

Is Obsessive-Compulsive Disorder a Pathology of the Human Disposition to Perform Socially Meaningful Rituals? Evidence of Similar Content

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This study investigated the theory that obsessive-compulsive disorder (OCD) is a pathology of the human disposition to perform culturally meaningful social rituals. We tested the hypothesis that the same actions and thoughts that are ego-dystonic in OCD are valued when they are appropriately performed in socially legitimated rituals. Two coders analyzed ethnographic descriptions of rituals, work, and another activity in each of 52 cultures. The coders recorded the presence or absence of 49 features of OCD and 19 features of other psychopathologies. The features of OCD were more likely to be present and occurred more frequently in rituals than in either control; rituals also contained more diverse kinds of OCD features. The features of other psychopathologies were less likely to be present and were less numerous in rituals than the features of OCD. Analysis of variance showed that OCD features discriminate between rituals and controls better than the features of other psychopathologies. These results suggest that there could be a psychological mechanism that operates normally in rituals, which can lead to OCD when it becomes hyperactivated.

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Imagine that you are traveling in an unfamiliar country. Going out for a walk, you observe a man dressed in red, standing on a red mat in a red-painted gateway. You notice that his eyebrows are shaved or plucked bare. He utters the same prayer six times. He brings out six basins of water and meticulously arranges them in a symmetrical configuration in front of the gateway. Then he washes his hands six times in each of the six basins, using precisely the same motions each time. As he does this,

he repeats the same phrase, occasionally tapping his right finger on his earlobe. Through your interpreter, you ask him what he is doing. He replies that there are dangerous polluting substances in the ground, and that his urine, in particular, may make him ill. He must purify himself or something terrible will happen. He seems eager to tell you about his concerns, almost as if he felt the need to confess.

Is this man afflicted with obsessive-compulsive disorder (OCD)? Or is he a priest, revered for his sanctity, performing a holy religious ritual?

The evidence we present in this article shows that an observation such as this is insufficient to distinguish between OCD and socially legitimated, collectively meaningful rituals. The same actions and thoughts that characterize OCD are also prevalent in a sample of meaningful social rituals from 52 cultures. This remarkable phenomenological similarity suggests that similar cognitive and affective mechanisms may be involved. This model opens new possibilities for understanding both cultural rituals and pathological obsessions and compulsions. It would imply that OCD represents a pathological form of a normal, functional human proclivity. Under certain conditions, the psychological processes that support

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culturally meaningful rituals may become hyperactivated and disconnected from the social processes that usually organize, coordinate, and direct them.

Despite the phenomenological similarity, culturally prescribed rituals differ from OCD in intentional control, social coordination, and meaning. People perform cultural rituals because they wish to do so or believe that the rituals are necessary to accomplish some valid purpose. Even when obliged to participate in a ritual, participants understand why they are doing so; they know the reasons and the consequences. People perform cultural rituals on socially appropriate occasions, in a socially appropriate manner, and usually in conjunction with others. Although some culturally constituted rituals may be illicit, they are nonetheless organized with reference to shared frameworks and socially constructed scripts. Furthermore, the components and syntax of cultural rituals are meaningful; the rituals make cultural sense.

The community attributes meaning and value to cultural rituals—people tend to believe that performing cultural rituals is appropriate, rational, and likely to be effective. People inherit cultural rituals from their predecessors and may transform these rituals or even invent new ones within existing cultural structures. People may explain their rituals with reference to myths or collective identities or simply say that “this is what we have always done.” The anxieties people experience in the context of meaningful collective rituals are culturally appropriate and culturally communicated, and they often serve a definite, culturally formulated purpose. The ritual actions are actions that others perform in like circumstances.

In contrast, people afflicted with OCD feel compelled to perform actions that are disparate from their associates’ behavior, and afflicted people may have difficulty interpreting their own actions and thoughts. The private meanings they may give to their symptoms do not make sense to other people in their communities and often make only tenuous, uncertain sense to the afflicted person. Most people performing OCD rituals do not really believe that their actions are fully rational or effective. They wish they could stop obsessing about the ideas or cease performing the compulsive actions.

In short, there are basic disparities in the attitudes of the actors and others in the community toward the actions and thoughts, especially with regard to their meaningfulness. However, these distinctions in meaning are consistent with basic similarities in the morphology of the actions and ideas. The same forms may be valued, meaningful, socially regulated, and conducive to important relationships in one

context but unwanted, confusing, and disruptive in another. This suggests that OCD may represent a pathological manifestation of a normal, basic, motivated capacity that ordinarily functions to integrate people into social systems. People perform cultural rituals to effect life-cycle transitions or changes in social status, to mark agricultural activities or calendrical cycles, to cure or interpret illnesses, to assure well-being or respond to misfortunes by restoring relationships with supernatural beings, and for a variety of other purposes that involve constituting or redressing social relationships. Indeed, rituals are essential for creating most crucial relationships, roles, and statuses (especially in traditional societies). Rituals define who we are and how we are connected to each other. Rituals identify, ordain, and constitute us as members of groups, partners in marriage, or holders of prestigious ranks. Rituals seal covenants, reconcile enemies, and restore transgressors to good standing. In short, rituals are essential to the operation of social relationships and the ordering of societies. Humans have evolved a capacity to invent and recognize rituals, to be moved by them, and to reproduce, perform, and transmit them. Rituals have an effect on people because there is a specific human disposition and capacity to carry out rituals and to regard them as meaningful, valid mechanisms for creating and transforming social relationships and statuses.

