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BRIEF COMMUNICATION

Everyday memory functioning in obsessive–compulsive disorder

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Abstract

Memory performance in obsessive–compulsive disorder (OCD) is discussed as a pathogenetic risk factor for the emergence of OCD, particularly checking compulsions. At present, however, findings are mixed and little is known about memory performance in tasks relevant to everyday functioning in patients with OCD. For the present study, memory performance was assessed in 31 patients diagnosed with OCD and 33 healthy controls with the Rivermead Behavioural Memory Test (RBMT), which covers a wide range of verbal and nonverbal memory components as well as prospective memory. OCD patients performed comparably to healthy controls on the memory task for verbal, nonverbal, and prospective memory ($p > .1$). According to norm values, memory performance was unimpaired in most OCD patients. The present findings further challenge a broad account of the "memory deficit" hypothesis of OCD and compulsive checking, respectively (*JINS*, 2006, *12*, 746–749.)

Keywords: Learning, Retention (Psychology), Neuropsychology, Anxiety Disorders, Pathogenesis, Mental Processes

INTRODUCTION

Individuals with obsessive–compulsive disorder (OCD) often report dissatisfaction with their memory as the core reason for checking behavior (e.g., writing lists, checking the door). Indeed, for the past 20 years, memory impairment has been discussed as an important pathogenetic risk factor for the emergence of OCD, particularly of compulsive checking (Sher et al., 1984). This account, the *memory deficit hypothesis*, postulates that specific memory deficits in individuals with OCD promote doubts and cause compulsive checking (e.g., Zitterl et al., 2001). A large number of studies has addressed this hypothesis. Impairment has most consistently been revealed for nonverbal material and personal actions. Findings for verbal memory, however, are inconclusive (for review, see Muller & Roberts, 2005). In recent years, several moderators have been proposed that may account for memory deficits in OCD. These studies challenge the view that memory is primarily affected in OCD. For example, dysfunctions may be mediated (partly) by impaired executive functioning (Penades et al., 2005; Savage et al., 1999), comorbid depressive symptoms (Moritz et al., 2003), and/or medication (Kuelz et al., 2004). In some studies, the presence of these factors was sufficient to account for memory deficits.

Surprisingly, relatively little is known about objective memory impairment in everyday life situations in OCD. Although ecological validity has been verified for some laboratory tests (for the AVLT, see Helmstaedter et al., 1998), mnemonic material as well as the setting of administration are often rather remote from everyday life. In addition, prospective memory performance (i.e., memory for future events, such as appointments) has not been investigated yet in OCD patients. To fill this gap, this study will focus on cognitive abnormalities that interfere with the ability to deal with everyday environments. Investigating memory deficits is important, as they might play a key role in the etiology and maintenance of the disorder.

METHOD

Participants

A total of 31 patients diagnosed with OCD [15 men, 16 women; age, 34.39 years (SD = 12.59); years of formal

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education, 11.17 (SD = 1.60); verbal intelligence, 109.00 (SD = 14.06); number of previous hospitalizations, 2.64 (SD = 2.61); medicated patients, 14] were compared with 33 healthy controls [18 men, 15 women; age, 31.73 years (SD = 8.49); years of formal education, 11.52 (SD = 1.84); verbal intelligence, 115.12 (SD = 16.01)]. The results of the control group were derived from a prior study (Moritz et al., 2004a). The assessment of a new healthy control group seemed unnecessary as the objective of the present study was completely unrelated to the first study, and there was no overlap regarding psychiatric patients. Diagnoses in patients and healthy controls relied on a standardized interview according to Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, criteria (MINI, Lecrubier et al., 1997). The Yale–Brown Obsessive–Compulsive Scale (Y-BOCS, Goodman et al., 1989; German translation by Hand & Büttner-Westphal, 1991) was administered to assess OCD severity (M = 21.92, SD = 5.92). Twenty-three of the patients reported checking compulsions. According to a three-dimensional model (Moritz et al., 2002), OCD symptomatology was split into three subscales: severity of obsessions (Items 1, 2, 3, & 5), severity of compulsions (Items 6, 7, 8, & 10), and resistance to symptoms (Items 4 & 9). Fourteen OCD patients were suffering from secondary comorbid major depression. Depressive symptoms were quantified with the Hamilton Depression Rating Scale (HDRS, Hamilton, 1960). The HDRS mean total score for OCD patients was 13.00 (SD = 6.10). Following a previous factor analytic study conducted in OCD patients (Moritz et al., 2004b), the HDRS was split into four subscales (core depressive symptoms, anxiety, gastrointestinal problems, sleep). Exclusion criteria were a history of comorbid substance abuse, substantial neurological disorder (e.g., multiple sclerosis, traumatic brain injury), and current or previous psychotic symptoms. Written informed consent was obtained from all participants before testing, and the study was completed in accordance with the Helsinki Declaration.

