MEMORY BIAS IN OBSESSIVE-COMPULSIVE DISORDER (OCD)

by

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Abstract

There is a memory bias associated with depression, and there is good reason to expect such a bias associated with anxiety, but results to date have been ambiguous. Accordingly, a study was conducted to assess memory for contamination in individuals with different types of anxiety. Participants who met DSM-IV criteria for obsessive-compulsive disorder (OCD) and indicated a fear of contamination (n=8), a group of anxious controls (n=8), and undergraduate students (n=20) participated in this study. Participants were shown 50 objects: 25 which were contaminated by the experimenter, and 25 which were touched but not contaminated. After completing a neuropsychological memory assessment, participants were asked to recall all of the objects touched by the experimenter. Then, participants were asked to approach each object and to rate their anxiety about touching it. Finally, participants were asked about their perceptions of the cleanliness of each object. The OCD group had better memory for contaminated objects than for clean ones. Neither control group showed such a bias. Neuropsychological test scores indicated that this bias is not the result of differences in general memory ability. Results are discussed in terms of the memory-deficit theory of OCD and of behavioural and cognitive approaches to understanding the role of information processing in fear and anxiety.

TABLE OF CONTENTS

List of Tables

List of Figures

Acknowledgments

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INTRODUCTION

Cognitive science has played an ever-increasing role in clinical anxiety research (Clark & Fairburn, 1997). This is not surprising since cognitive science can measure and analyze the phenomena of attention, learning, memory, and cognition. In order to study thoughts and their connections to behaviour, it would be imprudent to ignore the tools of cognitive science as aids in understanding the mechanisms underlying cognition and its implications.

One surprising result of the application of cognitive science to the area of affective arousal and information processing is an absence of a memory bias in association with anxious or fearful arousal. While the findings are somewhat ambiguous, it has been said that "anxious patients definitely do not have a ... memory bias in explicit memory" (Eysenck, 1992, p.96). That is, there has been no consistent evidence that anxious people remember threatening information any differently than non-anxious people. Indeed, the majority of studies in this area have failed to demonstrate such a bias (see Williams et al., 1988; Mathews & MacLeod, 1994 for reviews). This conclusion is counterintuitive and has led to the development of several theoretical frameworks which have been unable to explain this anomaly in the literature.

Intuitively, one would expect affective arousal (especially fearful arousal) to play a significant role in determining recall. Specifically, it follows that someone who feels particularly threatened by some object or situation should not only be hypervigilant to it, but also should have a better memory for threatening aspects of

the object or situation. It would be unrealistic to conclude that, when anxious, memory is *impaired* for negative (anxious) emotional stimuli. This would not only be maladaptive (from an evolutionary perspective, memory for threat is essential) but also would interfere with established therapeutic techniques for fear reduction; memory and imagery are crucial in the construction of fear hierarchies for systematic desensitization (Wolpe, 1958, 1961). It is also a common experience to report an "intrusion" of negative memories during a particularly fearful or anxious event (Rachman & de Silva, 1978). In a sense, these intrusions of spontaneous recall are evidence of memory bias in themselves. They reflect a memory for threatening information cued by a threatening situation or state. It would be unreasonable to expect that patients will experience enjoyable intrusions (e.g. image of a birthday party) during a particularly stressful event. The fact that memory biases are not documented or demonstrated in the context of anxiety does not necessarily prove an absence of memory bias but rather, may imply a problem in methodology.

The majority of the experiments which failed to detect a memory bias in association with anxiety used a protocol involving the learning of both threat and non-threat words by both anxious and non-anxious individuals. Specifically, the materials used were threatening words related to worry, and the participants were diagnosed with generalized anxiety disorder (GAD, e.g., Bradley et al., 1995; Dalgleish, 1994; Mogg et al., 1992). A comparison of memory for threat and non-threat words in people with social phobia also failed to find any evidence of a memory bias (Rapee et al., 1994).

Despite these failures to demonstrate a memory bias in association with anxiety, there is ample evidence of a memory bias in association with depression - it is generally recognized that depressed participants are much more likely to remember sad words and events than are non-depressed participants (see Williams et al., 1988).