In this light, we can interpret OCD as a pathological manifestation of this essential human disposition to conduct and be moved by rituals. In OCD, this disposition has lost its social linkage; rather than reproduce and participate in socially legitimated rituals, people invent their own rituals without shared, valid, cultural meaning. This accounts for OCD patients’ feeling that the ritual task is never properly complete, because the anxiety is never adequately channeled into culturally connected, socially functional forms. The anxieties and actions remain much the same, except that they are divorced from a collective social framework—with all the disruptive consequences that that disjunction entails. The thoughts and actions are the same but without the essential social coordination. People with OCD cannot limit their ritual capacity to socially sanctioned contexts and combinations; they cannot follow the ordered patterns provided by their culture. OCD, then, is a disordered manifestation of the human proclivity to perform rituals; when people lack the capacity to regulate their disposition to ritual in accordance with social paradigms and prototypes, they experience OCD.

This theory implies that culturally meaningful rituals should be composed of elements that closely

resemble OCD symptoms. No other theory predicts such a phenomenological correspondence or can account for it. This theory does *not* predict that people afflicted with OCD are incapable of participating in meaningful rituals; the theory is that OCD involves the compulsion to perform other, socially meaningless rituals.

In anthropological analyses of rituals, it is usually axiomatic that the content and meaning of rituals are arbitrary—that is, there are no universals and no way of predicting or explaining the nature of the rituals of any culture except in relation to other aspects of the same culture or its history. (See Dulaney and Fiske [1994] for a review of anthropological theories of cultural rituals and Boyer [1994] for a different approach to the search for common features.) This article challenges this axiom with regard to the content of rituals: we show that there are appreciable consistencies across cultures.

Previously, psychoanalytic scholars have made the most efforts to find cross-cultural consistencies in the content of cultural rituals. Freud (1907, 1912-1913) pointed out that obsessional neuroses and religious rituals involve a similar sense of the inherent necessity of rigidly prescribed actions, although the actor often cannot explain why the action is necessary. He also mentioned that both obsessional neuroses and religious rituals tend to involve touching, washing, and displacement of taboo qualities onto new objects by direct contact with previously taboo entities. However, no one has ever systematically sampled and statistically compared the actions and ideas that occur in cultural rituals. We now have much more precise clinical statistics about the symptoms of OCD and much better ethnographic materials on cultural rituals. Do these data actually reveal a phenomenological resemblance?

The phenomenology of OCD has received relatively little empirical attention, although it appears to be captured well by symptom clusters such as symmetry/hoarding, contamination/cleaning, (Baer, 1994), checking, doubt (Hodgson and Rachman, 1977), and repeating (Swedo et al., 1988). Most recent research has focused on the neuropsychiatric aspects of the disorder. OCD appears to be somewhat heritable, perhaps related to a broad anxiety disorder diathesis (Black et al., 1992). There is extensive evidence for neuroanatomical disturbance (Insel, 1992; McGuire et al., 1994; Wise and Rapoport, 1989), with basal ganglia and prefrontal structures directly implicated by a variety of imaging techniques (*e.g.*, Baxter et al., 1988). Serotonin reuptake apparently plays a key role (Rapoport, 1991), because serotonergic antidepressants have a selective therapeutic efficacy (Clomipramine Study Group,

1991). The fruitfulness of animal models is suggested by the successful use of such medications in the treatment of excessive grooming in infrahuman species (Grindlinger and Ramsay, 1991; Rapoport et al., 1992).

Findings such as these have led to the development of neuroethological accounts of OCD (Rapoport, 1991, Stein et al., 1992), which offer some integration of the neuropsychiatric and phenomenological aspects of the disorder. According to these accounts, obsessive-compulsive symptoms represent disinhibited fixed action patterns stored in the basal ganglia. By Rapoport's (1991) account, for instance, symptoms correspond to "species-typical self-protective behaviors that have adaptive significance" (p.7), especially those behaviors that involve responses to potential contamination and danger. Consequently, prototypical obsessions and compulsions regarding cleaning, checking, and doubting may represent phylogenetically primitive action patterns revolving around grooming and nesting. Compulsive hair-pulling (trichotillomania), which is closely related to OCD, presents a particularly vivid illustration of this hypothesis (Rapoport, 1991). Recently, two independent groups have located a gene associated with an autoimmune response to streptococcus infections in which antibodies are produced that attack the central nervous system (Murphy et al., 1997; Swedo et al., 1997).

It is not entirely clear how cultures affect the origin, behavior, thoughts, and experience that constitute OCD. Published case reports and epidemiological studies indicate that OCD is phenomenologically similar in the cultures where it has been described, although there are some interesting differences (Greenberg and Witztum, 1994; Staley and Wand, 1995). Although the evidence is far from complete or conclusive, when standard instruments are used, similar symptoms have been found in the U.S., Canada, Puerto Rico, Germany, Taiwan, Korea, and New Zealand (Weissman et al., 1994); case reports also suggest considerable cross-cultural homogeneity in patients from Denmark (*e.g.*, Thomsen, 1991), India (*e.g.*, Khanna and Channabasavanna, 1988), Japan (Honjo et al., 1989), Benin (Bertschy and Ahyi, 1991), Saudi Arabia (Mahgoub and Abdel-Hafiez, 1991), and ultraorthodox Jews in Israel (Hoffnung et al., 1989; see Dulaney and Fiske [1994] for further references on OCD across cultures). The cultural differences that have been found in these studies are mostly related to the religious shaping of contamination concerns and scrupulosity. However, more research is needed in rural, non-Western populations before we can assess the extent and nature of cultural variations in OCD. The assessed degree

of similarity in the symptoms of patients in different cultures depends on the coarseness of the categories used for comparison, of course. For example, operating with reference to their particular cultural constructions of pollution, patients may take very different, culturally based steps to avoid contamination or to purify themselves. The threshold for pathology in religious scrupulosity could also vary across cultures. However, there are consistent reports from even the most orthodox Catholic, Jewish, and Moslem communities that local religious leaders recognize pathological obsessions and compulsions that are incompatible with appropriate religiosity.

