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Obsessive-compulsive symptoms in pregnancy and the puerperium: A review of the literature

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Abstract

In this article, we review the available research on postpartum obsessive-compulsive disorder (OCD). Most studies are retrospective in nature, thus not answering questions as to overall prevalence of such symptoms. However, there are consistent findings with regard to symptom profile: obsessional thoughts in postpartum OCD tend to concern fears of harm to the infant. We discuss distinctions between postpartum OCD symptoms and postpartum depression and psychosis. Although preliminary, research on treatments for postpartum OCD indicates the effectiveness of medications and cognitive-behavioral therapy. We explore the relationship between OCD symptoms and postpartum depression and offer possible directions for future study. We also consider the proposed etiological models and offer a fresh conceptualization of this condition.

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Psychiatric disorders arising during pregnancy and immediately after child-birth have been recognized by clinicians and researchers for many years (e.g., [Turnbull, 1969](#)), yet these problems often go undetected and untreated. One possible factor contributing to much under-recognition may be pressure on the new mother to suppress negative emotions during what is expected to be a joyful

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occasion. Another possibility is that childbirth education programs do not sufficiently address this inauspicious aspect of giving birth. Finally, healthcare providers for the child or new mother may fail to inquire about these problems (Millis & Kornblith, 1992). Because untreated psychiatric disorders can disrupt the family environment and have unfavorable short- and long-term effects on child development, it is important to identify those at risk for postpartum disorders, and recognize the symptoms and treatments of these problems.

Whereas a good deal of attention has recently been paid to postpartum depression (e.g., Miller, 2002; Steiner & Tam, 1999; Sugawara, Sakamoto, Kitamura, Toda, & Shima, 1999; Weinberg et al., 2001) and psychoses (e.g., Attia, Downey, & Oberman, 1999), less effort has been devoted to studying obsessive-compulsive disorder (OCD) with a perinatal onset. OCD is an anxiety disorder characterized by (a) recurrent, unwelcome thoughts, ideas, or doubts that seem senseless, yet give rise to anxiety/distress (obsessions), and (b) urges to perform excessive behavioral or mental acts (compulsive rituals) to suppress or neutralize the obsessional distress. Avoidance of situations related to obsessional fears is often a prominent symptom as well. Although the specific content of obsessions and compulsions may vary from patient to patient, a common theme concerns uncertainty over responsibility for harm or mistakes. For example, thoughts such as “I may have unknowingly struck a pedestrian with my automobile” give rise to urges to check the road for injured people. The lifetime prevalence rate of OCD has been consistently estimated at 2–3% in the general adult population throughout the world (Angst, 1994; Karno, Golding, Sorenson, & Burnam, 1988), making it one of the more common psychiatric disorders. A chronic and deteriorating course is usually observed absent effective treatment, and symptoms frequently interfere significantly with various areas of functioning (e.g., work, school, and social activities).

Although research on OCD in pregnancy and the puerperium is somewhat scarce, a handful of epidemiological and descriptive studies do exist. Methodology has generally included case series and retrospective reports of patient records. Some authors have reported on treatment outcome, and others have suggested hypotheses regarding etiology and pathophysiology of postpartum OCD. Nevertheless there are large gaps in the literature, especially in the areas of treatment of this problem. In this article, we review the literature to date on postpartum OCD. In doing so, we discuss limitations of existing studies in this area, offer a fresh conceptualization of this condition, and present directions for future study of the understanding and treatment of this problem.

1. Prevalence and phenomenology

1.1. Prevalence

Three early studies on factors associated with onset of OCD identified subgroups of patients whose symptoms began during or immediately following

pregnancy. In one investigation, [Pollitt \(1957\)](#) reviewed histories of 150 patients with OCD (63 males and 87 females) and found that 93 of these individuals (62%) believed a specific event precipitated onset of their symptoms. For 10 patients (11%) the significant event was pregnancy or childbirth. [Ingram \(1961\)](#) conducted a similar study of 89 inpatients (34 males, 55 females). In this sample, 61 individuals (69%) identified a precipitating event occurring within 1 year of OCD onset. Interestingly, pregnancy was the most frequently reported event, occurring in 15 of the 61 patients (25%). In China, [Lo \(1967\)](#) examined 88 OCD patients (64 males and 24 females), 56 (64%) of whom identified a precipitating event occurring within 6 months of OCD onset. In contrast to the two previous studies, Lo found that only three of these patients (5%) identified pregnancy as the significant event.

Although informative, the studies described before share an important methodological weakness: the reliance on retrospective self-report, which is a particularly unreliable approach to ascertaining factors associated with onset of psychiatric conditions. Additionally, none of these studies reported whether those patients identifying pregnancy/childbirth as precipitating factors were exclusively females. Conceivably, the smaller percentage of female participants in [Lo's \(1967\)](#) sample could have accounted for the lower rates of pregnancy-related OCD onset in that study. Moreover, whether a first or subsequent pregnancy was related with OCD symptom onset was unknown. An additional difficulty is the lack of structured diagnostic assessments.

