

The Disease of Ritual:
Obsessive Compulsive Disorder as an Outgrowth of Normal Behavior

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"Let yourself go with the disease, be with it, keep company with it -- this is the way to be rid of it."
Bruce Lee, 1975

Introduction

In an influential paper, Fiske and Halsam (1997) begin with a description of a man in an unfamiliar country. We observe him to be dressed all in red in a red doorway, washing his hands six times in six different basins that have been arranged meticulously. His eyebrows are plucked bare, and as he washes, he repeats the same phrase, occasionally tapping his earlobe with his right index finger. Their question to the hypothetical observer is: Is this man a priest performing a sanctified ritual? Or is he afflicted with obsessive compulsive disorder? Is he normal, or mad?

The question resides in a space between clinical psychiatry and anthropology and is much more far-reaching than the surface implication that normality is culturally constructed. The striking similarities between the form and content of normal ritual and the ritualistic behavior of obsessive compulsive disorder (OCD) invite a deeper analysis. This paper is concerned with the implications of a common ground between normal ritual as a basic and necessary component of human cultural behavior, and the behaviors of OCD as pathology. Do they share a common etiology? How can cultural theory inform our understandings of the clinical presentation of OCD and its trajectory in patients living within cultural boundaries? What can mental illness reveal for us about human propensities in a social world? I wish to address the possibility that the human ability and drive for ritual may be influenced by a neurochemistry that is in part the result of natural selection. By this, I do not mean to imply that human behavior is in any way programmed, determined, or controlled by genetics. My intention is to highlight the influence of biology both as an instigator and an environment in brain development, and relate these processes to the social contexts in which they unfold. Finally, I will raise the hypothesis that the large scale shift in focus of ritual behavior in the US from the civic to the private sector may be a contributing factor to the increased prevalence of OCD in recent years.

The Anthropology of Ritual

Most people know a ritual when they see one. The hallmarks in a general folk definition include formalized behavior, a set sequence of actions that are usually repeated, and often a religious or otherwise solemn content. A wider definition of the term would tend to incorporate repeated actions that we think of as menial, but that we repeat every day, such as toothbrushing or financial transactions. The scripting and performance of these formalized, repeatable activities are useful and informative for the anthropologist, who seeks to characterize a group of people by their outward social behavior. Because of these features of ritual, it is an excellent source of data. To this end, ritual has become a standard category of description and analysis for traditional ethnography, and has spawned several specialized treatises.

Although there is no universal agreement on the precise definition of ritual behavior in anthropology, most authors agree on several key features. In addition to the above outlined features, ritual actions most often take on great depth of social meaning, and typically are performed in response to some perceived need, desire, or intent on the

part of an individual or the group. Most ethnographies concerning ritual have focused on either its selective use of symbols, its function as a mediator of social relations, or its place in religious life. These treatments tend to examine the multifaceted social nature of rites, and the ways in which individuals and societies both shape and are shaped by their existence. Each researcher emphasizes one or more of these facets, and it is worthwhile to briefly review some of the major contributions in order to flesh out a anthropological definition of ritual.

Geertz defines ritual as "consecrated behavior" in his essay on religion as a cultural system (Geertz 1973). He examines ritual as a performance that makes use of a discrete set of cultural symbols, all of which can be interpreted both by the participants in the ritual and by the anthropologist. He does not further elaborate his definition of the concept, perhaps subscribing to the above outlined general anthropological understanding of ritual. His definition is decidedly centered on religion, and while there is no doubt that Geertz would agree that secular rituals are also quite common in all groups, he is not concerned with them explicitly. Nevertheless, this definition is useful to us in that it puts emphasis on the heavy association of meaning with ritual action. While everyday rituals may not be seen as deeply solemn or consecrated per se, we may envision them as somewhat apart, following different rules than improvised behavior.

A similar definition is provided by Turner, who is considered by many to be the classic authority on ritual symbolism. In his work with the Ndembu, Turner defines ritual as, "...formal behavior for occasions not given over to technological routine, having reference to beliefs in mystical beings or powers" (Turner 1967:19). This is a much more precise definition focusing on religious content and explicitly excluding the routine rituals described above. Both Geertz and Turner can be described as symbolic anthropologists, and it is possible that their definitions are influenced by the relative frequency of those features that they are interested in studying. Religious ritual tends to be heavily reliant on symbolism, and while secular ritual may also draw on symbols, they may not be as highly visible, and therefore, interpretable.

Luhrmann (1989) studied ritual in the context of contemporary British who participated in magical or "alternative" religions such as Wicca or other pagan systems of religion. Ritual for her informants was formalized, stereotyped and redundant (pp. 221), corroborating the definitions proposed above. She adds another component: that of distinctiveness. Rituals are carefully circumscribed in the groups she studied so as to be set apart from normal, everyday life. This is an echoing of the symbolic anthropologists' separation of banal ritualizing from the more sacred.

The aspect of ritual as directed action is particularly highlighted by Malinowsky (1922). Ritual for the Trobriand islanders he studied is magical, consisting of spells directed toward the achievement of good fortune, or perhaps more accurately, the aversion of bad fortune. This particular sort of ritual is primarily linguistic, but is accompanied by patterned gestures and actions. Interestingly, Malinowsky notes that this magical ritual is often dispassionate. This is not to say that it is conducted without meaning, but rather that it is performed mostly by rote and so often as to erode the emotional power of the words for the performer. The actions are still considered important, but mostly because they serve to avert consequences that would be highly negatively charged with emotion rather than containing that emotional impact in

themselves. This definition might also provide insight into the dispassionate nature of common secular ritual and superstitious warding behavior.

Shore (1996) provides possibly the most useful discussion of ritual for the purposes of this analysis. He defines ritual performances as highly complex action sets. On a simple level, action sets are stylized body and/or gestural movements that are incorporated into such diverse activities as conversations, children's games, and gestural scripts such as bowing or hand-shaking. From here, Shore goes on to highlight a communicative and coordinating function of rituals in social contexts. In his definition, rituals provide the substrate for complex social communication: a common ground for individuals to come together and express solidarity, as in team huddles and cheers, or to re-enact histories, as in the complex rituals of the Murngin that he describes. The functions of rituals, as Shore defines them, are myriad and culturally specific, but at their root, they are stylized action sets.

Common threads in all of the above definitions are those of action and directedness. Ritual is always acted out, and may also involve prescriptive verbalizations. The formalized nature of the behavior seems to be a common denominator, a necessary but not sufficient condition for identifying behavior as ritualistic. "Improvised ritual" would seem to be at most an oxymoron, and at least a farce. Ritual is also universally purposeful, and could not be said to include motor tics or unconscious fidgeting. Whatever the ritualistic actions may be, they are directed toward the accomplishment of some goal that is consciously imagined on the part of the performer or performers.

From here, the definitions diverge and the actions that are acceptable as ritualistic vary from author to author. It is possible that this reflects variation in the expression of ritual both within and between groups. At times, rituals may be full of emotion and meaning, and at other times banal. Some are social and some are private. Various action sets can be classified as rituals and can be performed by the same group of people without losing the common denominator. While what most anthropologists have found intriguing have been the meanings and social implications ascribed to rituals by the groups that perform them, it is the stripped-down, universal definition of "normal" ritual that I am concerned with here. Is this aspect of human behavior similar in form and content to the pathology of OCD, and if so, what does this mean?