The present investigation explores the phenomenological resemblance between OCD and culturally legitimated, collectively meaningful rituals around the world. In an earlier study (Dulaney and Fiske, 1994), we examined short segments of ritual and work from each of 20 cultures drawn from a stratified world sample. We found that OCD-like features were over 4 times more common in rituals than in nonritual work. Seven separate features showed statistically significant differences in frequency. Several other features occurred too rarely to compare them individually, although all the trends were in the predicted direction. These initial findings strongly suggest that the content of cultural rituals is not arbitrary; the findings also offer a new perspective on OCD, linking it to a basic modality of normal human action. The present study replicates and extends our first study with blind coders, added controls, a much larger cultural sample, longer segments of rituals and control activities, a more precisely distinguished checklist of the features of OCD, and more elaborate statistical analyses.

Our primary hypothesis was that, across a sample of world cultures, thoughts and actions resembling OCD symptoms would be more prevalent in socially meaningful collective rituals than in other activities within the same cultures. Our secondary hypothesis was that this difference would be specific to OCD-like features: actions and thoughts resembling symptoms of other disorders would be rarer and would not so sharply differentiate rituals from control activities.

There are many limitations to cross-cultural methods applying universal taxonomies to the secondary analysis of ethnographic descriptions. However, this is an appropriate, effective approach for initially identifying features that probably reflect psychological mechanisms operating in diverse cultures. First-hand ethnographic research within any particular culture does not permit the researcher to make strong inferences discriminating general psycholog-

ical processes from specific cultural phenomena. Cross-cultural comparisons, however difficult and problematic, are essential for developing analytically useful taxonomies.

Design and Methods

To determine whether OCD-like symptoms are distinctively characteristic of culturally meaningful rituals, it is essential to differentiate such rituals from other activities. This classification can be somewhat problematic in certain cases. For that matter, some anthropologists have argued that all activities can be placed on a continuum according to the degree to which they are ritualized. Whether the differentiation is dichotomous or a continuum, however, it is possible to make a cut that distinguishes more ritualized actions from less ritualized ones. That is all that is necessary to test our hypothesis. In practice we found that ethnographers virtually always made clear distinctions between events and types of activities that they labeled rituals and ones to which they gave other labels; we used the ethnographers' own classifications.

We analyzed anthropologists' descriptions of cultural rituals, comparing them with descriptions of other activities within the same cultures. We used two nonritual controls: work; and any other nonritual, nonwork activity. The distinctions between work and other activities are, again, somewhat arbitrary but have little theoretical relevance for our study: Our goal was merely to broaden our controls as far as possible. Nor is it important for our purposes whether work is a meaningful or distinct category in any particular culture; for comparative purposes, all that is necessary is to apply a reasonable, reliable cross-cultural taxonomy.

We derived the sample for the present study from Murdock and White's (1969) Standard Cross-Cultural Sample, a stratified world sample of 186 cultures for which good ethnographic data are available. Our sample included one culture from each of the 52 culture areas into which these cultures can be divided. To avoid duplication, we instructed the sampler to exclude from the new sample the 20 cultures previously analyzed in Dulaney and Fiske (1994).

Using all the materials in the University of Pennsylvania libraries, the sampler located ethnographies from each of the cultures within a given culture area, searching for an ethnography that contained descriptions of ritual, work, and other activities. To obtain the best possible descriptions, the sampler used only works written by a professional anthropologist writing after 1930; to simplify later

coding, he restricted the sample to ethnographies written in English. From each culture, the sampler selected segments describing ritual, nonritual work, and some third activity that was neither ritual nor work. The sampler simply started at the back of each ethnography and moved to the front until he found an appropriate description. He then divided each description into units, each representing a single thought or action. Whenever possible, he selected 100 units from one ritual, work episode, or activity, but he used descriptions of multiple episodes if it was necessary to obtain 100 units. He attempted to obtain all three samples from the same ethnography, or, if that was not possible, from works by the same author. In the instances where no adequate ethnography could be located from the cultures in a given culture area, the sampler used Murdock's *Atlas of World Cultures* (1981) to select another culture from one of the culture provinces in the same area. Nevertheless, he was unable to locate adequate descriptions of nonritual, nonwork activities in 8 of the 52 culture areas, so the sample size for the other activity statistics is 44. This is taken into account in the following analyses.

There were many kinds of rituals in our sample: the most common were life-cycle rituals (marriage, death, birth, adolescence); some were curing or agricultural rites. The samples of work were equally diverse; the most commonly represented work activities were agriculture, hunting, fishing, animal husbandry, food preparation, construction, manufacture, and food gathering. Among the other activities samples, the most common were life-cycle descriptions, social interaction, child rearing, play and recreation, grooming and dressing, travel, and daily routines. Examination of these subcategories lends face validity to the basic taxonomy distinguishing ritual, work, and other activities.

