depressed and nondepressed mothers. *Journal of Affective Disorders*, *54*, 21–28.
- Kendell, R. E., McGuire, R. J., Connor, Y., & Cox, J. L. (1981). Mood changes in the first three weeks after childbirth. *Journal of Affective Disorders*, *3*, 317–326.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 593–602.
- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*, 617–627.
- Lo, W. H. (1967). A follow-up study of obsessional neurotics in Hong Kong Chinese. *British Journal of Psychiatry*, *113*, 823–832.
- Maina, G., Albert, U., Bogetto, F., Vaschetto, P., & Ravizza, L. (1999). Recent life events and obsessive-compulsive disorder (OCD): The role of pregnancy/delivery. *Psychiatry Research*, *89*, 49–58.
- Manassis, K., Bradley, S., Goldberg, S., Hood, J., & Swinson, R. (1995). Behavioural inhibition, attachment and anxiety in children of mothers with anxiety disorders. *Canadian Journal of Psychiatry*, *40*(2), 87–92.
- Matthey, S., Barnett, B., Howie, P., & Kavanagh, D. J. (2003). Diagnosing postpartum depression in mothers and fathers: Whatever happened to anxiety? *Journal of Affective Disorders*, *74*, 139–147.
- McKay, D., Abramowitz, J. S., Calamari, J. E., Kyrios, M., Radomsky, A., Sookman, D., et al. (2004). A critical evaluation of obsessive-compulsive disorder subtypes: Symptoms versus mechanisms. *Clinical Psychology Review*, *24*, 283–313.
- Newth, S., & Rachman, S. (2001). The concealment of obsessions. *Behaviour Research and Therapy*, *39*, 457–464.
- Neziroglu, F., Anemone, R., & Yaryura-Tobias, J. A. (1992). Onset of obsessive compulsive disorder in pregnancy. *American Journal of Psychiatry*, *149*, 947–950.
- Nonacs, R. (2005). Postpartum Mood Disorders. In L. Cohen, & R. Nonacs (Eds.), *Mood and anxiety disorders during pregnancy and postpartum* (pp. 77–103). Washington, DC: American Psychiatric Publishing.
- Pollitt, J. (1957). Natural history of obsessional states: A study of 150 cases. *British Medical Journal*, *32*, 194–198.
- Rachman, S. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy*, *35*, 793–802.
- Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy*, *16*, 233–248.
- Salkovskis, P. M. (1985). Obsessional-compulsive problems: A cognitive-behavioral analysis. *Behaviour Research and Therapy*, *23*, 571–583.
- Salkovskis, P. M., Thorpe, S. J., Wahl, K., Wroe, A. L., & Forrester, E. (2003). Neutralizing increases discomfort associated with obsessional thoughts: An experimental study with obsessional patients. *Journal of Abnormal Psychology*, *112*, 709–715.
- Sichel, D. A., Cohen, L. S., Dimmock, J. A., & Rosenbaum, J. F. (1993). Postpartum obsessive-compulsive disorder: A case series. *Journal of Clinical Psychiatry*, *54*, 156–159.
- Sichel, D. A., Cohen, L. S., Rosenbaum, J. F., & Driscoll, J. D. (1993). Postpartum onset of obsessive-compulsive disorder. *Psychosomatics*, *34*, 277–279.
- Wenzel, A., Haugen, E. N., Jackson, L. C., & Brendle, J. R. (2005). Anxiety symptoms and disorders at eight weeks postpartum. *Journal of Anxiety Disorders*, *19*, 295–311.
- Wisner, K. L., Peindl, K. S., Gigliotti, T., & Hanusa, B. H. (1999). Obsessions and compulsions in women with postpartum depression. *Journal of Clinical Psychiatry*, *60*, 176–180.