One other result of cognitive research in emotion has proved to be puzzling. It has been established that there *is* a clear, measurable *attentional* bias at work in anxiety (see Mathews & MacLeod, 1994 or Mathews, 1997 for reviews), and a similar effect (cognitive inhibition) has been demonstrated in obsessive-compulsive disorder (OCD) specifically (Enright & Beech, 1993a, 1993b). The presence of fear or anxiety directs attentional resources (or increases the amount of attention devoted) to threatening stimuli. This result suggests that there *should* be a memory bias in anxiety since it is improbable that greater attention would not result in greater subsequent memory.

Two early models of cognition and affect emerged in order to predict and describe the cognitive processes that occur in association with affective arousal: the schema model (Kovacs & Beck, 1978) and the associative network model (Bower, 1981). While these models are conceptually quite different, they make similar predictions about memory and emotion. Both models predict that when there is affective arousal, a system (either as a scheme of interconnected cognitions or as a set of associated nodes or constructs) is activated which enhances attentional resources to and processing of affective material relevant to the emotion in

question. Both models predict mood-congruent attentional *and* memory biases in association with virtually any state of affective arousal.

Since neither the associative network model nor the cognitive schema model was successful at predicting the *absence* of a memory bias in association with anxious arousal (Dalgleish & Watts, 1990), a better understanding of this phenomenon was attempted through the distinction between integration and elaboration (Graf & Mandler, 1984). It is argued that threat words produce an activation of a network of related nodes but for some reason, there is no elaboration of these items within the network. That is, individuals experiencing affective arousal are hypothesized to have biased access to threat information (attentional bias) without having good retrievability of those same items (lack of memory bias). This model does make appropriate predictions based on the findings to date; however, the extension of this framework to affective arousal and information processing does not lead to clear predictions from the associative network or schema models. It is hypothesized that once a threatening stimulus activates a node, there is a certain amount of cognitive avoidance which prevents elaboration (Mogg et al., 1987). While this explanation has some face validity (threatening stimuli are, by their nature, unpleasant, and there is much evidence of other avoidance of fearful situations), it seems unlikely that this hypothesized avoidance is so dramatic that it would prevent either proper encoding or sufficient recall.

If threatening stimuli are unpleasant enough to produce this kind of cognitive avoidance, why don't depressing stimuli result in the same outcome? This model does not account for the fact that memory biases *have* been found in depression

(see Williams et al., 1988 or Mathews, 1997 for reviews) and in pain (Eich, Rachman, & Lopatka, 1990; Hunter, Philips, & Rachman, 1979).

What makes the above findings and subsequent conclusions all the more puzzling is a classic case study reported by Claparède in 1911. This cornerstone of implicit memory research documents Claparède's experiences with a 47 year old woman residing at the Bel-Air asylum and confirmed that there were processes operating in memory which were inaccessible to consciousness.

Using the psychological language available to him at the time, Claparède described the patient as having a very limited short term memory, not able to retain memory for events for more than a few moments. Her memory seemed to be intact for distant past events although she did not know where she was, how old she was, or what day it was, despite the fact that this information was given to her repeatedly. She could calculate her age if given the date and demonstrated good ability at diverse mental calculations. These deficits in memory did not appear to change over the five years she had spent at the asylum.

The famous incident occurred when Claparède pricked her hand with a pin and then waited a few minutes until this event was completely forgotten. When he brought his hand close to hers for a second time, she pulled away without knowing why. When asked about her avoidance of Claparède's hand, she responded, "Well, don't I have the right to pull my hand away?" After repeated questioning, the patient simply stated that "sometimes there are pins hidden in hands" although she never identified being "pricked" as a memory. This description certainly involves memory for an emotional event. The patient retained some memory for the event (although

it was not consciously accessible to her at the time) and this memory was most likely the result of the pain and anxiety experienced when she was first "pricked" by the pin. While this example is more closely aligned with an implicit memory bias associated with affective arousal than an explicit bias, it is not inconsistent with previous findings (see Mathews, 1997 for a review). If we were to apply the integration vs. elaboration framework to this situation, we would have expected the woman to stare at Claparède's hand, and possibly even to ignore his conversation. When she refused to shake his hand, she demonstrated that there must have been some elaboration when she encoded the original event.