Because our original sample was comparatively small, in the first study we collapsed OCD symptoms into 25 features. For better discrimination and stricter comparability with clinical data, we analyzed almost twice as many distinct symptoms in the present study. Although we had to limit the number of features analyzed to keep the task feasible for our coders, we sampled items from each of the categories of obsessions and compulsions on the Yale-Brown Obsession Compulsion Scale (Y-BOCS; Goodman et al., 1989a,b). We used 30 Y-BOCS symptoms that we judged to be the most characteristic and common in U.S. patients, along with 19 additional Y-BOCS symptoms that we expected would be present in rituals. We used these items verbatim, except that we reworded a few of them to eliminate evaluative terms such as excessive, unusual, intru-

sive, perverse, and magical, and we dropped a few culture-specific examples such as collecting newspapers. We also modified the original Y-BOCS items to delete normative contrasts, such as the exclusion of hobbies and collecting objects of monetary or sentimental value.

The Y-BOCS is based on the symptomatology of Western (primarily U.S.) cases. Note that any differences that do exist in the symptoms of OCD across cultures would tend to reduce or eliminate the effects we hypothesize below. That is, any findings in the current study that support our hypothesis occur *despite* cultural differences in OCD symptomatology. Presumably if meaningful collective rituals in each culture were compared with OCD patients in their respective cultures, the similarities would be still greater than any we find when we compare rituals from diverse cultures to symptoms of OCD in the U.S.

If cultural rituals resemble OCD, it is important to know whether this resemblance is specific to OCD or whether cultural rituals contain more features of all kinds of psychopathologies. Do rituals appear irrational or disordered in some general sense? In particular, posttraumatic stress disorder and other anxiety disorders have many symptoms that resemble OCD; are these symptoms also common in cultural rituals? We designed this study to test the discriminant hypothesis that OCD features differentiate rituals from control activities better than features of other psychopathologies. As control items, we selected 19 symptoms of other psychopathologies, adapted from the Comprehensive Psychopathological Rating Scale, the Present State Examination, the Hamilton Depression Rating Scale, and the Beck Depression Inventory. We selected the most common features of the most common and representative psychopathologies, along with disorders resembling OCD. These control features included symptoms of posttraumatic stress disorder, phobias, other anxiety disorders, depression, and schizophrenic and delusional psychoses.

For the present study, we trained two new coders, blind to our hypotheses, who each coded the materials independently. We placed the 68 features in random order on the coding guide—mixing up OCD and non-OCD features—and did not identify for the coders either the specific conditions or the general concept of mental disorder. Coders practiced on nonsample materials until they understood the codes and were reasonably reliable. Altogether, the coders indicated the presence or absence of each of the 68 codes in 14,800 units, each representing a single act or thought. This comes to over a million implicit decisions or potential data points from each coder.

Results

Overall agreement between the two coders in the use of the 68 features was high. When one coder coded a given feature in a segment, the other coder agreed on 86.0% of those occasions when she gave any code at all. However, as one coder frequently did not code any features in a segment when the other coder did, the overall level of agreement was 47.5%. That is to say, it was relatively rare for coders to actively disagree about which feature was appropriate but relatively common for them to show a passive disagreement in which one coder failed to record a feature recognized by the other. In view of the large number of features that coders had to keep in mind, this type of passive disagreement is not surprising. Moreover, intercoder agreement is usually understood in terms of the rate of active disagreement, in which coders give differing codes, and in this regard our coders performed very well. In view of the high frequency of passive disagreement, for the purpose of the statistical analyses presented below, we consider a feature to be present if it was detected by either coder. However, when we repeated all of the analyses using only instances of active agreement, in which both coders independently arrived at the same feature, we obtained equivalent results.

Aggregated Results

To test the general hypothesis that OCD features are distinctively associated with ritual activity, we performed a two-way repeated-measures analysis of variance (ANOVA) with feature type (OCD versus non-OCD) and activity type (ritual versus work versus other activity) as factors. The dependent measure was the probability of occurrence of features of a given type in a given segment. For instance, if 3 of the 19 non-OCD features were coded in a culture's work segment, the probability of occurrence would be .158 (3/19). This measure controls for the differing numbers of OCD and non-OCD features. The analysis was restricted to the 44 cultures for which ritual, work, and other activity segments were available.

Occurrence probabilities are presented in Figure 1. As the figure suggests, OCD features were more likely to be present than non-OCD features across all activity types ($F_{(1,43)} = 194.33, p < .0001$), and features of both types differed in probability across the three activity types ($F_{(2,86)} = 45.20, p < .0001$). Moreover, there was a significant interaction between activity type and feature type ($F_{(2,86)} = 10.88, p < .001$), indicating that the probability difference between OCD and non-OCD features varies by activity type. Planned comparisons indicated that this

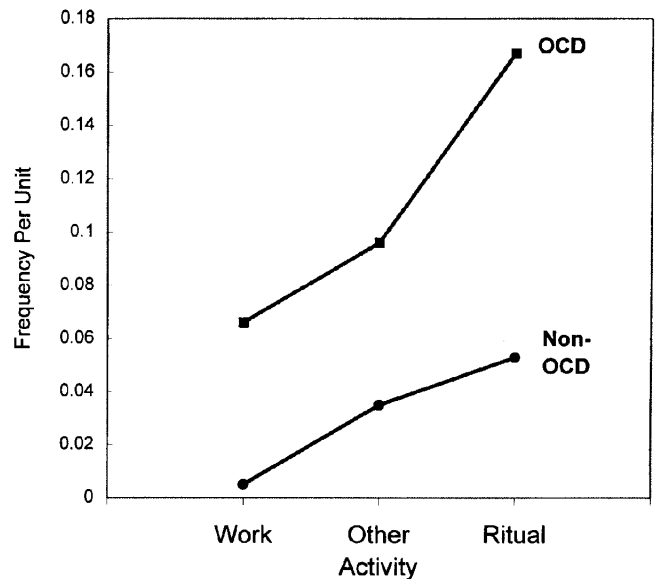


FIG. 1. OCD and non-OCD features in rituals, work, and other activities.

interaction is explained by a distinctive association between OCD features and ritual. Although there was no significant interaction between feature type and the two nonritual activity types ($F_{(1,43)} = .00, p > .05$), significant interactions emerged in pairwise comparisons of ritual with work and ritual with other activities ($F_{(1,43)} = 15.09, p < .0005$; $F_{(1,43)} = 11.60, p < .001$, respectively). Figure 1 clarifies these findings. Although the effect for feature type does not differ between the nonritual activities, it is almost twice as large—in fact 87% larger—for the rituals. Consequently, the hypothesis of a distinctive association between ritual and OCD features is strongly supported.