Obsessive Compulsive Disorder as Pathology

- Enter bathroom, with left foot first
- Close door with left hand, then touch door handle with right hand
- Take towel from rail and keep it on edge of bath with left hand, then touch it with right hand
- Take toothbrush from cabinet and place it on edge of washbasin with left hand, then touch it with right hand
- Take toothpaste tube from cabinet with left hand, then touch it with right hand

Squeeze tube to get enough toothpaste on brush with left hand, then touch tube with right hand

Replace cap of tube with left hand, then touch it with right hand

Put tube back in cabinet with left hand, then touch it with right hand

Pick up brush with left hand, then start brushing; teeth brushed in twos, from left to right, top row first, bottom row next, outside first, inside next, each set of two eight times; then repeat whole process with brush in right hand, then again with left hand, followed by the same again with right hand

Open taps with left hand, then touch them with right hand

Wash brush under hot tap, held in left hand, then touch it with right hand

Put brush back in cabinet with left hand, then touch it with right hand

Rinse mouth, taking water with left hand, then with right hand

Look at self in mirror first with left eye, then with right eye

Begin to wash face, using left hand to splash water on face, then right hand

Rub left side of face with left hand followed by right side of face with left hand, then rub left side of face with right hand, followed by right side of face with right hand

Apply soap to face, in the same sequence as above

Rinse face, splashing water on face with left hand, then with right hand

Look at self in mirror, first with left eye, then with right eye

Close taps with left hand, then touch them with right hand

Pick up towel with left hand, then touch it with right hand

Dry face with towel, left side holding towel in left hand, then right side holding towel in left hand, then left side holding towel in right hand, and then right side holding towel in right hand

Look at self in mirror, first with left eye, then with right eye

Put towel back on rail with left hand, then touch it with right hand

Open door with left hand, then touch handle with right
hand
Leave bathroom, with left foot first

(Compulsive ritual reported by man in his mid-
twenties

Quoted in de Silva and Rachman 1992, pp. 17-18)

The DSM IV guide to psychiatric diagnosis (American Psychiatric Association 1994) defines obsessions and compulsions in OCD as discrete phenomena that may or may not co-occur. Specifically, obsessions are classified as repetitive or intrusive thoughts, impulses, or images that cause marked anxiety or distress. Compulsions are defined as repetitive and ritualistic behavior or mental acts that the patient feels driven to perform that are aimed at reducing distress, but that are not realistically connected with that distress. Whereas obsessions and compulsions were originally thought to be causally linked, epidemiological research has shown that one set of symptoms can occur in the absence of the other (Antony et al. 1998, Pigott, 1998). That is: obsessions do not always generate compulsive behavior, and compulsions are not always precipitated by obsessions, although this is often the case. Because of this observation, and because outward behavior is much more easily studied in cultural anthropology than ruminations in an individual's mind, I will concentrate primarily on the compulsive behavioral aspect of OCD.

The DSM IV specifies several aspects of compulsive behavior that are critically important in its diagnosis, but nevertheless remain entirely subjective. The criteria are:

- 1) The actions are repetitive and formalized
- 2) The patient feels driven to perform them
- 3) The acts are performed to reduce distress, and are not ends in themselves
- 4) The patient may recognize the behavior is unreasonable and unrealistic
- 5) The patient finds the behavior to be disturbing and attempts to resist and/or avoid situations where ritualizing will become necessary

The first criterion deals with the observable characteristics of OCD behavior. Beyond this general definition, there are no specified types of action that are always attributed to OCD, although many common categories have been identified. Typically, OCD behavior involves excessive washing, checking, ordering, concern with symmetry, counting, hoarding, and/or repeating words silently or aloud. I will return to this common spectrum of behavior and its significance below.

The second and third criteria concern the patient's perceived motivation for performing the behaviors. The term "motivation" is used here loosely: the patient often does not see that he/she has any will in the matter, the drive to perform the acts is so intense. Furthermore, the acts themselves do not produce pleasure, but instead provide relief from discomfort or distress. In this sense, once the behavior pattern has been established, it seems to be maintained strongly by operant conditioning: specifically, the avoidance of punishment. This feature distinguishes OCD from other behavior disorders, such as compulsive gambling or eating, in which the behavior itself provides reinforcement

or pleasure. OCD behaviors are not gratifying. Rather, they are seen to be uncomfortable, at yet simultaneously irresistible.

The final two criteria are the most important for distinguishing OCD-like behavior from normal ritualizing. When the patient realizes that the behaviors that act to reduce distress are not reasonably connected to real-world concerns, yet feels compelled to perform them anyway, OCD is the usual diagnosis. Other disorders that involve unreasonable behavior (delusional disorders) are not usually accompanied by patient insight into the unreasonable nature of their actions. Conversely, individuals involved in normal rituals do not feel their actions to be unreasonable, but rather see them as necessary, pleasurable, or natural. It is important to note that some patients diagnosed with OCD do not interpret their actions as unreasonable, but instead develop elaborate explanations for them. This minority of cases is classified as "OCD with poor insight" and is particularly common in children. Insight is therefore one possible feature of OCD that is useful in diagnosis but need not be present for the diagnosis to be confirmed.

OCD is currently officially classified as an anxiety disorder, but there is marked disagreement among psychiatrists as to whether this reflects its proper place in the diagnostic spectrum (Montgomery 1992, Freeman 1992). Marks (1987) aligns OCD closely with the phobias, while others maintain its close association with mood disorders and depression (Antony et al 1998). The latter view is in line with recent advances in pharmacological treatment, a subject that will be taken up later in this paper. In a recent study, Antony and co-workers (1998) found several syndromes were commonly comorbid, such as major mood disorder (29.1%) and specific phobia (27.9%). Tourette's syndrome, Sydenham's chorea, and other tic disorders are probably also closely related to OCD and commonly comorbid (Lopez-Ibor Jr. 1992, Freeman 1992). Personality features have also been studied in relation to OCD, and while these are difficult to quantify and test accurately, it is likely that specific personality features (perfectionism, feelings of responsibility and harm avoidance) are important in its expression and epidemiology (Summerfeldt et al. 1998).

Treatment of Compulsive Ritualization

Because of the questions that remain concerning the neurobiology of OCD, treatment regimens are not strongly based on cause-effect models, but rather on the relative efficacy of different medications in clinical trials. Prior to 1966, the only known effective treatment for OCD was psychosurgery, which was only performed in extremely severe cases due to the risks involved (Greist 1992, 1998). This surgery usually involves either cingulotomy, subcaudate tractotomy, stereotactic limbic leucotomy, or anterior capsulotomy, all of which function to sever connections between the frontal cortex and basal ganglia (incidentally, further supporting the hypothesis that OCD is at least in part the result of basal ganglia dysfunction, an idea that is discussed further below). These procedures are still sometimes indicated when patients respond to no other treatment and their condition is life-threatening (Hay et al. 1993, Mindus and Jenike 1992). For the vast majority of patients, however, some relief from symptoms occurs with behavior therapy, medication, or a combination of the two. Here, I will briefly outline the most frequently prescribed treatment modalities.