More recently, [Buttolph and Holland \(1990\)](#) mailed surveys to 180 OCD patients asking whether their symptoms were triggered or worsened by one or more of the following: (1) injury; (2) school-related events; (3) job-related incidents; (4) death of friend or relative; (5) illness; (6) birth of a child; (7) pregnancy. All patients had been diagnosed with OCD by researchers using standardized procedures at the Massachusetts General Hospital OCD Program. Unfortunately, only 33% of the surveys (total $n = 60$; 39 females, 21 males) were ever returned to the researchers. Of those who responded, 1 male and 27 females (69%) indicated that onset or worsening of OCD symptoms was associated with a pregnancy or birth of a child. Specifically, pregnancy was related to symptom onset in six women (22%), and to worsening of the problem in three (11%). Birth of a first child was related to worsening in four women (15%), and was identified as a trigger for OCD onset in six (22%). Two patients (7.5%) reported that birth of a subsequent child worsened OCD symptoms, and two others stated that this had triggered onset.

As with the chart review studies, [Buttolph and Holland's \(1990\)](#) findings suggest that OCD onset can be related to pregnancy and/or childbirth. However, it is possible that the somewhat high prevalence rates reported in this study were inflated by response bias, especially given the somewhat low rate of response to the questionnaire. That is, patients who felt their symptoms were related to one or more of the seven stressors may have been more likely than other patients to return the survey since there was no item for respondents to indicate that none of the

stressors contributed to the development of their OCD. Additionally, percentage of respondents who had been pregnant but did not develop OCD in the puerperium was unknown.

Neziroglu, Anemone, and Yaryura-Tobias (1992) addressed some of the methodological problems of previous studies by controlling for both gender and pregnancy history. These authors interviewed 106 females (59 with children and 47 without children) who had received two independent diagnoses of OCD from trained clinicians. Patients were asked whether they associated any of 18 life events (including pregnancy and abortion) with the onset of their OCD. Consistent with earlier findings, Neziroglu et al. (1992) found that among women with children, pregnancy was associated with OCD onset more often than any other life event (39% of patients). Eighteen women with children (30.5%) indicated no specific life events associated with onset. Interestingly, of the four participants in the sample who indicated having had abortions, three (75%) indicated this event as being associated with OCD onset.

Using an expanded version of Neziroglu et al.'s (1992) interview, Williams and Koran (1997) assessed the relationship between pregnancy/childbirth and onset or worsening of OCD symptoms in 35 women who had been pregnant at least once. None reported an onset of OCD during the first postpartum year. However, five women (13%) reported onset of their OCD during pregnancy (four during their first pregnancy, and one during her second). Of the 29 women who had OCD prior to becoming pregnant, the majority ($n = 20$, 69%) described no changes in symptom severity during pregnancy. Five women (17%) reported a worsening of symptoms, and four (14%) reported improvement during pregnancy. Seven women (29%) reported worsening of OCD symptoms during the postpartum period. Williams and Koran (1997) also found that 9 (37%) of the 24 women with preexisting OCD who delivered a child reported postpartum depression; for five of these women, this was their first depressive episode.

Mania, Albert, Bogetto, Vaschetto, & Ravizza (1999), in Italy, conducted a controlled retrospective study of psychosocial stressors in patients with OCD. They assessed frequency of various stressful events within 12 months prior to OCD onset in 68 OCD patients (33 females) and in a gender-matched control group of 68 healthy participants. Results indicated that females with OCD were significantly more likely than controls to have given birth to a child (24.2% vs. 6.1%). Interestingly, in all of the cases where OCD occurred following delivery, symptoms began or worsened substantially within the first four postpartum weeks, indicating rapid onset of symptoms.

Unfortunately, the studies reviewed above were not designed to answer questions about prevalence of pregnancy-related OCD in the general population—to our knowledge such an investigation has not yet been conducted. Nevertheless, each of the existing reports identifies a subset of patients for whom onset or worsening of symptoms appears to have coincided with pregnancy or the puerperium. Despite variability in results, the general pattern of these findings raises the possibility of increased vulnerability to OCD during this period. Several

factors may explain the wide variation in study findings: sampling differences (sex ratio), lack of uniform diagnostic criteria, and lack of standardized assessment procedures across studies. As described before, results of retrospective studies must be considered with caution because patients often cannot accurately determine precise details of symptom history or events related to onset. One way to address this problem is to conduct prospective studies of pregnant women to examine incidence of OCD symptoms and possible predictors of onset.