A nonparametric test (Hildebrand et al., 1977) confirmed these results. This 2×2 test compared OCD and non-OCD features according to whether they were more frequent in rituals or in controls.

Are these results consistent around the world? Are OCD features distinctive of cultural rituals everywhere? We divided the world sample into six geographic regions (Africa, Europe and Central Asia, East Asia, Pacific, North America, and South America) and repeated the analyses. As Figure 2 shows, the pattern observed in the world sample is repeated in each region with remarkable consistency. In each of the six regions, OCD features are more prevalent in cultural rituals than in either control activity. Furthermore, in the cultural rituals of every region, OCD features occur more frequently than features of other psychological disorders. The null hypothesis would indicate a one in six probability that the OCD-ritual cell frequency would be the high-

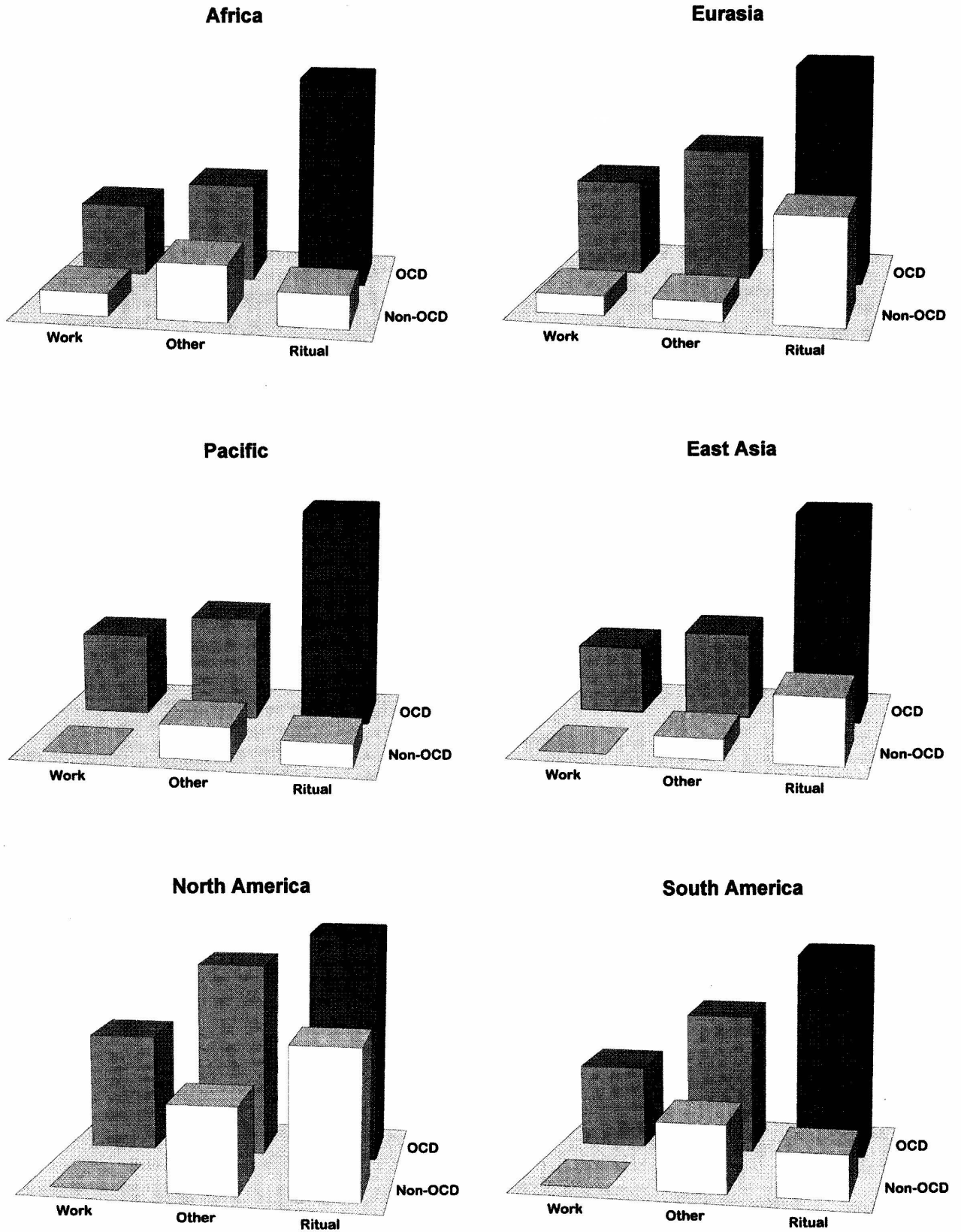


FIG. 2. Results by region.