Cognitive-Behavioral Therapy

The most common type of cognitive-behavioral therapy used in the treatment of OCD is exposure and ritual prevention (Marks 1997, Overholser 1995). As the name suggests, the treatment involves encouraging patients to expose themselves to situations that normally trigger a need to ritualize, and then prevent the behavior until the discomfort subsides. This therapy is conducted initially in the presence of the therapist, and then the patient is instructed to try the technique increasingly on his or her own. This gradual increase in exposure frequency and duration has been found to be more effective than flooding techniques, and is most successful when accompanied by cognitive therapy designed to equip the patient with alternative techniques for coping with distress (Marks 1997). *In vivo* exposure has also been found to be more efficacious than role play or imagery (Overholser 1995, Marks 1981).

Usually, patients are reluctant to undergo guided exposure to cues that normally trigger rituals, and de Araujo and co-workers (1995, de Araujo et al. 1996) report that 15-25% of patients recommended for cognitive-behavior therapy either refuse to comply or do not complete treatment. Patient self reports indicate that this high refusal and drop-out rate is due to the massive increase in discomfort and depression associated with exposure and ritual prevention. However, for those patients who do complete cognitive-behavioral therapy, 60-85% show some improvement (Foa et al. 1983, Franklin et al 1998).

A recent variation in cognitive-behavioral therapy has included the use of computer simulation or guidance in exposure to behavior triggers (Bachofen et al. 1999, Baer and Greist 1997, Clark et al. 1998, Marks et al. 1998). The emphasis on computer-aided self-help programs is precipitated by research indicating that only about 35% of the estimated 2-3% of the population affected by OCD seek treatment (Clark et al. 1998, Karno et al. 1988). In this light, computer-assisted assessment and treatment has been shown to be effective in conjunction with clinical consultation, and shows a decreased drop-out rate relative to self exposure to behavior triggers in an unguided environment.

Pharmacotherapy

The other major focus of treatment for OCD is medication-based. The discovery in 1966 that clomipramine (Anafranil) is effective in reducing OCD symptoms sparked a flood of research into the neurobiology of OCD and its management with prescription drugs (Zohar and Insel 1997). The hypothesized central role of serotonin in OCD is underscored by the clinical emphasis on serotonin reuptake inhibitors (SRIs) in its pharmacological treatment. While there is considerable overlap in the sorts of medications prescribed for OCD and major depression, the responses to the drugs are remarkably different. Fineberg et al (1992) note that while depressive patients treated with clomipramine show high placebo response rates (up to 50%) and require up to four weeks before improvement is measurable, OCD patients treated with the same drug show low placebo response and rapid response to treatment. While depression is often comorbid, Goodman and colleagues (1990) report that OCD-associated depressive symptoms do not respond to non-serotogenic antidepressants, indicating a separate mechanism for comorbid depression. This suggests that while SRIs are also effective antidepressants, their antiobsessive-compulsive effects are independent.

Other drugs have subsequently been shown to be effective in the treatment of OCD (Saiz et al 1992, Montgomery and Manceaux 1992). These drugs include fluvoxamine (Luvox, Faverin, Floxyfral), fluoxetine (Prozac), and sertraline (Zoloft). The advantage to this group of drugs over clomipramine is that they are selective of receptor sites *in vivo* (Goodman et al. 1992), and are therefore referred to as selective serotonin reuptake inhibitors (SSRIs). Selectivity in receptor sites is an improvement over non-selectivity due to the vast array of functions that the neurotransmitter serotonin has on the nervous system. Across the board down-regulation of serotonin can be disadvantageous and can result in harmful side effects in addition to improvement in OCD symptoms. The SSRIs target only those receptors that seem to be involved in depression and OCD, although which receptors those are is still unknown. Individuals vary in their response to these drugs, and this renders comparison of efficacy difficult, especially since dose response is not constant across individuals (Dominguez 1992).

McDougle et al (1994) report that where SSRIs are ineffective alone, dopamine antagonists may be successful if they are administered in conjunction. These drugs compete for dopamine receptors in the brain, but do not trigger the response that the natural chemical would, thus lessening dopamine's effect without actually lowering levels in the body. This observation raises the question of the role of dopamine in the pathogenesis of OCD, and indicates a fruitful area for new research.

Combined Approaches

Each of the SSRIs and clomipramine has also been shown to be compatible with concurrent cognitive-behavioral treatment and the most common recommendation is a combination of the types of therapy (Greist 1998, Simpson et al. 1999). Relapse is common upon withdrawal of the medication, suggesting the need for long term prescriptions, while cognitive-behavioral therapy is still effective even if administered in a time-limited fashion (Franklin et al. 1999). Baer (1996) raises the interesting question of whether cognitive-behavioral therapy is actually a form of endogenous serotonin therapy. Baer cites neuroimaging research indicating that behavior therapy serves to normalize glucose metabolism producing similar effects to serotonergic medications. This fascinating finding also merits additional research.

It should be emphasized that no "magic bullet" exists in the array of available treatments for OCD. While the above outlined therapies have been shown to be successful in reducing the severity and frequency of OCD symptoms, no one treatment or combination has been shown to consistently and completely eradicate the disorder. In fact, even in the most successful cases, usually only 60-80% improvement in symptoms is achieved (Greist 1998) In this sense, there is no "cure" for obsessive compulsive disorder, although it is clinically manageable.

Pathophysiology of OCD

The study of OCD pathophysiology was begun in response to the observation that the serotonergic anti-depression drugs were also effective in managing OCD. Our understanding of the underlying neurochemistry of this disorder has grown from the results of clinical drug trials, instead of the reverse. Directly following the demonstrated effectiveness of clomipramine and the SSRIs, the hypothesis that low levels of the neurotransmitter serotonin are involved in the pathogenesis of OCD became popular.

It is important to recognize the limitations of inferring neurophysiology by observing patient responses to drugs. This method does not accurately exclude competing models of the OCD mechanism, since it does not test for the existence of one mechanism over another. This method can only indicate that a proposed model is either consistent or inconsistent with the available evidence. Unfortunately, attempts to gather direct evidence of serotonin levels in OCD patients versus controls have been equivocal (Pigott 1996), and we must make do with what evidence is available to us.

Currently, the serotonin insufficiency hypothesis of OCD pathogenesis adequately explains what we observe, but many questions remain (Barr et al. 1992). Do OCD patients have more or hyper-sensitive receptor sites for serotonin than normal individuals? Is the biological underpinning for OCD something else entirely, but effectively masked by administration of drugs blocking the natural loss of serotonin? Does dopamine interact with serotonin in OCD patients, as Goodman and colleagues (1992) suggest, and studies with animal models (Szechtman et al 1998) support?