Interestingly, studies have uniformly found a later onset age for females as compared to males (e.g., Noshirvani, Kasvikis, Marks, Tsakiris, & Montiero, 1991; Rasmussen & Eisen, 1990). Whereas mean age of onset for males tends to be in mid-adolescence, females have a mean onset age in the middle twenties, which is also a common age of pregnancy. Furthermore, some research suggests a bi-modal distribution of OCD onset age for females: those who have borne children showing a later age of onset (22–24 and 29–32 years) compared to those who have not (13–16 years) (Neziroglu et al., 1992; Williams & Koran, 1997). One might speculate that these gender differences are due, in part, to effects of pregnancy and childbirth on susceptibility to OCD. Alternatively, the finding that childbearing women with OCD report a later age of onset may be explained by the fact that patients with early onset have difficulties establishing romantic relationships or view themselves as psychologically unfit to handle the stress of childbirth and parenting, thus precluding them from having children.

1.1.1. OCD symptoms in women with postpartum depression

Two studies provide evidence that OCD symptoms, particularly intrusive harm-related obsessional thoughts, are especially common among women with postpartum-onset depression. In one investigation, Wisner, Peindl, Gigliotti, and Hanusa (1999) compared frequency and content of various OCD symptoms in 37 females with postpartum depression to 28 females with depression that did not begin during the puerperium. Obsessive thoughts and compulsive rituals were assessed using the symptom checklist of the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS; Goodman et al., 1989a, 1989b): a listing of over 50 specific obsessions (e.g., unwanted aggressive thoughts, excessive concern with dirt or germs) and compulsions (e.g., checking locks and windows, ritualized handwashing). Results indicated that high rates of OCD symptoms were present in women with both postpartum (57%) and non-postpartum (39%) depression; the difference between groups was not statistically significant.

In a second study, Jennings, Ross, and Elmore (1999) compared the prevalence of unwanted aggressive obsessional thoughts (fears of harming the infant) in a group of 100 women with postpartum depression, versus 46 women who had recently given birth but had no psychiatric diagnoses. A strength of this study was that rather than categorizing patients based simply on presence or absence of a diagnosis of OCD, the researchers examined severity of symptoms on a continuous measure of the frequency of obsessional thoughts. Of the 41% of depressed mothers who reported aggressive obsessive thoughts, 20% experienced them as

“passing.” The thoughts were “repetitious” in 12% of the cases, and elicited “precautions” (e.g., avoiding being alone with the baby) in 4%. Five percent of the depressed group had actually acted in an aggressive way toward their child.

Prevalence of aggressive thoughts among postpartum women without depression in the Jennings et al. (1999) study was 6.5%, and all of the thoughts in this group were experienced as “passing.” This interesting result suggests that unwanted thoughts concerning harm to the newborn occur fairly frequently even among healthy women (1 in every 15 childbearing females). Jennings et al. (1999) also examined whether various psychosocial stressors (e.g., the child’s temperament, marital conflict) or clinical variables (e.g., history and severity of depression) predicted the presence of these symptoms. Interestingly, despite a heterogeneous sample, no significant relationships were found, suggesting that such intrusive thoughts occur independently of these other stress-related variables.

In summary, research to date suggests that obsessional phenomena may occur at higher than expected rates for puerperal females; however, for the limitations described before, further investigation examining prevalence rates is warranted. There is also evidence of a relationship between postpartum depression and OCD symptoms, particularly unwanted intrusive thoughts of hurting the newborn. However, it is unknown whether these OCD symptoms represent a cause or effect of postpartum depression. Given that depression involves unwanted and/or self-destructive thoughts, it is possible that obsessional problems (e.g., unwanted aggressive thoughts) are symptoms of postpartum depression. Alternatively, it is plausible that the presence of unwanted obsessional thoughts is distressing to the point that they give rise to depressive symptoms. Indeed many individuals with OCD report secondary depressive symptoms (Ricciardi & McNally, 1995). Finally, both OCD and depression could occur coincidentally; each the result of a third variable (e.g., biological factors). Further study is warranted to clarify this relationship which may have a bearing on clinical management of these disorders.

1.2. Phenomenology

As mentioned previously, OCD is a heterogeneous condition with a wide variation in the specific content of obsessions and compulsions (Foa & Kozak, 1995). Obsessional thoughts may concern fears of contamination, aggression or violence, religion, sex, symmetry, making mistakes, or serious illnesses, among other themes. Compulsive behaviors may involve ritualistic washing, checking, counting, saving, praying, repeating routine activities, mentally neutralizing of distressing ideas, etc. A few studies have examined the themes of OCD symptoms among patients experiencing perinatal onset. As reviewed below, the majority of cases seem to develop symptoms strongly related to meaningful circumstantial factors.