TABLE 1
*Ritual Compared to Work and Other Activities—Number of
 Samples in Which Each OCD Feature Occurred*

	Ritual	Work	Other Activity†
Lucky or unlucky numbers or numbers with special significance	46	27***	18***
Colors with special significance	35	9***	12***
Repeating activities	35	13***	13**
Measures to prevent harm	35	27*	24
Ordering or arranging (things or people) in a definite configuration	34	10***	10***
Saying special prayers or incantations in a set manner	29	0***	3***
Attention to a threshold or entrance	24	3***	5***
Washing or grooming	24	4***	24
Concern with illness or disease	18	7**	9
Concern about rules, right and wrong, morality	17	4*	8
Touching, tapping, or rubbing	16	8*	10
Telling, asking, or confessing	15	3**	7*
Concern about symmetry or exactness	14	11	3*
Concern or disgust with bodily wastes or secretions	14	2**	15
Repetition of special words, sounds, or numbers	11	0***	5
Cutting hair (head, face, body)	10	0***	4
Concern with pollutants, unclean things	8	3	0**
Cleaning things	8	16	13
Other measures to prevent or remove contact with contaminants	7	0**	0*
Making nonsense sounds, words, or music	7	1*	0*
Fear of harming others if insufficiently careful	5	0*	2

† There were only 44 samples of other activities, compared with 52 samples of rituals and of work; sign tests for other activity comparisons with rituals are based on occurrences in the 44 cultures for which both samples were available.

Using the sign test, one tailed: *** indicates $p < .001$, ** indicates $p < .01$, * indicates $p < .05$

est of the six cells in any given region; the probability of the observed results, in which this cell had the highest frequency in all six regions, is then $1/6^6$, or approximately .00002. In short, the regional breakdown of the results strongly supports our predictions.

Results for Specific OCD Features

The analysis of aggregated features plainly supports the general hypothesis, but a more finely grained analysis of specific features might reveal additional patterns. To this end, we compared the number of cultures in which individual OCD features occurred as a function of activity type. Table 1 lists in decreasing order the 21 OCD features that occurred most frequently in the ritual segments, along with their frequencies of occurrences in the

work and other activity segments. It also presents the results of sign tests performed to test the hypothesis that the individual features occur in more ritual segments than in control segments (for the other activity comparison, the analyses were restricted to the 44 cultures having this control). The remaining 28 OCD features did not occur sufficiently often in ritual segments for a sign test to be statistically significant.

Table 1 indicates that a broad variety of OCD features was commonly found in the ritual segments, a finding that in itself is a compelling demonstration of the phenomenological similarity between OCD and ritual. Moreover, consistent with our hypothesis, 18 of these 21 most common OCD features were significantly more frequent in the ritual segments than in the work segments, and 11 were significantly more frequent in the ritual segments than in the other activity segments. Contrary to hypothesis, two related OCD features—hoarding or collecting and concern about hoarding or saving—were significantly more frequent in work segments than in ritual segments (both $p < .05$).

We obtained equivalent results when we performed alternative statistical tests to compare the proportions of cultures in which each feature was found (McNemar's test), to compare the number of samples in which each feature occurred in the rituals compared with the two controls combined (chi-square test), and to compare the mean number of times each feature was coded in each segment (Friedman's test). We also obtained significant differences between rituals and each separate kind of control using t -tests as well as the nonparametric Wilcoxin Z . The results therefore are very robust.

There were 26 other OCD features that were simply too rare (fewer than 5 occurrences) in any one activity type to enable the sign test to detect individually significant statistical differences. To determine whether even these rare features collectively discriminate ritual from control segments as hypothesized, we examined the number that discriminated in the expected direction (excluding ties). With the use of the 44 cultures for which we had all three kinds of samples, there were 16 features that occurred in more rituals and 6 that were more common in the mean of the two control segments. The one-tailed binomial $p = .026$ indicated that even the rare features tend to discriminate between ritual and controls. Thus, we find consistent support for the hypothesis that, around the world, features resembling OCD symptoms are more common in cultural rituals than in other kinds of activities within the same cultures.

Results for Specific Non-OCD Features

Although the hypothesis that OCD features should be particularly characteristic of ritual appears to be well supported, it is also important to ask whether specific non-OCD features might also discriminate ritual from control segments. With the use of sign tests as reported in Table 1, 3 of the 19 non-OCD features were significantly more frequent in ritual than in work segments and nonsignificantly more frequent than in other activity segments. These features, involving anxious preoccupations, were: (1) autonomic sensations (including palpitations, dry mouth, sweating, cold extremities, etc.); (2) fear, horror, or loathing of a certain kind of thing or situation; and (3) belief that others are trying to harm the self or group. The first feature is characteristic of generalized anxiety disorder as well as other anxiety disorders, the second is characteristic of phobias, and the third, characteristic of paranoia.

Analysis by Cultures

Another question that may be asked of our data is whether, in any given culture, there are more diverse OCD features in rituals than in work and other activities. Do rituals contain a greater variety of OCD features—more distinct kinds of OCD features? We compared the number of distinct OCD features coded in ritual segments with the number in each control. Of 52 cultures, 50 had more separate kinds of OCD features in their ritual segment than in their work segment, 1 had more different features in its work segment, and 1 had equal numbers (one-tailed binomial $p < .0001$). Similarly, of 44 cultures, 37 had more separate kinds of OCD features in their ritual segment than in their other activity segment, 4 had the reverse pattern, and 3 had equal numbers of different features in each segment (one-tailed binomial $p < .0001$).

In sum, the hypothesis of an association between ritual and OCD features is robustly supported in every region of the world and for the vast majority of individual cultures. Furthermore, taken separately, the vast majority of specific OCD features are much more common in rituals, as are rarer symptoms in the aggregate. Finally, rituals also contain more diverse kinds of OCD features.