Wise and Rapoport (1989) propose that OCD is the result of basal ganglia dysfunction, noting that OCD-like behaviors occur in some post encephalitic patients who have sustained lesions in the basal ganglia and other neural structures. They also cite evidence from CT scanning research revealing increased volume in basal ganglia structures in OCD patients (Luxenberg, et al 1988) and a study that shows through PET scans that OCD patients have increased metabolic activity in their basal ganglia (Baxter et al. 1987). Additionally, the fact that all currently known effective types of psychosurgery involve severing connections between the basal ganglia and frontal cortex would seem to support this hypothesis (Greist 1992, 1998).

Although the commonly accepted function for the basal ganglia is motor control, there is evidence from Parkinson's disease patients that the structures are also involved in higher cognitive functioning. Wise and Rapoport present a model that integrates this evidence:

[Our hypothesis] is based on a simple model of an innate releasing mechanism in the basal ganglia: a detection mechanism for recognizing specific aspects of stimuli (key or sign stimuli) and a releasing mechanism for the species-typical behavior response (sometimes known as a fixed-action pattern). Usually, detection of the key stimulus causes release (i.e. execution) of the appropriate behavior. But two sorts of behavior can occur in the absence of a key stimulus. Vacuum behaviors, for example, are often actions that would appropriately be directed toward a specific object when the object is not present... Similarly, displacement behaviors are released when there are conflicts between two strongly activated drives or when the normal outlet for a certain motivation is blocked. (1989: 269-70)

This harkens back to Lorenz and the early ethologists and behaviorists, who have since gone out of style in the development of behavior theory (Swedo 1989). However, while this proposed mechanism still contains many holes and the theory may not entirely

support it, it is unwise to dismiss it out of hand. It also does not preclude cultural shaping of the behaviors performed, making them less "fixed-action patterns" and more "urges" or behaviors that act to relieve tension. If we must cast about for a suitable theory to explain the evidence, it is perhaps more acceptable than searching for evidence to fit our preferred theories.

The Place of Cultural Theory in Psychiatry

Several theories have been suggested to explain the etiology of obsessive compulsive disorder, and these can be placed into two broad categories. The first category deals with biological causal explanations, which were outlined in the above section on pathophysiology. The second category focuses on psychology, and includes psychoanalytic theory and learning theory. These categories of explanatory mechanisms are not mutually exclusive, as is evidenced by the compatibility of the cognitive-behavioral and drug therapies outlined above. In fact, a combined theory of etiology is perhaps the most plausible explanation for OCD.

In classic psychoanalytic theory, OCD was proposed to grow out of the anal phase of childhood, with its concerns over issues of control. OCD behaviors were considered to be controlling mechanisms for hostile feelings toward the individual's parents, particularly the mother. Whether or not these theories are valid, nearly all psychiatrists who have written on the subject are in agreement that psychodynamic theory is particularly unhelpful in the treatment of OCD (Greist 1992, 1998; Jenike 1986; de Silva and Rachman 1992; Turbott 1997; but see Sifneos 1985). As such, it remains an interesting, but unproved theory.

In its most basic form, learning theory suggests that OCD is acquired due to a traumatic event, in which a young individual associates fear and anxiety with an event that is in reality harmless (de Silva and Rachman 1992, Leonard 1989, Marks 1987). Compulsive rituals are then associated in some way with reduction in this unrealistic anxiety, and perpetuated in an ever increasing cycle (Francis and Gragg 1996). Some authors have proposed that OCD is learned directly from previously affected individuals (Rachman 1985), although this seems unlikely since OCD is often a cryptic disorder. Rasmussen and Eisen (1992) found that many probands were unaware when their siblings also suffered from OCD, and that adults also go out of their way to conceal their compulsions from others. At the moment, learning theory does not appear to explain OCD completely, but it does account for many features of its progression in the individual.

The Perspective of the Pathological Mind

Here, I wish to return to the broader questions I raised in the introduction: is OCD a disorder of magnitude and not of kind? Are OCD patients not so much pathological as hyper-normal? Can the pattern of illness shed any light on human propensities to ritualize? Epidemiological studies have shown that OCD behavior clusters nicely into categories, that on initial observation may seem rather odd. If OCD is at least in part the result of some kind of neural dysfunction, why should the behaviors fall out into such clean culturally specific categories? For example, Rasmussen and Eisen (1992) note that while most individuals report experiencing multiple types of compulsions, the categories are discrete. In their study of clinical cases, 63% of individuals have compulsions that

involve checking, 50% have washing compulsions, 36% counting, 31% need to confess or ask, 28% need for symmetry or precision, and 18% hoarding of objects.

Two ideas would explain this clear categorization. Either these behavior sets are analogs of the "fixed-action patterns" the behaviorists described in non-human animals in the 1960's, or the urges are "filtered" through culturally informed expectations. These, again, are not mutually exclusive, and neither is probably sufficient to explain the data. There have been very few studies of OCD in non-Western cultures, but the few that exist are extremely informative. Mahgoub and Abdel-Hafeiz (1991) studied the observed pattern of OCD in Eastern Saudi Arabia, and found that of 32 subjects, 78% displayed compulsions. These fell out in slightly different categories than Rasmussen and Eisen report: 87% had religious compulsions (50% repeating and 37% washing), 9% had compulsive avoidance, and 9% had non-religious cleaning rituals. 12% of the individuals had compulsions that the authors labeled as "miscellaneous". Religious aspects of OCD have also been noted by authors studying observant Orthodox Jews (Greenberg 1984, Hoffnung et al. 1989), and Catholics (Suess 1989). The existence of a strong religious focus of compulsions in some groups would seem to indicate that culture has much to do with the spectrum of actions typically expressed in OCD patients. However, there is no indication that groups who are more heavily religious have a higher incidence of OCD (Greenberg 1984, Marks 1987). Thus we may infer that culture may have an effect on the way OCD manifests itself, but does not increase its prevalence in a population.

Religious content may also be a convenient way for the members of certain groups to either rationalize or conceal their ritualizing. Rationalization, though usually occurring in children and individuals classified as having "poor insight" into their conditions, does play a role in many OCD cases. Rationalization may also play a part in individuals who are fully cognizant of the pathological nature of their need to ritualize, but convince themselves that this need is stronger than the need to appear "normal" to others. Concealment is also a particularly important feature of OCD, since most individuals with the illness attempt, at least perfunctorily, to hide their abnormal behaviors from others. One of the hypothesized reasons only an estimated one-third of OCD afflicted individuals seek treatment is that no friends or family members are aware of the problem (Rasmussen and Eisen 1992). In both of these cases, religion, when it is sanctioned by society, provides an excellent mode of concealment and/or rationalization.

Allowing for the differential religious content of rituals cross-culturally, the specific focus of compulsions is remarkably similar. Washing, repeating, checking, and ordering all figure prominently in OCD rituals, and cannot be explained by a need to conceal or rationalize although the significance of these categories is unclear (Mavissakalian et al. 1985). It is interesting to consider this pattern in light of the effect of the rituals for the performer: the reduction of tension. Years of research have documented the tendency of animals under stress to perform repetitive behaviors that are remarkably similar across species: grooming, swaying, and manipulating the external environment are all common in birds, rodents, and primates (Marks 1987), and show an uncanny similarity to human OCD behaviors.