There are two possible reasons for past failures to find a memory bias in anxiety: participants and stimuli. Firstly, the bulk of research in this area has focused on people with generalized anxiety disorder (GAD). If the primary cause of a memory bias is the result of the activation of an associative network, we would expect that the more elaborate and clear the network, the greater the memory bias. One of the distinguishing features of GAD is that the anxiety involved is by definition non-specific (APA, 1994). This lack of specificity might reflect the presence of an associative network with a large number of weak connections. If the above models of mood and memory are accurate, a large number of strong activations would be required to prompt the kind of associative strengths needed to produce a memory effect in GAD. Since the task of trying to learn a list of words (even a large list) is unlikely to activate such a network, it would be unreasonable to expect an observable memory bias in GAD.

In order to correct this problem, it is necessary to select participants who are sensitive to *specific* threats (e.g., the threat of contamination in OCD). Presumably, these specific threats would be accompanied by specific associations which could easily be both activated and elaborated. That is, in other (non-GAD) anxiety disorders, arousal may produce a stronger activation of fewer associations. The increased strength of these associations may prove to be the essential factor in producing a later memory effect.

It is generally acknowledged that memory concerns are more related to compulsive checking than to compulsive washing (Rachman, 1998). Compulsive checkers will often report checking behaviour resulting from being uncertain about the state of affairs at the end of the last check, and that it is this uncertainty which prompts the next check. These reports and previous investigations of memory and OCD have led to the development of both neuropsychological (Boone et al., 1991; Zielinski et al., 1991) and mnestic deficit theories of OCD (see Tallis, 1997, for a review). While support for these theories is somewhat mixed (Tallis, 1995, 1997), they do lend credence to arguments supported by the distinction between activation and elaboration. Perhaps it is a neuropsychological deficit which promotes the cognitive avoidance hypothesized to account for the memory 'impairments' reported in the literature. While this study does not examine these theories specifically, it will enable some conclusions to be drawn about them and about their generalizability from OCD checkers to OCD washers.

Secondly, virtually all studies of memory biases and affective arousal have used negative and neutral or positive *words* as stimuli to be learned by the

participants. Therefore, one potential flaw in previous research has been a lack of ecological validity. In memory research, there is often a tendency to conduct research that lacks this validity (Baddeley & Wilkins, 1983). Since it is necessary to achieve activation of the network through affective arousal, one should strive to use the strongest (ethically allowable) stimuli available. These stimuli can be tailored to the specific fears of the participants to ensure proper emotional arousal at the time of learning thus increasing the salience of the learning event.

A few studies which used words as stimuli and *did* show memory biases involved arousal associated with agoraphobia and panic disorder (Cloitre & Liebowitz, 1991; Cloitre et al., 1994; McNally et al., 1989; Nunn et al., 1984). This is not surprising because panic episodes are one of the few anxiety phenomena which can be produced through words alone (Clark, 1997). That is, in these disorders, words can be sufficient to produce the appropriate emotional effect. The one study in which non-word stimuli were used tested memory for task completion in obsessive checkers (Constans et al., 1995). They found a significant, positive memory bias for the last action completed by the participants. That is, obsessional checkers had a superior memory for experimental events when compared with non-psychiatric controls. Constans et al. were dismayed that their results ran counter to their predictions and were unable to explain their findings. Perhaps the results of this particular study point toward the weakening of an original model which initially denied the existence of such a bias and now concedes that, "explicit memory biases are more consistently found in depression than in anxiety" (Mathews, 1997). The above studies which led to this weakening of an initially strong view on memory bias

in anxiety contribute to an ambiguous literature which is still unable to answer the question: Is there a memory bias in association with anxiety?

By using more appropriate participants and stimuli, this elusive phenomenon may be captured. Specifically, testing participants with a relatively circumscribed anxiety and using materials that convey a true threat will be best able to detect such a bias, if it is present. An experiment was conducted in order to clarify some of the issues in this research. In light of this newer, more ecologically valid methodology, predictions were based on Bower's and Beck's models and include the hypothesis that a memory bias would occur in association with anxiety. This bias should not result from differences in general memory ability and should be directly related to those stimuli which are personally threatening.

The aim of the current experiment was to examine memory through the use of stimuli which were of direct relevance to a specific, circumscribed fear (contaminated objects and compulsive washing in OCD). Memory was examined both directly (free recall) and indirectly (through anxiety ratings about touching the objects) and was measured in two control groups - a student group, and an anxiety control group in order to examine whether any memory effects found would be specific to the particular type of anxiety being studied. Hypotheses were developed from theories of associative network models (Bower, 1981) and emotional schemas (Kovacs & Beck, 1978) and included:

1. People with OCD will show a biased (improved) memory for threatening (dirty) objects over non-threatening (clean) objects.