Buttolph and Holland (1990) described two women with onset of OCD during pregnancy who each reported obsessional fears of the unborn baby becoming contaminated by toxic agents. Compulsive rituals involved excessive washing

and cleaning. These authors also described three cases in which rapid onset occurred soon *after* childbirth. For these new mothers, symptoms concerned anxiety-evoking thoughts of harming the child with a knife, fears of demonic possession, and thoughts of contaminating the baby. [Sichel, Cohen, Dimmock, and Rosenbaum \(1993a\)](#) reported on a series of 15 women with postpartum-onset OCD who all reported ego-dystonic obsessional thoughts related to harming the infant (e.g., while the infant slept). No overt compulsive rituals were reported in this sample, however, avoidance of obsessional stimuli (e.g., knives, the infant) was noted. In a separate report, [Sichel, Cohen, Rosenbaum, and Driscoll \(1993b\)](#) described two postpartum OCD cases each involving fears of stabbing the newborn. Both women developed phobic avoidance of the child and of knives, however, neither reported observable compulsive rituals such as washing or checking (mental rituals were not ruled out).

[Diaz, Grush, Sichel, and Cohen \(1997\)](#) described five women with OCD. In three cases, where symptom onset coincided with pregnancy, the major symptoms were contamination obsessions and washing or cleaning compulsions. For the remaining two women, who experienced onset soon after childbirth, the main symptoms were upsetting thoughts of harming (e.g., sexually molesting or stabbing) the infant.

Two studies used the Y-BOCS symptom checklist to assess the presence of various types of OCD symptoms. [Wisner et al. \(1999\)](#) found that almost all women with comorbid postpartum depression and obsessional problems reported presence of aggressive obsessions using this measure. Examples of such thoughts included images of the baby's head cracked and bleeding, thoughts of throwing the baby down a flight of stairs, and fears of mistakenly putting the infant in a microwave oven. Other types of obsessions (e.g., contamination) were substantially less frequent. Additionally, checking rituals were by far the most prevalent types of compulsive symptoms. Among the group of women with non-postpartum depression in the [Wisner et al. \(1999\)](#) study, there was no predominant theme of obsessions and compulsions. In the study by [Mania et al. \(1999\)](#), all eight of the postpartum OCD patients reported aggressive obsessions, whereas these kinds of obsessions were present in only half (54%) of the non-postpartum OCD participants.

Finally, preliminary analyses from our own community survey of postpartum females suggest that women without OCD or depression also report intrusive, senseless, obsessional thoughts and compulsive behaviors that are similar to those found in postpartum OCD patients. The most common symptoms concerned repetitive thoughts of the infant dying in their sleep (i.e., sudden infant death syndrome) and compulsive checking rituals. Other obsessional themes concerned distressing thoughts of harming the child (i.e., shaking), of accidents or mistakes leading to injury or death (e.g., "I picture what would happen if I left him alone in the bathtub"), of sexual misconduct involving the child, and of physically misplacing the baby. These data are consistent with [Jennings et al.'s \(1999\)](#) and suggest that subclinical obsessional and compulsive symptoms are present to some extent in postpartum women without clinical depression or OCD.

1.2.1. *Postpartum obsessions versus postpartum psychosis*

Given the importance of child protection and recent media attention achieved by the effects of postpartum psychosis, it is important to distinguish between the symptoms of postpartum OCD and those of postpartum psychosis, since either may involve ideas of harming the newborn. Despite this superficial similarity in content, obsessional thoughts and OCD are grossly distinct from psychotic symptoms. A very small percentage of women suffering from postpartum depression develops much more serious symptoms involving hallucinations and delusions, sometimes involving ideas of hurting or killing the child (e.g., “I saw smoke coming from the baby’s nose and ears meaning he was possessed by the devil”) (Suri & Burt, 1997). Postpartum psychosis typically includes other typical psychotic features such as confusion, mood lability, agitation, and bizarre behavior as well. Most importantly, the aggressive ideation in psychosis is experienced as consistent with the person’s delusional thinking and behavior (*ego-syntonic*), is not associated with fears or rituals, and is associated with an increased risk of aggressive behavior.

In contrast, postpartum obsessional thoughts (no matter how horrific) are not associated with an increased risk of committing harm. This is because obsessional thoughts are experienced as *senseless, unwanted* and *inconsistent* with the person’s typical personality or behavior (*ego-dystonic*). The OCD patient reports *fears* of engaging in unacceptable behavior, including fears of even *thinking* about it (in contrast to delusional thinking). Moreover, postpartum OCD patients engage in excessive avoidance and rituals in attempt to control their thoughts and ensure that they do not commit the terrible acts featured in their obsessional thoughts. In short, women with postpartum OCD present with severe anxiety complaints (e.g., worry over whether or not they will harm), as opposed to general psychotic symptoms such as loss of touch with reality and aggressive, unpredictable behavior.