Szechtman and colleagues (1998) investigated the effect of the dopamine agonist quinpirole on rat behavior. Their striking results indicate that by enhancing the natural effects of dopamine in the body, quinpirole induces checking behavior in rats treated with it. In their study, compulsive checking behavior was defined as excessive returning to one

or two places in an open-field test area, where the time between returns is excessively shorter than returns to other places. Their definition also required that the places returned to would be markedly few, and a characteristic set of acts would be performed at the preferred place (Szechtman et al. 1998:1477). They found that rats treated with a drug designed to enhance the effect of dopamine induced this checking behavior, and effectively *eliminated* grooming behaviors. They note this last observation as remarkable for two reasons. Normal rats usually establish one or two preferred areas in a confined field as "home bases" where they practice comfort behaviors, notably grooming and crouching. The observation that the quinpirole rats did not groom or crouch at the places they compulsively checked (nor anywhere, for that matter) suggests that these behaviors did not provide the relief from anxiety that they would under normal circumstances. More importantly, it suggests a separate mechanism for OCD patients who wash (read: groom) versus those who check.

In 1986, Jenike had suggested that OCD checkers may be suffering from a pathology that differs in mechanism from other OCD types. His theory was that checkers cannot effectively retrieve meaningful information from memory (whether they actually locked the door or not) in the same way that non-checkers can. It remains to be seen whether the differences between the sub-types of compulsive behavior are based heavily on chemical levels or receptor sensitivity or on higher cognitive function. They may also be the result of variation between individuals in the types of comfort behavior that function most effectively to relieve a general kind of anxiety, and these may be personality based. What is clear is that different sub-types of compulsive behavior are highly comorbid (Rasmussen and Eisen 1992). If different mechanisms do exist, they are likely linked or the result of a higher chain of causal interactions.

Biological Bases of Ritualization

Ritual has very rarely been studied as a human universal tendency with biological bases. This is perhaps due in part to the chasm that currently exists in most of academia between cultural and biological approaches to anthropology. This situation is unfortunate, particularly in psychological anthropology, where we have the opportunity to examine the same subject with both interpretive and neurochemical approaches in order to find the links between biological and cultural precursors to behavior. Because of my strong commitment to the compatibility of cultural and biological anthropology, I will propose an etiological theory of OCD that is quite opposed to the separatist political climate of post-modern anthropology.

Given the evidence outlined above, one of our primary questions ought to be: do the rituals of OCD really qualify as rituals in the anthropological sense of the term? Perhaps I could be accused of arranging my pared-down anthropological definition of ritual to bring it into line with the behaviors of OCD. However, I believe that the same effects would be produced if any anthropologist were presented with the task of generating a definition of ritual that would be applicable universally. Doing so would require that the definition not be content-based, since groups vary tremendously in the types of things they find appropriate for ritualizing. The universal ritual would also need to be based on observable actions, since only these can be swiftly and easily compared both within and between groups. In fact, the only criterion separating OCD from normal

ritual in the DSM IV definition is the nature of OCD behavior as excessive or intrusive on the life of the performer. Officially, OCD is a disease of degree, not of kind.

But what about the question of the meaningfulness of the rituals? Another feature of OCD is that most patients are aware that their rituals do not actually produce any tangible effect (other than the reduction in their own tension, which is not insignificant), and are usually disconnected realistically from normal cause and effect. Most OCD patients will tell you that they *know* it's crazy, but they simply *must* check the door locks exactly 28 times before leaving, or whatever their compulsions happen to be. On the other hand, normal ritual may be ascribed great meaning (as in religion) or may be mundane (getting money from an ATM), but in both cases the actors are likely to tell you that performing them makes sense on some level. This is clearly a point of divergence, but it is possible even here that what we see is a matter of degree and not of kind.

OCD compulsions are not devoid of meaning. On the contrary, they are highly saturated with meaning. The difference is that in compulsive behavior, the meaning does not appropriately fit the context, whereas in normal ritual, there is an observed fit. I am drawing a distinction here between "having meaning" and "making sense". I define an action that has meaning as one that can be rationalized, or explained to some degree to another human being in such a way as to resonate with them at least in part. An action that makes sense is one that is appropriate to larger context, be it social or environmental. Compulsive rituals have meaning, but do not make sense in context, whereas normal ritual does both. OCD patients may clean excessively because they fear contamination, or may check compulsively because they have pathological doubt that they have done things correctly. Neither the fear of contamination or the doubt is an alien emotion to normal individuals: they mean something, they are merely misplaced. Clinically, this distinction is vital because it acts to diagnostically separate OCD patients from delusional patients. Obsessive compulsives do not suffer from delusions, and are quite capable of analyzing their own actions. Here, the distinction helps us grapple with the blurred boundaries of pathology and normalcy.

The function of normal ritual for the individual also has distinct parallels with the function of ritual for the OCD patient. Most ritual is either focused on aversion of bad luck, problem solving, or transformation. Examples of the first are the Trobriand islanders warding rituals or the European's superstitious "knock on wood." Often, ritualistic sacrifices to deities are made in order to bring about a desired end (as is the ATM transaction). Transformation rituals are largely referred to as rites of passage, and encompass puberty rituals, incorporation into specialized societies and the like, all of which are focused on change in the individual in relation to their world. All of these subtypes can be discussed as directed action. Normal individuals tend to perform rituals in order to make things right with the world, either in alignment with a past, present, or future desired state of affairs.

On a basic level, compulsions in OCD are also performed to bring the world back into alignment. Almost every study of OCD has shown that when patients are allowed to perform their rituals in the way that they desire, there is a reduction in tension and/or anxiety. Conversely, when prevented from doing so, patients can become quite agitated, and this accounts for the high drop out rate of cognitive-behavioral therapy. Although their methods are not socially sanctioned, and seem even to the patients to be non-sensical, the bottom line is that they produce the intended result: tension reduction. It is

for this reason alone that they continue to be performed. This would also seem to be a basic reason for the continued performance of normal ritual. Heinz (1999) has pointed out, quite correctly, that one of the differences between compulsions and normal ritual is that the latter is not accompanied by fear or anxiety. I would argue, however, that in a situation where an individual was not allowed to carry out a normal ritual, in a case where that individual clearly felt the need to perform it, considerable anxiety would ensue.

Of course, once a ritual becomes social, many other factors become layered upon it. Anthropologists who study ritual in all its complexities have rightly pointed out that as a social phenomenon, ritual is the amalgam of individual agencies. This does not, however, negate the importance of the function of ritual as problem-solver, averter, and/or transformer. Social aspects may have become layered on top of a more basic phenomenon.

A fascinating ethnographic account that may be helpful here is Gmelch's work with professional baseball players (1994). Like the rituals of Malinowsky's Trobriand islanders, the behaviors observed by Gmelch are a form of "insurance": actions they consider important in order to avoid bad luck. These rituals may involve taboos, fetishes or charms, or very commonly a set sequence of behaviors performed in an exacting way. These behaviors are notoriously common, and may be taken to extremes.