Discussion

Features resembling OCD symptoms are much more likely to occur in samples of rituals from the world's cultures than they are to occur in samples of work or other activities. In contrast, features resembling symptoms of other psychological disor-

ders are rarer and do not discriminate as well between rituals and other activities. In the vast majority of cultures sampled, rituals contain more different OCD-like features than work or other activities.

In these analyses, we analyzed only presence or absence in each type of activity in each culture and ignored how many times each feature occurred in the 100 units of each segment. This kind of analysis avoids the problem of interpreting the theoretical significance of recurrence of a feature in an ethnographer's report of a ritual. It also makes our analysis as parallel as possible to clinical reports, which describe the presence of symptoms but do not give precise quantitative data about their relative frequency per unit of action or thought. However, when we did parallel analyses using the total frequencies in each sample, we obtained equivalent results throughout.

Most of the individual OCD-like features were more frequent in rituals than in controls. There were only two exceptions, obsessions and compulsions about hoarding and collecting. These nominal exceptions are readily explicable. The items in the original Y-BOCS specified excessive hoarding or saving and excessive concern and gave examples of items that would have no practical use if collected in large numbers. However, we removed from the items we gave to the coders the adjective excessive, the examples of useless objects, and the *exclusion* of objects of monetary or sentimental value. Hence, coders were recording all instances in which people amassed valuable food, water, medicines, building materials, craft supplies, religious paraphernalia, status symbols, and so forth. Naturally, this occurred more often in work than in ritual. So this finding—the only apparently negative result—simply represents the impossibility of formulating this feature independently of cultural or materialist conceptions of value. It may be noted that the most common symptom of OCD is excessive washing or showering. As we predicted, this was far more common in rituals than in work. However, it was very common in the samples of other activities. Once again, the feature coders were rating in these samples excluded the normative terms excessive or ritualized that identify this symptom on the Y-BOCS. Many of the segments of other activities included grooming, toilet routines, child rearing, social interaction, and life-cycle events in which normal bathing or hand-washing occurred.

Contrary to our initial expectations, three non-OCD features were more common in rituals than in controls. All three of these other features are gen-

eralized indicators of anxiety that, out of context, have little diagnostic specificity. OCD is classified as an anxiety disorder, and OCD patients have a very high probability of suffering from comorbid anxiety disorders, especially phobias (Weissman et al., 1994). Out of context, moreover, these features by themselves do not differentiate between ideation resembling the anxieties of OCD and these other kinds of anxiety. As items to code, two features are very similar to several OCD features (including the OCD features measures to prevent harm . . . or some terrible consequence, checking that nothing terrible did/will happen, violent or horrific images, taboo sexual thoughts, concern about getting ill because of a contaminant, and concern or disgust with bodily wastes and secretions). The other non-OCD feature that occurred more often in rituals was the presence of autonomic sensations. Many disorders involve autonomic arousal, and autonomic arousal is normal when danger, stress, or ambiguity produces situational anxiety. People typically carry out curing or protective rituals when they are concerned about others' harmful intentions or when the participants have other defined fears or concerns about possible dangers. Indeed, protection from harm is precisely the purpose of healing, purification, disaster, antiwitchcraft, calendric, and propitiatory rituals, and is a secondary but explicit aspect of most other rituals. We would expect people to be anxious when conducting a ritual to protect themselves or assure crucial events such as rainfall and crop yields. They would be especially anxious if they recognize that they might make errors that would cause the ritual to fail. Additionally, many life-cycle rituals are major events for the key figures: anxiety is expectable at birth rituals, religious incorporations, weddings, funerals, and the like. People conducting certain rites, such as initiations, commonly haze or frighten participants, who may be subjected to circumcision, excision, and other painful and frightening ordeals. In short, these three anxiety features that we intended as controls were comparatively common in rituals for reasons that are not in any way inconsistent with our hypothesis. Because none of the other psychopathological features were common in ritual, it is clear that ritual behavior does not resemble disordered or pathological behavior in general. The phenomenological resemblance between cultural rituals and OCD is quite specific: people performing rituals think and act in ways that resemble OCD but not in ways that resemble other disorders.

With the use of differently formulated lists of OCD-like features on nonoverlapping world samples, two separate studies (the other is Dulaney and

Fiske, 1994) have demonstrated a remarkably detailed phenomenological resemblance between OCD and culturally meaningful rituals. These studies have the merit that they sample a large number of diverse cultures, but such studies of large samples of cultures are inevitably limited by a methodology that relies on secondary analysis of anthropologists' descriptions that were written without a clinical perspective. To follow up these studies, the next necessary step is for observers with appropriate training in both clinical and anthropological observation and interviewing to collect comparable primary data on OCD and cultural rituals. This kind of first-hand data collection in a few diverse cultures would provide an invaluable complement to the cross-cultural secondary analyses reported here.

We should note that the detailed resemblance we have found between the features of OCD and the characteristics of cultural rituals is not a tautological consequence of the way anthropologists define ritual. For one thing, anthropologists do not agree on a conceptual definition of ritual (Dulaney and Fiske, 1994), although there is little controversy over the identification of exemplars. Second, most proposed definitions have to do with the meaning of rituals or with the precursors, purposes, means, efficacy, or functions of rituals; no prominent anthropological definition is based on their content or specific morphology. Hence the results reported here are not logically implied by the anthropological conception of ritual and indeed have not been predicted by previous theories.