2. This bias also will be demonstrated through anxiety levels related to touching dirty objects and clean objects. And,
3. Any differences in memory performance between the OCD group and the two control groups will not be related to neuropsychological or mnestic differences between groups.

METHODS

Design/Procedure: After being assessed with the Anxiety Disorders Interview Schedule-Revised (ADIS-IV, DiNardo et al., 1994), the Maudsley Obsessional Compulsive Inventory (MOCI, Rachman & Hodgson, 1980), and the Beck Depression Inventory (BDI, Beck, 1978), participants were then assigned to one of three groups: OCD, anxiety control, and a student group.

After completing the assessment, participants were asked to rate their anxiety on a 100 point scale in order to obtain baseline anxiety levels. Any participant who reported an anxiety level greater than 30 underwent a brief relaxation exercise. All participants reported an anxiety level less than 30 before continuing on to the rest of the experiment. They were then taken into a room where they were told to watch carefully as an experimenter touched various objects in the room with one of two tissues. One tissue was described as clean and unused; the other was described as not clean, having been found on the floor somewhere in the University Hospital. Participants were told to watch carefully as they would be asked to touch some of these objects later in the experiment. After

watching the experimenter "contaminate" 25 objects and touch, but not contaminate 25 objects according to the list to which the participant was randomly assigned, participants were again asked to rate the anxiety they felt during the contamination of the objects on a 100 point scale in order to obtain an anxiety level at encoding. Two testers were used to reduce experimenter-specific effects and these experimenters were blind to the participants' diagnoses.

Participants were then taken into a different room where they spent approximately 50 minutes completing the Wechsler Memory Scale-Revised (WMS-R, Wechsler, 1987). After the 50 minutes had passed, participants were given 3 minutes to write out a list of all of the objects touched by the experimenter (a direct test of memory) after which they were asked to give a rating of the anxiety which was experienced while trying to remember the objects (on a 100 point scale) to obtain retrieval levels of emotional arousal. Next, participants were brought back into the room containing the objects and were asked to report their anxiety level (on a 100 point scale) when they were almost touching each object (an indirect test of memory). Finally, participants were asked to remember whether or not each object was originally touched with the dirty tissue.

Participants: Eight participants with OCD who expressed a fear of contamination and/or compulsive washing behaviour, eight participants with other anxiety disorders, and 20 undergraduate students were recruited for participation in this study. Participant demographics are displayed in Table 1.

Table 1 - Participant Characteristics

Group	Age	Gender	Education	MOCI Wash	MOCI Total	BDI
OCD (n=8)	35.9 (17.0)	75% Female	14.8 (2.2)	7.8 (1.5)	19.9 (5.0)	17.9 (7.3)
Anxiety control (n=8)	43.3 (12.9)	75% Female	14.8 (2.4)	3.1 (3.3)	10.7 (8.2)	16.9 (9.1)
Student (n=20)	22.1 (10.5)	65% Female	13.5 (1.3)	1.7 (1.6)	6.3 (3.6)	9.3 (7.7)