A seventeen-game winner in the Texas Rangers organization, Mike Griffin begins his ritual preparation a full day before he pitches, by washing his hair. The next day, although he does not consider himself superstitious, he eats bacon for lunch. When Griffin dresses for the game he puts on his clothes in the same order, making certain he puts the slightly longer of his two outer, or "stirrup" socks on his right leg. "I just wouldn't feel right mentally if I did it the other way around," he explains. He always wears the same shirt under his uniform on the day he pitches. During the game he takes off his cap after each pitch, and between innings he sits on the same place on the dugout bench. (pp. 356)

In another time and place, the behavior described above might be taken for OCD. However, in baseball, it is permitted, and even encouraged, because team players and managers observe that to interfere with the behavior may cause mental unbalance and distress, resulting in poor performance. Gmelch explains the establishment of these rituals as the result of Skinnerian or Pavlovian association. Players are said to be casting about for behaviors that are associated with poor or stellar performance, in an attempt to identify something that they might later repeat or avoid in order to bring about a desired result. Since professional baseball provides an environment where such behavior is accepted and encouraged, it may provide the closest we can come to an experimental situation. Otherwise mentally healthy individuals, when given societal sanction, will ritualize almost to a pathological degree.

Finally, I wish to address the special place of physical movement as a method of tension reduction, both in normal people and in OCD patients. As referenced above,

there is a general acceptance in behavioral studies that the repetitive movements of stressed animals are in part performed as an attempt to reduce tension. Increases in aggression, grooming, pacing and swaying are all commonplace across taxa. There seems to be a link between anxiety and repetitive motion that has remained unstudied, although it has been remarked on extensively (reviewed in Schilder 1997). The presence of fidgeting and other rhythmic movements in a wide variety of species is consistent with a hypothesis that such a link is ancient in origin. Study is urgently needed in this area if we are interested in the human propensity to ritualize.

If we can accept that OCD is a pathology of normal behavior taken to an excessive degree and applied to the world in ways that are non-sensical, the next question must be: does this imply that, like OCD, normal ritualizing behavior is in part biologically based? It is nearly impossible to test this hypothesis in humans for ethical reasons, since an experimental protocol would necessitate the treatment of humans with psychoactive drugs. However, as I have shown in this paper, OCD is commonly accepted as having a etiology that is at least in part biologically based, and is likely on a continuum with normal ritualistic behavior. It is therefore not unreasonable to presume that normal ritual is predicated on a similar neurochemistry. If OCD is an excessive tendency to ritualize, we have much to learn about the underpinnings of normal ritualistic behavior, its origins, and its intended results.

Societal Epiphenomena

Epidemiological studies of the prevalence of OCD across populations and through time have been woefully inadequate. Yaryura-Tobias and Neziroglu (1997) report that in the "general white population" (pp. 18) OCD prevalence has ranged from .05% to 2.5%. Most other studies are similarly sloppy when discussing the distribution of OCD even within US national boundaries. Consequently, it is difficult to address the ways in which OCD differs in its expression across heterogeneous groups. Similarly, it is a challenge to discuss secular change, as the methods and theories that diverse authors have employed have strongly affected reported results. The most popular scale for diagnosis is the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), which consists of 16 items, only 5 of which are related to compulsions. The use of scales such as the Y-BOCS may be questioned when the goal of the study is to measure population prevalence, since the scale requires a highly trained analyst to interpret the results of each individual. Studies of population prevalence usually require enormous numbers of interviews, which precludes the detailed analysis of each individual by trained professionals.

These problems aside, we can probably still be confident that the prevalence of OCD has risen in recent years. The shift from .05% to 2.5% lifetime prevalence reported by Yaryura-Tobias and Neziroglu (1997) reflects a fifty-fold increase in OCD cases over a 20 year period from the mid sixties to the mid eighties. This huge shift cannot be explained away by simple measurement error.

What caused this shift? It is possible that the increased visibility of OCD in the popular media has encouraged self-recognition of symptoms. The increase in prevalence might also be explained by slight changes in the definition of OCD to include a larger percentage of individuals as cases. An intriguing possibility is that increasing numbers of OCD cases reflect a displacement in the normal human need to ritualize that has accompanied a larger societal secular trend. Over the last half of the 20th century in the

United States, the number of culturally sanctioned civic rituals has declined dramatically. In the absence of socially explicit rituals available for participation and fulfillment of this intrinsic human need to ritualize, it is possible that a larger percentage of people may become clinically obsessive compulsive.

This is not incompatible with a biological basis for this disorder. As Baer has hypothesized (1996), serotonin levels and function in OCD behaviors may be acutely sensitive to external phenomena. This draws a crucial distinction between the biological and the genetic. While all human beings may have some genetic proclivity towards ritual, social environments may encourage changes in neurochemistry, tipping the balance toward or away from pathological expression of behavior. In this sense, biology is not fixed or deterministic. On the contrary, by definition it is dynamic, plastic, and responsive to changes in a social environment.

Conclusions

This is certainly not the first attempt to compare and contrast the rituals of OCD with normal ritualistic behavior. Fiske and co-workers (Dulaney and Fiske 1994, Fiske and Halsam 1997) have examined the question, finding similar content and form in both normal and pathological ritualization. Muris et al. (1997) report a high degree of OCD-like rituals in normal people who do not consider themselves the sufferers of a disorder that interferes with their daily functioning. Turbott (1997) has gone so far as to say that an analysis of OCD indicates that all ritual is sociobiologically determined, only to varying degrees, that we ascribe as pathological or normal, depending on cultural context. This is a rather simplistic reading of the evidence, but one that emphasizes OCD as one end of a continuum of ritual behavior proclivities.

What is surprising is that this is the limit of the literature. The authors are, without exception, psychiatrists and psychologists who have ventured cautiously into the realms of anthropology in order to investigate the question. Anthropology has not reciprocated the interest, perhaps because the proposed combination of biology and culture is repellent. If this is the case, than the loss is catastrophic. Instead of opening up new research paradigms, the hostile political climate has served to shut them down before they come into being. This paper is presented in the spirit of consolidating rifts and venturing connections between otherwise diametrically opposed subdisciplines. My hope is that there is more to come, for both anthropology, and OCD patients.

Literature Cited

- American, Psychiatric Association
1994 *Diagnostic and Statistical Manual of Mental Disorders*. Author, Washington D.C.
- Antony, Martin M., Fiona Downie, and Richard P. Swinson
1998 Diagnostic issues and epidemiology in obsessive compulsive disorder. In *Obsessive-Compulsive Disorder: Theory, Research, and Treatment*, edited by Richard P. Swinson, Martin M. Antony, S. Rachman, and Margaret A. Richter. The Guilford Press, New York.
- Bachofen, Martin, Akiko Nakagawa, Isaac M. Marks, Je-Min Park, John H. Greist, Lee Baer, Keith W. Wenzel, J. Richard Parkin, M.R.C.Psych, and Susan L. Dotti
1999 Home self-assessment and self-treatment of obsessive compulsive disorder using a manual and a computer-conducted telephone interview: Replication of a U.K.-U.S. study. *Journal of Clinical Psychiatry* **60**:545-549.
- Baer, Lee
1996 Behavior therapy: Endogenous serotonin therapy? *Journal of Clinical Psychiatry* **57**:33-35.
- Baer, Lee, and John H. Greist
1997 An interactive computer-administered self-assessment and self-help program for behavior therapy. *Journal of Clinical Psychiatry* **58**:23-28.
- Barr, Linda C., Wayne K. Goodman, Lawrence H. Price, Christopher J McDougle, and Dennis S. Charney
1992 The serotonin hypothesis of obsessive compulsive disorder: Implications of pharmacologic challenge studies. *Journal of Clinical Psychiatry* **53**:17-28.
- Baxter, L., M. Phelps, and J. Mazziotti
1987 Local cerebral glucose metabolic rates of obsessive compulsive disorder compared to unipolar depression and normal controls. *Archives of General Psychiatry* **44**:211-218.
- Clark, Augustino, Kenneth C. Kirkby, Brett A. Daniels, and Isaac M. Marks
1998 A pilot study of computer-aided vicarious exposure for obsessive compulsive disorder. *Australian and New Zealand Journal of Psychiatry* **32**:268-275.
- de Araujo, L.A., L.M. Ito, and I.M. Marks
1996 Early compliance and other factor predicting outcome of exposure for obsessive compulsive disorder. *British Journal of Psychiatry* **169**:747-752.