The Features that Characterize Cultural Rituals and OCD

In general, the OCD features that occur in many rituals tend to be the symptoms that occur in many patients (Swedo et al., 1988) and vice versa. There are few major differences. Although common in patients, checking and explicit counting appear to be virtually absent in anthropologists' descriptions of cultural rituals, although ritual performers usually attribute special significance to specific numbers. In many rituals, there are colors with special significance, precisely specified prayers or incantations, and attention to thresholds, but these are much less common in OCD patients. Otherwise, the same features tend to be prevalent in OCD and cultural rituals. These features compose several clear conceptual groups. First, there is a category of pollution and purification, which includes showering, bathing, or grooming; other anticontamination measures; concern with pollutants; disgust about bodily secretions; and probably some kinds of concern with ill-

ness. Purity and pollution have to do with separation or mixing, so this group merges with the following category of items that focuses on boundaries, or what Turner (1969) called liminal concerns: coded features such as cutting hair, touching, tapping, or rubbing, and attention to a threshold or entrance. Maintaining boundaries is one form of organizing or giving structure, which links the second category with the third group, which is constituted by ways of creating order or meaning: concern about symmetry or exactness; ordering or arranging things; special numbers; special colors; concern with rules or morality; and telling, asking, or confessing. The simplest way of producing pattern or regularity is repetition, which defines the fourth category: making [repetitious] nonsense sounds; repeating special words; repeating prayers or incantations; and repeating miscellaneous activities. This sort of rigidity may possibly be related to the fifth category, which concerns averting harm: fear of harming others if not careful and measures to prevent harm.

This conceptualization suggests that cultural rituals and OCD are characterized by a desire to produce order, regularity, boundaries, and clearly demarcated categories. In both conditions, people simplify and sharpen distinctions, focusing attention on the significance of one or two or a very few aspects of the world. People dichotomize, leaving no gray area, seeking certainty. The world is multifaceted, complex, ambiguous, messy, and indefinite. OCD patients and ritual performers seek the essential features, aiming at simplicity, clarity, neatness, definition, and certainty.

Indeed, this search for order and clarity of meaning is the foundation of science, religion, mythology, poetry, and other arts. This is the way people understand, explain, and control their worlds. In particular, people tend to carry out collective cultural rituals to create or restore order, particularly when the normative order is threatened or problematic. Many rituals are responses to illness, death, other misfortunes, or social chaos. Calendrical rituals mark (and partially constitute) categorical temporal boundaries. Life cycle, incorporation, and divinatory rituals mark the essential social categories, delineating basic social statuses and defining membership in them.

This conceptualization suggests that the ideas and actions common to OCD and cultural rituals should also emerge in other contexts in which people need to restore normative order and gain control over boundaries. When people experience a traumatic breakdown of order and control, when they undergo a violent breach of the boundaries of the self, when they feel polluted, we would expect that they would

be extremely concerned about contamination, boundaries, and regularity. Their attempts to reconstitute meaningful order and restore basic distinctions such as the separation between self and other should involve the same kind of narrowed, intensified, sharpened focus, with a need for absolute black-and-white certainty that is characteristic of OCD and cultural rituals. In fact, there is evidence supporting this hypothesis; survivors of traumatic breaches of the body have higher levels of OCD-like symptoms than survivors of traumatic events that do not involve disruptions of the body envelope (Fiske et al., 1997). Rape survivors, in particular, have very high levels of OCD symptoms, particularly symptoms involving pollution, purification, and ones focusing on control. Incest survivors also have elevated levels of these OCD-like symptoms. In contrast, people who have suffered the death of someone close to them, or even people who have been assaulted, have far lower levels of such symptoms. Differences remain even after controlling for the severity of posttraumatic stress responses to these traumas. This idea that OCD is psychologically related to body boundary concerns is further supported by the tendency of pregnancy to provoke the onset of OCD (Neziroglu and Yaryura-Tobias, 1992).

In cultural rituals, the order that people construct is collectively formulated and defined with reference to shared meanings that the community has often inherited, meanings that people transmit to succeeding generations. People value their cultural rituals as effective and significant. The meaning of rituals is highly variable across cultures and distinctive of each separate culture, but these meanings are shared by most members of each ritual community. In contrast, the rituals of an individual OCD patient in any society are idiosyncratic: the rituals are invented in isolation, with meanings that do not make sense to the community, and are regarded as bizarre and of doubtful efficacy by others and often by the patient. People afflicted by OCD often adopt cultural themes, *e.g.*, AIDS, kosher rules, or concerns about specific technology such as stoves or door locks. However, their concerns about these themes are inconsistent with cultural criteria, and their responses are culturally inappropriate. Moreover, it is a defining feature of the disorder that the rituals and preoccupations of OCD patients interfere with their own personal goals.

Despite these differences in attitudes toward the constituent actions and thoughts, the content or morphology of OCD is very similar to the content of cultural rituals. Cultural rituals and OCD appear to reflect a common mechanism for making sense of the experience and for finding meaning and ex-

erting control. This mechanism normally makes people responsive to culturally transmitted rituals with shared meanings. It makes these cultural rituals powerful, moving, and socially effective. Most people either use the traditional simplifications and order that the culture provides or attempt to construct new patterns consistent with their cultural framework. Occasionally, however, some neurochemical, cognitive, or social process amplifies this normal mechanism until people are driven to focus, simplify, sharpen, and seek order in ways that do not make cultural sense and are incompatible with satisfying social participation. It is this meaninglessness and incompatibility, not the morphology of the actions or the content of the thoughts, that constitutes OCD.

The actions and concerns of a person performing a cultural ritual are very similar to those of a person afflicted with OCD. The distinction is in the cultural meanings of the actions and concerns and their relations to the person's will. It depends on whether these people are able to act in accordance with their own goals and collective social standards.

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