Neuropsychological Assessment

The Rivermead Behavioural Memory Test (RBMT; Wilson et al., 1985) is a well-established and valid instrument for detecting everyday memory problems (e.g., Perez & Godoy, 1998). The test battery comprises 11 tasks that are designed to resemble everyday situations, for example, recalling a name, remembering an appointment, recognition of various faces, and recall of a short newspaper-like story. In the present study, the German Version of the RBMT (Wilson et al., 1992) was used. For each task, the test manual provides a profile score as well as cut-off screening scores for impaired *versus* unimpaired performance. Apart from the RBMT sum profile score (sum of all profile scores), the normative total scores were also computed, the RBMT sum screening score. According to the test manual, a sum screening score of 10–12 designates unimpaired memory performance, 7–9 mild, 3–6 moderate, and 0–2 severe impairment. Finally, a prospective memory score was calculated (Item 3 + Item 4).

RESULTS

Groups did not differ significantly with regard to age, sex, years of formal education, or verbal intelligence ($p > .1$). As can be seen in Table 1, even before Bonferroni correction, OCD patients did not differ on any of the 11 subtests (raw scores). Furthermore, no difference was apparent for the RBMT scores: sum profile score and sum screening score as well as the prospective memory score. When the analysis was confined to checkers (n = 23), the difference between healthy participants and OCD patients remained unchanged.

According to norm values for the RBMT (see Method section), 68% of the OCD patients (n = 21) and 82% of the healthy controls (n = 27) can be considered as unimpaired. An analogous 32% (n = 10) relative to 18% (n = 6) were assessed as mildly to moderately impaired (sum screening score 3–9), whereas in each group only one individual displayed moderate impairment. Severe memory impairment was not present in either group. Numerical differences did not achieve significance computed with the Mann–Whitney U test (OCD, M = 1.35, SD = .55; healthy controls, M = 1.21, SD = .48; U = 441.50; z = −1.25; $p > .2$).

Correlations between the two global memory scores (RBMT sum profile, RBMT sum screening) and the three Y-BOCS subscales (severity of compulsions, severity of obsessions, and resistance to symptoms), as well as core depression, as measured by the HDRS subscale "core depressive symptoms" (see Method section), were computed. After controlling for multiple testing (Bonferroni correction, p level reduced to $p < .006$), only the relation between total memory performance and severity of obsession (RBMT sum profile: $r = -.59$; $p < .006$; RBMT sum screening score: $r = -.71$; $p < .001$) and clinician-assessed core depressive symptoms (RBMT sum profile: $r = -.60$; $p < .006$) achieved significance. The relation between core depressive symptoms and the RBMT sum screening score did not withstand correction for multiple testing ($r = -.55$; $p < .01$). The severity of compulsions and resistance to symptoms did not correlate with any of the RBMT total scores ($p > .2$). The relationship between severity of obsessions and RBMT total scores withstood correction for "core depressive symptoms" (RBMT sum profile score: $r = -.52$; $p < .01$; RBMT sum screening score: $r = -.67$; $p < .001$).