1.2.2. *Postpartum obsessions versus postpartum depression*

The distinction between obsessional symptoms in OCD and depressive ruminations is also important since both may be present in the postpartum period. Obsessions and depressive ruminations are each associated with negative affect. However, whereas obsessions are intrusive thoughts that evoke fears of specific disastrous consequences, depressive ruminations are usually general sad or pessimistic cognitions concerning the self, world, or future. Similarly, whereas obsessional fears (as depicted before) are typically bizarre and senseless, depressive thoughts often concern real life circumstances (e.g., “I’m an inadequate parent”). Finally, whereas obsessional content is typically fixed on a specific subject matter or theme, depressive thinking is often characterized by shifts in content. As we discussed before, additional research on the relationship between postpartum depression and OCD is needed.

1.2.3. *Summary*

A remarkably consistent pattern of the content of obsessions and compulsions in women with OCD symptoms during pregnancy or the postpartum appears to

emerge from the relatively small number of published reports. Females developing symptoms *during* pregnancy tend to report contamination obsessions and washing or cleaning rituals. In contrast, females with obsessional problems that begin *following* the birth of a child (postpartum) tend to report unwanted intrusive obsessional thoughts of harming the infant along with phobic avoidance of fear cues. Little is mentioned about hoarding, perfectionism, or symmetry/ordering symptoms often present in OCD. In some cases, postpartum obsessional thoughts appear to be transitory, whereas in others, they may be repetitive, or may even elicit action to safeguard from violent behavior. Clinical reports also highlight swift onset of obsessional symptoms in postpartum OCD. This is in contrast to the typical onset, which tends to be gradual. Factors that account for presence of specific symptom subtypes in pregnancy-related OCD, and their rapid onset, are worthy of further study since they may shed light on the very etiological processes that contribute to OCD itself. Hypotheses about such factors are discussed further below. Given that OCD patients evidence variability in their degree of insight into the senselessness of their obsessional fears and compulsive behaviors (Foa & Kozak, 1995), future research should also examine whether such a range of insight exists among individuals with OCD coinciding with pregnancy or childbirth.

1.2.4. *Comorbidity*

Comorbid psychiatric conditions are relatively common among patients with OCD in general. In a large comorbidity study, Yaryura-Tobias et al. (1996) found that 42.2% of 391 individuals with OCD had at least one other DSM-III-R condition. The most common additional diagnoses were major mood disorders (29.1%), specific phobias (29.7%) and substance dependence (14.5%).

Only two studies have addressed issues of psychiatric comorbidity in patients with pregnancy-related OCD. As described before, Wisner et al. (1999) found that over half of a sample of women with postpartum depression also reported obsessional symptoms, particularly fears of harming the newborn. In another study, Sichel et al. (1993b) found that 7 of 15 women (47%) with postpartum OCD had a history of other anxiety disorders (five with panic disorder; two with generalized anxiety disorder). Unfortunately, these diagnoses were not assessed in a standardized manner, and interrater reliability data were not collected.

1.2.5. *“Postpartum” OCD in males*

It is not surprising that research on postpartum OCD symptoms has focused almost exclusively on childbearing females. However, if as we suggest before, circumstantial factors play a role in postpartum OCD, one might expect these symptoms to sometimes occur in partners of childbearing women (e.g., the child’s father) given that the birth of a new infant also generates a great deal of strain for such individuals. To address this issue, we recently reported on a series of four previously healthy fathers who experienced a rapid onset of OCD symptoms coinciding with pregnancy or the birth of a child (Abramowitz, Moore, Carmin, Wiegartz, & Purdon, 2001). Interestingly, the topography of these cases was

highly similar to that described in studies of females with postpartum OCD symptoms. Each of the four fathers reported unwanted obsessional thoughts of being responsible for harming the newborn or unborn child. In two cases, the fathers were concerned they would act on an unwanted impulse to physically injure their newborn. In one instance, a man complained of obsessional thoughts of injuring his pregnant wife and unborn baby. The last case involved obsessional fears of being held responsible for accidents leading to the infant's death (e.g., suffocation, downing).

As with all case reports, shortcomings of this study include its extremely small and highly selective sample. Nevertheless, this report suggests that similar obsessional phenomena experienced by puerperal females can also occur in others impacted by the pregnancy/birth. Further investigation with larger samples is needed to determine the prevalence of OCD symptoms in males that coincide with childbirth. Additionally, comparisons between OCD symptoms in new fathers, childbearing mothers, and those with OCD not associated with a pregnancy should be conducted to ascertain similarities and differences, which may help in our understanding of OCD in general.

2. Etiological theories

To date, the literature has largely endorsed a biological etiology of postpartum OCD. Guided by the well-known “serotonin hypothesis” (Barr, Goodman, & Price, 1993), authors have generally implicated a dysregulation of the serotonin system in the generation of obsessional thoughts and compulsive behavior. In particular, there is some evidence to suggest that fluctuations in estrogen and progesterone levels (as observed in late pregnancy) may alter serotonergic transmission, reuptake, and binding (e.g., Biegor, Reches, & Snyder, 1983; Stockert & deRobertis, 1985). Thus, onset or exacerbation of OCD symptoms during or immediately following pregnancy may result from the effects of rapid changes in these two hormones on serotonin functioning. However, it should be noted that on the basis of the largely inconsistent research results, some authors have questioned the validity of the serotonin hypothesis (Rauch & Jenike, 1993; Salkovskis, 1996).