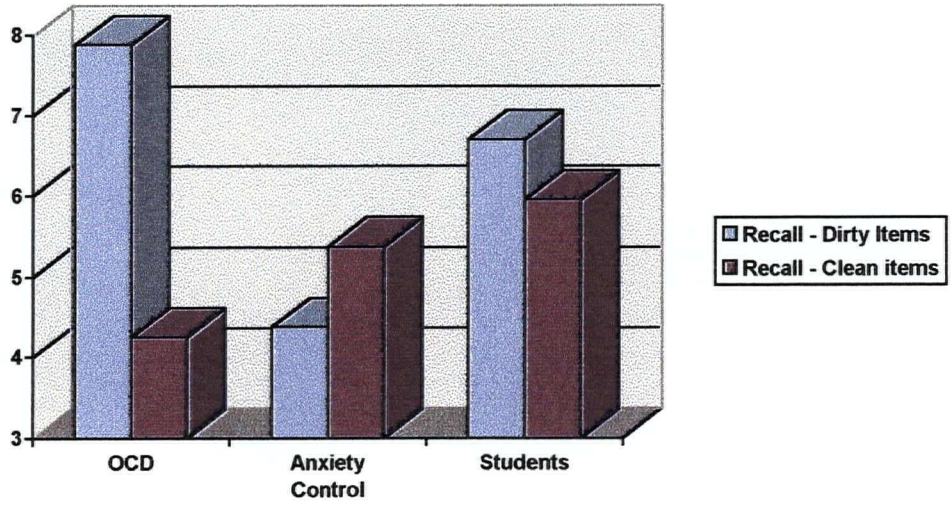
Materials: The materials consisted of 50 easily namable, uncontaminated objects, such as a compact disc, a box of crayons, an envelope, etc. (see Appendix 1). Two randomized lists were made to prevent order effects and 'dirty' and 'clean' items were counterbalanced across lists in the unlikely event that some items were naturally more associated with being clean than with being dirty (and vice versa). The 'clean' tissue and the 'dirty' tissue were both unused, crumpled tissues.

RESULTS

A three by two between-within ANOVA revealed no significant differences in overall recall of objects between groups, $F_{(2,33)} = 1.32$, n.s. Overall, there was a slight significant tendency across groups to recall more 'dirty' objects than 'clean'

ones, $F_{(1,33)} = 5.60$, $p<0.05$. The group by cleanliness interaction was highly significant, $F_{(2,33)} = 6.52$, $p<0.005$ and a planned comparison of recalled items within the OCD group was also significant $F_{(1,7)} = 13.66$, $p<0.01$, indicating that the OCD group remembered significantly more 'dirty' objects than 'clean' ones while the other two groups did not. These data are displayed in Figure 1.

Figure 1 - Mean recall of dirty and clean items for each group



None of the anxiety ratings obtained at baseline, during encoding and during recall were significantly correlated with any measure of memory (including recall scores and WMS-R subscores), indicating that subjective levels of anxiety were not related to subsequent memory performance.

A three by two between-within ANOVA revealed that participants in all groups were generally more anxious about touching dirty objects than clean objects, $F_{(1,33)} = 4.56$, $p<0.05$, however this anxiety did not differ between groups, $F_{(2,33)} = 0.48$, n.s.

Also, the OCD group was generally more anxious about touching objects whether clean or dirty than the anxious control group, which was in turn more anxious about touching objects than was the student group, $F_{(2,33)} = 9.33$, $p<0.001$. Mean anxiety ratings for each group and each type of object are displayed in Table 2.

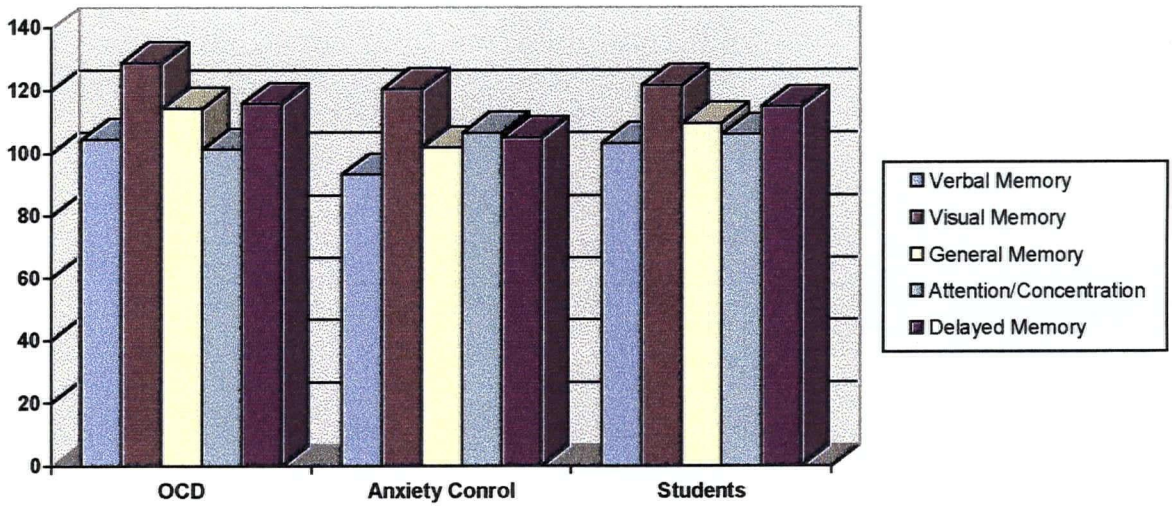
Table 2 - SUDS Anxiety about touching clean and dirty items for each group