- de Araujo, L.A., L.M. Ito, I.M. Marks, and A. Deale
 1995 Does imagined exposure to the consequences of not ritualizing enhance live exposure for OCD? A controlled study 1. Main Outcome. *British Journal of Psychiatry* **167**:65-70.
- de Silva, Padmal, and Stanley Rachman
 1992 *Obsessive Compulsive Disorder: The Facts*. Oxford University Press, Oxford.
- Dominguez, Roberto A.
 1992 Serotonergic antidepressants and their efficacy in obsessive compulsive disorder. *Journal of Clinical Psychiatry* **53**:56-59.
- Dulaney, S., and A. Fiske
 1994 Cultural rituals and obsessive compulsive disorder: Is there a common psychological phenomenon? *Ethos* **22**:243-283.
- Fineberg, N.A., T. Bullock, D.B. Montgomery, and S.A. Montgomery
 1992 Serotonin reuptake inhibitors are the treatment of choice in obsessive compulsive disorder. *International Journal of Psychopharmacology* **7**:43-47.
- Fiske, Alan Page, and Nick Haslam
 1997 Is obsessive compulsive disorder a pathology of the human disposition to perform socially meaningful rituals? Evidence of similar content. *The Journal of Nervous and Mental Disease* **185**:211-222.
- Foa, E. B., J. B. Grayson, and G.S. Steketee
 1983 Success and failure in the behavioral treatment of obsessive compulsives. *Journal of Consulting Clinical Psychology* **51**:287-297.
- Francis, Greta, and Rod A. Gragg
 1996 *Childhood Obsessive Compulsive Disorder*. SAGE Publications, Thousand Oaks, CA.
- Franklin, Martin E., Edna B. Foa, and Michael J. Kozak
 1999 Time-limited cognitive-behavioral therapy and pharmacotherapy of obsessive compulsive disorder. *Crisis Intervention* **5**:37-57.
- Franklin, Martin E., Michael J. Kozak, Laurie A. Cashman, Meredith E. Coles, Alyssa A. Rheingold, and Edna B. Foa
 1998 Cognitive-behavioral treatment of pediatric obsessive compulsive disorder: an open clinical trial. *Journal of the American Academy of Child and Adolescent Psychiatry* **37**:412-419.
- Freeman, C.P.

- 1992 What is obsessive compulsive disorder? The clinical syndrome and its boundaries. *International Clinical Psychopharmacology* **7**:11-17.
- Geertz, Clifford
1973 Religion as a cultural system. In *The Interpretation of Cultures*. Harper Collins, New York.
- Gmelch, George
1994 Ritual and magic in American Baseball. In *Conformity and Conflict: Readings in Cultural Anthropology*, edited by James P. Spradley and David W. McCurdy, pp. 351-361. Harper Collins, New York.
- Goodman, Wayne K., Christopher J. McDougle, and Lawrence H. Price
1992a Pharmacotherapy of obsessive compulsive disorder. *Journal of Clinical Psychiatry* **53**:29-37.
- Goodman, W.K., C.J. McDougle, and L.H. Price
1992b The role of serotonin and dopamine in the pathophysiology of obsessive compulsive disorder. *International Journal of Psychopharmacology* **7**:35-38.
- Goodman, W.K., L.H. Price, P.L. Delgado, J. Palumbo, J.H. Krystal, L.M. Nagy, S.A. Rasmussen, G.R. Heninger, and D.S. Charney
1990 Specificity of serotonin reuptake inhibitors in the treatment of obsessive compulsive disorder: Comparison of fluvoxamine and desipramine. *Archives of General Psychiatry* **47**:577-585.
- Greenberg, D.
1984 Are religious compulsions religious or compulsive? A phenomenological study. *American Journal of Psychotherapy* **38**:524-532.
- Greist, John H.
1992 An integrated approach to treatment of obsessive compulsive disorder. *Journal of Clinical Psychiatry* **35**:38-41.
- Greist, John H.
1998 The comparative effectiveness of treatments for obsessive compulsive disorder. *Bulletin of the Menninger Clinic* **62**:A65-A81.
- Hay, P., P. Sachdev, S. Cumming, J. S. Smith, T. Lee, P. Kitxchener, and J. Matheson
1993 Treatment of obsessive compulsive disorder by psychosurgery. *Acta Psychiatrica Scandinavica* **87**:197-207.
- Heinz, A.

- 1999 Neurobiological and anthropological aspects of compulsions and rituals. *Pharmacopsychiatry* **32**:223-229.
- Hoffnung, R., D. Aizenberg, H. Hermesh, and H. Munitz
1989 Religious compulsions and the spectrum concept of psychopathology. *Psychopathology* **22**:141-144.
- Jenike, Michael
1986a Theories of etiology. In *Obsessive Compulsive Disorders: Theory and Management*, edited by Michael A. Jenike, Lee Baer, and William E. Minichiello. PSG Inc., Littleton, MA.
- Jenike, M.A.
1986b Neurobiology and neuropsychology of obsessive compulsive disorder. In *Obsessive Compulsive Disorders: Theory and Management*, edited by Michael A. Jenike, Lee Baker, and William E. Minichiello, pp. 165-177. PSG Inc., Littleton, MA.
- Karno, M., J.M. Golding, S.B. Sorenson, and A. Burnham
1988 The epidemiology of obsessive compulsive disorder in five US communities. *Archives of General Psychiatry* **45**:1094-1099.
- Leonard, Henrietta L.
1989 Childhood rituals and superstitions: Developmental and cultural perspective. In *Obsessive Compulsive Disorder in Children and Adolescents*, edited by Judith L. Rapaport. American Psychiatric Press Inc., Washington D.C.
- Lopez-Ibor Jr., J.J.
1992 Obsessive compulsive disorder and other disorders. *International Journal of Psychopharmacology* **7**:25-26.
- Luhrmann, T.M.
1989 *Persuasions of the Witch's Craft: Ritual Magic in Contemporary England*. Harvard University Press, Cambridge, MA.
- Luxenberg, J.S., M. Flament, and S. Swedo
1988 Neuroanatomic abnormalities in obsessive compulsive disorder detected in quantitative x-ray computed tomography. *American Journal of Psychiatry* **145**:1089-1093.
- Mahgoub, Osama Mohamed, and Hassan Babiker Abdel-Hafeiz
1991 Pattern of obsessive compulsive disorder in Eastern Saudi Arabia. *British Journal of Psychiatry* **158**:840-842.
- Malinowsky, Bronislaw
1922 *Argonauts of the Western Pacific*, London.