Several researchers have found evidence to suggest that oxytocin is associated with OCD symptoms (for a review see Leckman et al., 1994a). Leckman et al. (1994b), for example, found correlations between OCD severity and cerebrospinal fluid oxytocin levels among untreated OCD patients. In late pregnancy and during the postpartum period, oxytocin plays a role in uterine contractions and lactation. Thus, it is possible that postpartum OCD is triggered by increased concentrations of oxytocin (Diaz et al., 1997). Importantly, there is no direct evidence that hormonal imbalances play a causal role in postpartum OCD. Moreover, the research described before is preliminary, and the precise neurobiological mechanisms of OCD have not been well elucidated.

A cogent theory of postpartum OCD symptoms should be able to account for (a) the rapid symptom onset, (b) the predominance of obsessional thoughts concerning harm to the infant (as opposed to hoarding, counting, somatic, or symmetry/ordering obsessions and compulsions), and (c) presence of symptoms in both females and males. Furthermore, a useful theory must be scientifically testable. Biological theories alone do not explain the specificity in symptom presentation nor the fact that this phenomenon is observed among childbearing women as well as new fathers. Our recent report (Abramowitz et al., 2001) of four men who experienced an onset or exacerbation of their OCD symptoms following their wives conception and childbirth further highlights the need to look beyond biological models to adequately account for the onset of OCD symptoms during this period, and possibly in general. To the extent that biological factors may play an etiological role, perhaps they work in concert with other factors in the development of such symptoms.

Sociobiological and evolutionary explanations have also been proposed. These theories assert that the tendency for aggressive thoughts of harming infants is genetically predisposed and represents a vital aid to the passing on of our own genetic information. According to these theories, such thoughts may be left over from the days when males were less sure of the identification of their own biological children. A man could increase the probability that his own offspring (and thus his own genes) would survive by killing those of his competitors. Indeed, chilling data suggest that parents are far more likely to kill a stepchild than they are a biological child in whom there is a genetic investment (Watson, 1997). A similar explanation has also been offered for the presence of aggressive obsessions among mothers of newborns. Perhaps, such thoughts have survival value in that they cause new mothers to be increasingly protective of their children, thereby increasing the child's chances of surviving to maturity and being able to pass her genes to future generations (Wisner et al., 1999). Although fascinating, evolutionary theories are difficult to scientifically verify, thus we must also consider more parsimonious and testable hypotheses.

One such theory that holds promise is the cognitive-behavioral hypothesis. Rather than assuming gross abnormalities in complex hormonal or neurotransmitter systems, the cognitive-behavioral model proposes that obsessional difficulties arise, in large part, from biased (yet not disturbed) thinking processes. This hypothesis begins with an understanding that most adults normally experience intrusive, upsetting (ego-dystonic) thoughts that do not differ in content from obsessions as seen in OCD (Rachman & de Silva, 1978; Salkovskis & Harrison, 1984). Indeed, our own findings and those reported by Jennings et al. (1999) demonstrate that ego-dystonic thoughts about harming the newborn occur even among women without a psychiatric history. Clinical obsessional problems arise, however, when a person (mis)appraises such a thought as highly significant, leading to an inflated sense of responsibility for the thought (Salkovskis, 1996). For example, if a mother mistakenly believes that her unwanted thoughts of harming her infant signify a true evil nature and intent to perform such an

action, she will likely become increasingly distressed whenever such thoughts occur.

Fear and distress associated with unpleasant (albeit harmless) thoughts motivates efforts to avoid situations that evoke this idea (e.g., being alone with the infant) or perform compulsive rituals to “neutralize” the thought or ensure that feared consequences do not materialize. Whereas avoidance and rituals may work in the short-term to reduce distress, these are negatively reinforced by the relief from obsessional anxiety that they engender. Thus, such compulsive behaviors are likely to be performed in the future whenever unpleasant (albeit harmless) thoughts come to mind. Moreover, these behaviors have the longer term effect of strengthening mistaken beliefs that intrusive thoughts are threatening (i.e., “the thought must be significant if I have to avoid it,” or “if I didn’t ritualize I might have acted on the thought”). This, in turn, leads to preoccupation with the thought and the sense of repetitiveness that is characteristic of obsessions.