DISCUSSION

In the present study, everyday memory performance was investigated in patients diagnosed with OCD to provide a fair test of the account that OCD symptoms, particularly compulsive checking, are associated with increased forgetfulness in everyday memory tasks. In line with a growing literature that casts doubt on the assumption of *primary* memory deficits (comorbid depression: Moritz et al., 2003;

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Table 1. Rivermead Behavioural Memory Test scores of obsessive–compulsive disorder patients and healthy controls: mean (standard deviation)

Variable	OCD Patients ($n = 31$)	Healthy Controls ($n = 33$)	Statistics
1) First Name (raw score)	2.00 (.00)	1.79 (.60)	$\chi^2(2) = 4.01, p > .1$
2) Second Name (raw score)	1.87 (.50)	1.76 (.66)	$t(62) = .31; p > .7$
3) Belonging (raw score)	3.39 (.76)	3.58 (.56)	$t(62) = -1.13; p > .2$
4) Appointment (raw score)	1.81 (.54)	1.88 (.33)	$t(62) = -.65; p > .5$
5) Pictures (raw score)	9.80 (.55)	9.94 (.24)	$t(39.0^b) = -1.28; p > .2$
6a) Story Immediate (raw score)	9.78 (3.81)[a]	10.92 (3.29)	$t(61) = -1.28; p > .2$
6b) Story Delayed (raw score)	8.77 (3.55)[a]	9.77 (3.53)	$t(61) = -1.13; p > .2$
7a) Route Immediate (raw score)	4.68 (.60)	4.82 (.46)	$t(62) = -1.05; p > .3$
7b) Route Delayed (raw score)	4.65 (.66)	4.79 (.48)	$t(62) = -.99; p > .3$
8) Message (raw score)	5.87 (.34)	5.91 (.29)	$t(62) = .48; p > .6$
9) Faces (raw score)	4.90 (.30)	4.85 (.71)	$t(62) = .40; p > .6$
10) Orientation (raw score)	8.94 (.25)	8.94 (.35)	$t(62) = -.05; p > .9$
11) Date (raw score)	.90 (.30)	.88 (.33)	$t(62) = .31; p > .7$
Prospective Memory Score	5.20 (1.11)	5.45 (.62)	$t(62) = 1.17; p > .2$
RBMT Sum Profile Score	21.45 (2.77)	22.21 (1.95)	$t(62) = -1.28; p > .2$
RBMT Screening Score	10.10 (1.68)	10.48 (1.46)	$t(62) = -.99; p > .3$

Note. When distribution of normality was violated, Mann–Whitney *U* test was additionally calculated: Results did not change regarding level of significance. RBMT = Rivermead Behavioural Memory Test;
[a]$n = 30$.
[b]Adjusted for unequal variances.

executive difficulties: Penades et al., 2005; Savage et al., 1999; medication: Kuelz et al., 2004), OCD patients did not perform worse than healthy controls on any of the tasks. To our knowledge, prospective memory has been investigated for the first time in OCD patients. For this domain, no impairment was evident. While higher levels of obsessions were associated with worse everyday memory performance in our sample, severity of compulsions and resistance to symptoms were not related to total memory performance. Although including core depressive symptomatology as a covariate did not change the relation between memory performance and severity of obsessions, core depression was also strongly related to memory performance, emphasizing the potential impact of depressive symptoms on cognitive performance and the need to control depressive symptoms as a confound (Moritz et al., 2003).

With reference to norm values, most of the OCD patients (68%) in our study displayed unimpaired memory performance. This rate is comparatively high in relation to a far lower rate (33%) of intact RBMT memory performance in other psychiatric patients (primarily schizophrenic and depressive inpatients) according to a prior study of ours (Moritz et al., 2004a). Against the background that OCD symptoms are rare in depression and schizophrenia, memory performance seems presumably to be related to psychiatric morbidity as such and not as a specific predisposing factor for OCD.

The RBMT is a well-established memory task for memory problems in daily life. The test is effective in the assessment of moderate to severe impairments, although the sensitivity for subtle memory deficits has been questioned (Wills et al., 2000). Thus, the present study does not preclude more subtle memory disturbances in OCD. Nevertheless, our data weaken a strong version of the memory deficit hypothesis as mnestic deficits were not evident in areas relevant to everyday functioning. Apart from the moderators discussed above, metacognitive beliefs deserve stronger consideration. For example, it has been assumed that OCD patients express stronger doubt when perceived responsibility is inflated (Moritz & Jelinek, 2005) and may have higher performance standards than healthy controls under such conditions ("good is not good enough," perfectionistic behavior). Thus, dissatisfaction with their memory may not reflect normal deviation but alterations of self-perception.

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