Group	Anxiety - touching dirty items	Anxiety - touching clean items
OCD	49.3 (28.4)	48.7 (29.0)
Anxiety Control	18.1 (26.0)	13.4 (17.4)
Student	12.4 (20.0)	10.0 (15.5)

The hit rates for recall of item dirtiness for each group are: OCD - 60%, Anxiety control - 55%, Students - 55%. A one-way ANOVA indicates that there were no significant differences between the groups in terms of their ability to correctly remember that an object was previously touched with the dirty tissue, $F_{(2,33)} = 0.47$, n.s. An analysis of hits minus false-alarms produced the same, nonsignificant result.

Finally, a three by four MANOVA indicated no significant differences between groups on any of the WMS-R subscores, $F_{(8,58)} = 1.23$, n.s. Mean scores for each group are displayed in Figure 2.

Figure 2 - WMS-R subscale scores for each group



DISCUSSION

Results demonstrated that people with OCD had a biased memory for objects perceived as dirty (Figure 1). Their overall recall ability was no different from that of the students or the anxious controls, but there was preferential recall of threat-related objects. This memory bias was not demonstrated in either control group.

Overall, the three groups demonstrated a bias about touching objects. That is, participants were more anxious about touching dirty items than they were about touching clean items, regardless of their group. While it was expected that the OCD group would show a larger bias than the control groups, it is possible that the lack of an interaction results from the fact that participants in the OCD group were significantly more anxious about touching objects in general (dirty and clean

objects) than participants in the other two groups. This may have produced an anxiety ceiling effect in the OCD group. A second likely explanation for this finding is that participants in the OCD group may have perceived a "magical" spread of contamination across the items during the study. This type of magical thinking in association with contamination or contagion is fairly common even in normals (Rozin & Markwith, 1992; Rozin & Nemeroff, 1989) and would have resulted in the perception of a table full of contaminated objects instead of a table with both clean and dirty objects on it.

Participants were generally able to correctly remember the cleanliness of just over half of all objects in the study. However, hit rates for cleanliness recall were not substantially different between groups.

These results are not attributable to general differences in memory ability because there were no differences between groups on any of the WMS-R subscores.

The OCD group in the present study may not accurately represent many people with OCD in the general public. This sample had achieved a particularly high level of education compared to the general public. However, this group is certainly comparable to the other two groups in the present study given the high levels of education and the WMS-R scores for the control groups.

These results are in line with clinical observations. One participant who was employed in a restaurant said during the debriefing process, "I can tell you the location of every chair at work that has been contaminated, the type of contaminant involved, a description of the person sitting there, and what cleansers were used to

remove the contaminant over the last five years." Another reported, "I can never seem to find my keys but I can sure tell you where the germs are in my home." Surely, previous reports of a lack of memory bias in association with anxiety were unable to replicate some important aspect of these peoples' daily lives. The current experimental paradigm, using stimuli which are directly threatening, and participants with a circumscribed fear, has managed to provide some experimental evidence for this common clinical phenomenon.

These results allow for some conclusions to be made about the appropriateness of several theories of information processing and anxiety. It appears as if threatening information in this paradigm activated more than just a semantic network, but also was sufficiently elaborated upon to enable future recall of threatening stimuli in the OCD group. As such, there is no evidence that participants with OCD were displaying avoidance of processing this information. Instead, there is good support here for simpler, earlier theories of information processing and emotional arousal (e.g., Bower, 1981; Kovacs & Beck, 1978). Both of these theories predict a memory bias in association with threatening stimuli and have been well supported by memory research in depression and by attentional bias research conducted in anxious populations (see Williams et al., 1988).