Consider a new mother who experiences an unwanted thought about shaking her baby when the child’s crying persists. Two types of cognitive biases may underlie the misappraisal of such a thought leading to obsessional problems. The first, *probability bias*, is the tendency to believe that merely thinking about something increases the likelihood that it will actually occur. The second, *morality bias*, consists of the tendency to believe that having bad thoughts (even if involuntary) is the moral equivalent of committing bad behavior. Probability and moral biases are collectively referred to as *thought–action fusion* (Shafran, Thordarson, & Rachman, 1996), which is essentially the tendency to exaggerate the significance and consequences of intrusive thoughts. One recognizes how such cognitive biases, in the context of an auspicious event such as childbirth, could lead the new mother in the example before to experience intense fear and depression.

Paradoxically, *concealment* of harm-related thoughts is another factor that likely serves to create and maintain threat-related beliefs about these kinds of cognitions (Newth & Rachman, 2001). Because there is often pressure on new parents to show happiness during the postpartum period, mothers and fathers experiencing unwanted (yet normal) aggressive thoughts might avoid discussing such thoughts with others. Patients in our clinic have often reported feeling as if they would scare their relatives if they revealed their obsessional thoughts. Similarly, some felt as if they would be handed over to child welfare authorities were they to describe these thoughts to doctors or other healthcare professionals. Thus, the affected individual might suffer in silence, worried about when they might lose control and impulsively act on the thought. In this way, concealing obsessional thoughts further reinforces the mistaken ideas that one’s thoughts (and one’s mind) are so depraved as to be unspeakable, and prevents the person from finding out that these kinds of thoughts are relatively common and not dangerous. Moreover, because concealment serves as avoidance, it is negatively reinforced and likely to be subsequently employed, leading to a vicious cycle.

The retrospective studies reviewed before suggest that many OCD patients associate onset of this disorder with major life events (e.g., job-related event,

illness or death of a relative) which, like pregnancy and childbirth, likely evoke doubts or thoughts about harm or mistakes. Thus, the cognitive-behavioral conceptual model as we apply it to understanding postpartum OCD is not markedly different from the same conceptualization as pertaining to OCD that develops following a major illness or death in the family. From this perspective, however, pregnancy and the postpartum period are fertile grounds for development of obsessional problems involving responsibility for harm because of the responsibility of maintaining one's own (helpless) infant's well being. For vulnerable individuals, the more responsible one feels in a given situation, the worse it will seem to have related violent or otherwise negative thoughts, however normal such thoughts might be in reality.

Vulnerability to the patterns of responding described before may be determined biologically, through prior learning, or some combination of the two. There is research to suggest that anxiety disorders may be inheritable via genetic factors (e.g., Andrews, 1996). Thus, in genetically vulnerable individuals, psychosocial stressors may activate tendencies to experience heightened anxious responding. By comparison, the cognitive-behavioral model emphasizes a *cognitive vulnerability* in which the tendency to think (and behave) in ways that lead to obsessional problems is cultivated through prior experiences. For example, one woman treated in our clinic recalled being scolded as a child for *thinking* about hurting her father. Such experiences likely lead to assumptions such as, "thinking about acting badly is equivalent to acting badly." Convictions such as these may be activated when otherwise normal thoughts about harm occur in situations involving responsibility, leading to the tendency to misinterpret such thoughts as threatening and significant. In this way, the cognitive-behavioral theory accounts for the rapid onset of predominantly aggressive thoughts observed in some mothers and fathers. One shortcoming of this theory is that empirical studies of this approach have largely been correlational, thus firm conclusions that mistaken beliefs are the *cause* of OCD are premature.

3. Treatment

Research over the last 30 years suggests that two forms of treatment are effective for OCD: (a) pharmacotherapy by serotonin reuptake inhibitor medication (SRIs), and (b) cognitive-behavioral psychotherapy using the procedures of exposure and response prevention (Abramowitz, 1997). SRI pharmacotherapy, the most widely used therapy for OCD, typically results in a 20–40% reduction in symptoms. Two studies on postpartum OCD described use of this treatment. Buttolph and Holland (1990), in their case series, reported on four women who were successfully managed with the fluoxetine. Improvement rates after 3 months of treatment ranged from 43 to 67%.

In a more treatment-focused study, Sichel et al. (1993a) reported short- and long-term outcome from 15 women with postpartum OCD treated openly with

various SRIs. In each case, scores on the Clinical Global Impression Scale (CGI; Guy, 1976) were reduced following 12 weeks of treatment. Moreover, at post-treatment, none of these patients were rated as worse than “mildly ill” on the CGI. One-year follow-up data indicated that improvement was maintained with continued medication. One patient was able to discontinue her medication and remain improved, whereas two others experienced a return of symptoms when they attempted to discontinue, and had to subsequently be reinstated on their SRI. Indeed the return of OCD symptoms following SRI discontinuation is a well-known phenomenon (Pato, Hill, & Murphy, 1990; Pato, Zohar-Kadouch, Zohar, & Murphy, 1988).