- Marks, Isaac
1981 Review of behavioral psychotherapy, I: Obsessive compulsive disorders. *American Journal of Psychiatry* **138**:584-592.
- Marks, Isaac
1997 Behaviour therapy for obsessive compulsive disorder: A decade of progress. *Canadian Journal of Psychiatry* **42**:1021-1027.
- Marks, Isaac M.
1987 *Fears, Phobias, and Rituals: Panic, Anxiety, and Their Disorders*. Oxford University Press, Oxford.
- Marks, I.M., L. Baer, J.H. Greist, J.M. Park, M. Bachofen, A. Nakagawa, K.W. Wenzel, J.R. Parkin, P.A. Manzo, S.L. Dottl, and J.M. Mantle
1998 Home self-assessment of obsessive compulsive disorder: Use of a manual and a computer-conducted telephone interview, two UK-US studies. *British Journal of Psychiatry* **172**:406-412.
- Mavissakalian, Matig, Samuel Turner, and Larry Michelson
1985 Future directions on the assessment and treatment of obsessive compulsive disorder. In *Obsessive Compulsive Disorder: Psychological and Pharmacological Treatment*, edited by Matig Mavissakalian, Samuel M. Turner, and Larry Michelson. Plenum Press, New York.
- McDougle, C.J., W.K. Goodman, J.F. Leckman, N.C. Lee, G.R. Henninger, and L.H. Price
1994 Haloperidol addition in fluvoxamine-refractory obsessive compulsive disorder: A double-blind, placebo-controlled study in patients with and without tics. *Archives of General Psychiatry* **51**:302-308.
- Mindus, P., and M.A. Jenike
1992 Neurosurgical treatment of malignant obsessive compulsive disorder. *Psychiatric Clinics of North America* **15**:921-938.
- Montgomery, S.A.
1992 The place of obsessive compulsive disorder in the diagnostic hierarchy. *International Clinical Psychopharmacology* **7**:19-23.
- Montgomery, S.A., and A. Manceaux
1992 Fluvoxamine in the treatment of obsessive compulsive disorder. *International Journal of Psychopharmacology* **7**:5-9.
- Muris, Peter, Harald Merckelbach, and Michel Clavan
1997 Abnormal and normal compulsions. *Behavioral Research Therapy* **35**:249-252.

- Overholser, James C.
1995 Cognitive and behavioral aspects of the treatment of compulsive rituals. *Journal of Contemporary Psychotherapy* **25**:89-103.
- Pigott, Teresa A.
1996 OCD: Where the serotonin selectivity story begins. *Journal of Clinical Psychiatry* **57**:11-20.
- Pigott, Teresa A.
1998 Obsessive compulsive disorder: Symptom overview and epidemiology. *Bulletin of the Menninger Clinic* **62**:A4-A32.
- Rachman, S. Jack
1985 An overview of clinical and research issues in obsessional compulsive disorders. In *Obsessive Compulsive Disorder: Psychological and Pharmacological Treatment*, edited by Matig Mavissakalian, Samuel M. Turner, and Larry Michelson. Plenum Press, New York.
- Rasmussen, Steven A., and Jane L. Eisen
1992 The epidemiology and differential diagnosis of obsessive compulsive disorder. *Journal of Clinical Psychiatry* **53**:4-10.
- Saiz, J., JJ. Lopez-Ibor Jr., R. Vinas, and M. Hernandez
1992 The clomipramine challenge test in obsessive compulsive disorder. *International Journal of Psychopharmacology* **7**:41-42.
- Schilder, Paul
1997 The organic background of obsessions and compulsions. In *Essential Papers on Obsessive Compulsive Disorder*, edited by Dan J. Stein and Michael Stone, pp. 241-259. New York University Press, New York.
- Shore, Bradd
1996 *Culture in Mind: Cognition, Culture, and the Problem of Meaning*. Oxford University Press, Oxford.
- Sifneos, Peter E.
1985 Short-term psychotherapy for patients suffering from an obsessive compulsive disorder. In *Obsessive Compulsive Disorder: Psychological and Pharmacological Treatment*, edited by Matig Mavissakalian, Samuel M. Turner, and Larry Michelson. Plenum Press, New York.
- Simpson, H. Blair, Kenneth S. Gorfinkle, and Michael R. Liebowitz
1999 Cognitive-behavioral therapy as an adjunct to serotonin reuptake inhibitors in obsessive compulsive disorder: An open trial. *Journal of CLinical Psychiatry* **60**:584-590.

- Suess, Larry, and Martin S. Halpern
1989 Obsessive compulsive disorder: A religious perspective. In *Obsessive Compulsive Disorder in Children and Adolescents*, edited by Judith L. Rapoport. American Psychiatric Press, Inc., Washington D.C.
- Summerfeldt, Laura J., Veronika Huta, and Richard P. Swinson
1998 Personality and obsessive compulsive disorder. In *Obsessive-Compulsive Disorder: Theory, Research, and Treatment*, edited by Richard P. Swinson, Martin M. Antony, S. Rachman, and Margaret A. Richter. The Guilford Press, New York.
- Swedo, Susan E.
1989 Rituals and releasers: An ethological model of obsessive compulsive disorder. In *Obsessive Compulsive Disorder in Children and Adolescents*, edited by Judith L. Rapoport, pp. 269-288. American Psychiatric Press Inc., Washington D.C.
- Szechtman, Henry, William Sulis, and David Eilam
1998 Quinpirole induces compulsive checking behavior in rats: A potential animal model of obsessive compulsive disorder (OCD). *Behavioral Neuroscience* **112**:1475-1485.
- Turbott, John
1997 The meaning and function of ritual in psychiatric disorder, religion and everyday behaviour. *Australian and New Zealand Journal of Psychiatry* **31**:835-843.
- Turner, Victor
1967 *The Forest of Symbols: Aspects of Ndembu Ritual*. Cornell University Press, Ithaca, NY.
- Wise, Steven P., and Judith L. Rapoport
1989 Obsessive compulsive disorder: It is basal ganglia disfunction? In *Obsessive Compulsive Disorder in Children and Adolescents*, edited by Judith L. Rapoport, pp. 260-276. American Psychiatric Press, Washington D.C.
- Yaryura-Tobias, José A., and Fugen A. Neziroglu
1997 *Obsessive-Compulsive Disorder Spectrum*. American Psychiatric Press, Inc., Washington D.C.
- Zohar, Joseph, and Thomas R. Insel
1997 Obsessive compulsive disorder: Psychobiological approaches to diagnosis, treatment, and pathophysiology. In *Essential Papers on Obsessive Compulsive Disorder*, edited by Dan J. Stein and Michael Stone, pp. 277-303. New York University Press, New York.