Additionally, these results are inconsistent with neurological and mnestic deficit theories of OCD. WMS-R scores indicate that the OCD group was no different from the other groups. All subscore means were over 100, indicating that the OCD group displayed an above average memory compared with the rest of the population. The highest subscore was for visual memory, a domain hypothesized to

be poorer in OCD patients (Boone et al., 1991; Zielinski et al., 1991). This result is consistent with evidence that visual processing deficits might be more associated with compulsive checking than with washing (Bouvard et al., 1997). In their study, Bouvard and colleagues compared neuropsychological test scores of compulsive checkers with those of compulsive washers and found that compulsive washers did not show deficits in any domain. It is not possible therefore to generalize these results to all people with OCD - only to those with a fear of contamination.

Aside from the theoretical implications of the current findings, there are also some treatment implications. Depressed patients show a memory bias for negative or depressive events (Mathews, 1997). It is therefore common in depression to use self-monitoring as a technique for challenging a patient's cognitions that their mood, for example, is always extremely poor (Beck et al., 1979). Since the results of the current study indicate that a similar memory bias may be occurring in compulsive washers and cleaners, it might be clinically useful to have them monitor the amount of perceived "contamination" in their daily lives. A memory bias would increase patients' perceptions of the amount of contamination that they have encountered. This type of monitoring therefore, may help in the reduction of patients' beliefs that they encounter an extreme amount of contamination in their daily lives. Additionally, adding evidence of a memory bias to psychoeducational interventions for anxiety disorders may be beneficial in explaining the degree of distress caused by the disorder.

Finally, this study has several implications for future research in the area of information processing and anxiety. While it has been well demonstrated that

words are sufficient stimuli to detect attentional biases in anxiety (see Mathews & McLeod, 1994; Williams et al., 1988), it now appears that these stimuli may not produce sufficient arousal to enable appropriate elaboration and subsequent recall. Additionally, attempting to use stimuli which are related to a diffuse set of worries and anxiety states (as in GAD) also may prevent sufficient elaboration. Studies of memory and anxiety might reveal more consistent results if memory is studied in terms of a specific fear and stimuli that are specifically relevant or threatening to that particular fear. It may in fact be the distinction between anxiety and fear that has lead to this problem in the literature. While fear is associated with specific consequences, sensations and durations, anxiety has a different pattern of associated symptoms (see Rachman, 1998, for a more detailed description of this distinction). It is possible that these different symptom patterns are responsible for memory biases to be measurable when participants experience fear but not in more general anxiety states.

While the current study has some flaws (e.g. low numbers of participants - particularly in the clinical groups, a lack of stronger biased anxiety levels about touching dirty objects in the OCD group, etc.), the major memory bias effect demonstrated here is quite strong. It is hoped that this new methodology has been successful in detecting a cognitive phenomenon which was both predicted by theory and supported by clinical observation, but which has been elusive until now.

An extension of this design could be implemented in a sample of compulsive checkers to test whether or not there are memory deficits in that population. Using stimuli which are directly threatening (faucets, electrical outlets, etc.) may enable us

to reach conclusions about the degree to which confidence in memory, vs. actual memory ability (Tallis, 1993) play roles in this difficult anxiety disorder. Similar experimental paradigms which utilize threatening stimuli and frightened (not anxious) participants will hopefully reduce the confusion in this interesting and useful area of research.

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Appendix

List of Objects

1. STICKER
2. BUTTON
3. TIN CONTAINER
4. SHOELACE
5. FLUORESCENT MARKER
6. EXTENSION CORD
7. SLINKY
8. PEN
9. NOTE PAD
10. ERASER
11. NOVEL
12. STOPWATCH
13. ROLL OF TAPE
14. KEY
15. CASSETTE TAPE
16. CRAYONS
17. STAPLE REMOVER
18. SCISSORS
19. TOY CAR
20. PAPER BAG
21. COMPUTER DISC
22. LIGHTBULB
23. ROPE
24. CHALK
25. NERF BALL
26. COMPACT DISC
27. PAPER CLIP
28. VASE
29. BATTERY
30. ENVELOPE
31. RIBBON/BOW
32. SCALE
33. PENCIL SHARPENER
34. PADLOCK
35. CANDLE HOLDER
36. HOLE PUNCH
37. MICROPHONE
38. ELASTIC BANDS
39. SCREWDRIVER
40. VIDEO CASSETTE
41. RULER
42. STAPLER
43. WRENCH
44. PENCIL
45. REMOTE CONTROL
46. LIQUID PAPER
47. SCREW
48. PENCIL CASE
49. RECIPE BOX
50. STAPLES