Although cognitive-behavioral therapy is associated with excellent short- and long-term response in OCD (average of 60–70% symptom reduction), there are no data on efficacy of this treatment for women with postpartum-onset OCD. Theories on the mechanisms of exposure-based therapy for anxiety (e.g., Foa & Kozak, 1986) posit that these procedures weaken connections between obsessional thoughts and anxiety by providing experiential evidence that feared catastrophes do not occur, and that anxiety eventually decreases without the performance of compulsive rituals. Abramowitz et al.’s (2001) report of four males with obsessional problems related to their spouses’ pregnancy did describe the use of exposure and response prevention, but outcome was reported qualitatively. In that study, therapy consisted of (1) education about occurrence of unwanted, upsetting thoughts and their relationship to anxiety, (2) prolonged and repeated exposure to the anxiety-evoking thoughts or situations until the anxiety decreased, and (3) abstinence from performing compulsive rituals.

As the reader will note, the treatment research on postpartum OCD symptoms to date is scarce; only open clinical trials exist in the literature. The available reports included small sample sizes and medication studies were “open-label,” meaning patients were aware of the type of treatment they were receiving. Because of the lack of control groups and the fact that patients were not blind to their treatment condition, findings from these studies (and open clinical trials in general) should be interpreted with caution. Indeed, expectancy effects or the passage of time may have accounted for the observed improvement. Randomized placebo-controlled double-blinded studies would be required in order to establish efficacy.

However, a case can also be made that postpartum OCD should respond to treatment in the same manner as non-postpartum OCD and thus, it may not be worthwhile to invest time and effort in conducting large clinical trials for this subgroup of patients. Presently, there does not seem to be any theoretical basis for predicting that postpartum OCD, as opposed to onset following other stressors, would respond differentially to either SRIs or cognitive-behavioral therapy. That is, pregnancy status does not appear to be related to variables thought to predict poor response to these therapies (i.e., poor insight; Foa, Abramowitz, Franklin, & Kozak, 1999). Additionally, no studies have reported that onset or pre-treatment

duration of OCD is related to outcome. Nevertheless, given the rapid onset and seemingly circumscribed content of obsessions and compulsions, further investigation of treatment efficacy with these particular symptoms might be valuable. Research on cognitive-behavioral treatments may be especially important for this particular OCD subgroup since the use of SRI pharmacotherapy in breast-feeding women must be considered carefully.

4. Future directions

To date, only a small number of *retrospective* studies have focused on the interesting phenomenon of puerperal OCD. Although it appears that some women (and perhaps their partners) experience a rapid onset of obsessive-compulsive symptoms during or immediately following pregnancy, the existing research cannot answer important questions related to the prevalence, course, or etiology of this problem. Because OCD poses a potential threat to parent and child well being, *prospective* investigations are needed to clarify these issues. Jennings et al. (1999) have pointed out that shame and fear of being reported to child welfare authorities may lead to systematic underestimation of the incidence of intrusive obsessional thoughts among new parents. Thus, to maximize external validity, future studies will need to attend to the methods by which research participants are approached and interviewed about these kinds of symptoms.

In the majority of studies to date, only patients meeting *DSM* criteria for OCD were included as research subjects. This methodology excludes the many potential participants who don't meet the diagnostic criteria, yet experience subclinical obsessional thoughts, avoidance, or compulsive rituals. Such an approach also leads to overlooking important aspects of OCD symptomatology, such as the relationships between obsessions and compulsions. We see numerous patients in our clinic with "subclinical" obsessional problems, however, the phenomenological similarity between clinical and subclinical obsessive-compulsive symptoms is well known (e.g., Gibbs, 1996; Rachman & de Silva, 1978). Thus, a symptom-focused, as opposed to a "disorder-focused" approach in studying the prevalence, course, phenomenology, and treatment of puerperal OCD is likely to yield useful information about this condition.

Because the birth of a child is a somewhat predictable event, the study of puerperal OCD symptoms provides a unique opportunity to conduct prospective research on possible predispositional factors for OCD symptoms. Existing studies examining etiological hypotheses (both biological and cognitive-behavioral) are largely correlational, thus not affording definitive conclusions about causation. However, the biological and cognitive-behavioral etiological models each offer predictions that could be examined in longitudinal studies of pregnant women. For example, biochemical (e.g., hormone levels) and cognitive biases thought to underlie OCD symptoms could be assessed early in pregnancy, and participants

followed through the postpartum period to examine predictors of onset and symptom severity.

Finally, further understanding of this phenomenon can lead to greater awareness and, thus, recognition by professionals in the fields of mental health, pediatrics, and obstetrics. Mental health-related issues rarely receive the coverage they deserve during prenatal education, often leading to shame and embarrassment if they occur in the postpartum period. However, frightening obsessional thoughts seem to be a common phenomenon. Not only can expecting parents be made aware of the signs and symptoms of postpartum OCD, and how this problem can be treated, but self-help, educational, or prevention programs can be developed and evaluated in efforts to reduce the stress of the already demanding perinatal period.

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