Apathy in Obsessive-Compulsive Disorder and Its Psychological Correlates: Comparison With Individuals With Schizophrenia

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Objective: Apathy, defined as reduced goal-directed behavior, is a frequent symptom in mental and neurological disorders but has been poorly studied in individuals with obsessive-compulsive disorder (OCD). The primary aim of this study was to examine levels of apathy between individuals with OCD, healthy control subjects, and individuals with schizophrenia, a mental disorder with high levels of apathy. The second aim was to assess whether the psychological factors that have been previously shown as underlying apathy in other mental disorders were associated with apathy in patients with OCD.

Methods: This exploratory study included 25 individuals with OCD, 24 individuals with schizophrenia, and 24 healthy control subjects. Apathy was assessed using the Lille Apathy Rating Scale. Measures of depression, sensibility to punishment and reward, defeatist performance beliefs, and cognitive functioning were also assessed.

Results: Individuals diagnosed with OCD and schizophrenia scored significantly higher than healthy control subjects on the apathy total score. Levels of apathy among OCD patients were mainly associated with depression but also dysexecutive functioning and defeatist beliefs.

Conclusions: These findings suggest that motivational deficits could play a central role in disability caused by OCD. Similar to other mental disorders, various psychological factors, including depression, defeatist beliefs, and dysexecutive functioning, are involved in apathetic manifestations. However, the fact that depression is the variable most associated with apathy indicates that apathetic symptoms in patients with OCD must be considered mainly as secondary rather than primary symptoms.

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Apathy is a frequent syndrome occurring in various psychiatric and neurological disorders, including schizophrenia (1, 2), depression (3), stroke (4), Parkinson's disease (5), and dementias such as Alzheimer's disease (6). Apathy is generally conceptualized as a reduction in the initiation of and persistence in motivation and goal-directed activities with symptoms in at least two of three domains of reduced initiative, reduced interest, and reduced emotional responsiveness (7, 8). Apathy has been frequently associated with brain abnormalities, particularly disruption of the prefrontal-subcortical circuitries in both neurological disorders (9, 10) and mental disorders such as schizophrenia (11). Nevertheless, other environmental, emotional, and psychological factors also appear to play a fundamental role in the development and maintenance of apathetic manifestations (11–16).

From a transdiagnostic point of view, several psychological factors appear to be involved in apathy in both neurological diseases and psychiatric disorders, particularly cognitive impairments such as deficits in executive function (9, 15), depression (4), sensitivity to reward (16), or anticipatory pleasure (14, 17). More recently, a growing body of research has suggested that defeatist performance beliefs could play a crucial role in the amotivation phenomenon (18). Defeatist performance beliefs are defined as overgeneralized conclusions about one's ability to perform tasks, such as "It is not going to work out, so there is no use in trying" or "I am not going to be good enough." Defeatist performance beliefs were initially described by Beck and colleagues as part of a cognitive model for depression and later schizophrenia (19), and they have been considered a possible contributing factor for negative symptoms and poor functional outcomes. The cognitive-behavioral model of psychopathology suggests that elevated defeatist performance beliefs may lead to a decrease in motivation for future goal-related activities (18, 19). However, to date the association between apathy and these defeatist beliefs has not yet been replicated outside schizophrenia spectrum disorder.

Obsessive-compulsive disorder (OCD) is a heterogeneous mental disorder characterized by obsessive thoughts and compulsive behaviors designed to relieve the distress caused by these obsessions. OCD is associated with diminished quality of life (20), suicidality (21), elevated risks of anxiety symptoms (22), and important functional disability (23). There is also compelling evidence that depression and executive dysfunctioning, two critical factors contributing to apathy (24), frequently occur in OCD (25–27). However, to the best of our knowledge, only one study focusing specifically on neuropsychological testing has explored motivation deficits in patients with OCD (28). These authors showed that beyond cognitive impairments per se, poor motivation was significantly associated with enhanced objective performance deficits, giving an additional argument for the need to explore motivation deficits in individuals with OCD. Thus, studies on apathy in OCD are currently lacking. This needs to be addressed, as apathy has been associated with functional impairment and reduced subjective well-being and daily functioning in other mental and neurological disorders (3–5).

In this study, we sought to assess the levels of apathy in patients diagnosed with OCD compared with a healthy control group as well as with patients with schizophrenia, a mental disorder associated with a high prevalence of apathetic symptoms (1, 2). The second objective was to determine the contribution of several key psychological processes to the severity of apathy in a sample of individuals diagnosed with OCD. It includes neurocognitive (e.g., executive function), affective (e.g., depression), motivational (e.g., sensitivity to punishment and reward), and cognitive variables (e.g., dysfunctional beliefs) that have been repeatedly shown at play in the levels of apathy. Our final objective was to test whether the severity of obsessive-compulsive symptoms was associated with apathy in the OCD group using the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), which is acknowledged as the gold standard measure of OCD symptom severity.

METHODS

Participants and Procedure

A total of 73 adults participated in this study: 24 individuals diagnosed as having schizophrenia (outpatients), 25 individuals diagnosed as having OCD, and 24 healthy control subjects. All clinical participants were clinically stable without hospitalization for at least 6 months and were taking the same medication for at least 3 months. All OCD patients were taking oral selective serotonin reuptake inhibitors (SSRIs) daily. Diagnoses were made by fully trained psychiatrists or fully trained psychologists using the Structured Clinical Interview for DSM-IV. Participants were recruited between September 2012 and September 2014 from the University Department of Adult Psychiatry in Montpellier. Exclusion criteria were known neurological disease, developmental disability, or substance abuse in the past 3 months. The nonpsychiatric control group was recruited from the general population. They had neither personal nor first-degree-relative lifetime history of psychosis diagnosis. Exclusion criteria for the control subjects were a positive history of neurological or psychiatric disease and the presence of medication intake known to influence cognition.

Measures

Apathy was assessed with the Lille Apathy Rating Scale (LARS). The LARS (29) is a semistructured interview assessing specific components of apathy. This scale includes 33 items divided into nine domains (i.e., everyday productivity, interests, taking the initiative, novelty seeking, voluntary actions, emotional responses, concern, social life, and self-awareness). Except for the first three questions, which are scored on a 5-point Likert-type scale, responses are coded by the clinician on a binary scale (1=yes/0=no). The global score ranges from −36 to +36, with a higher score representing a greater degree of apathy. The LARS has been validated in French with 159 patients with probable Parkinson's disease (29) and in patients with schizophrenia (2). However, given that the sample was too small to verify the LARS's factor structure in OCD participants, the overall score in this study was considered.

Beck Depression Inventory–II (BDI-II). The 21-item BDI-II (30) measures the severity of self-reported depression and addresses all nine diagnostic criteria for a major depressive episode that are listed in the *DSM-IV-TR*. It is scored by summing the highest ratings for each of the 21 symptoms. Total scores can range from 0 to 63.

Sensitivity to Punishment and Reward Questionnaire–Short Version (SPSRQ). The SPSRQ (31) is a self-report measure assessing a participant's appetitive (SR) and aversive (SP) motivational system functioning levels in adolescent and adult populations. The SPSRQ comprises 35 items, of which 17 assess SR and 18 assess SP. Participants have to evaluate whether these items fit their personality on a 4-point Likert-type scale, where 1=totally true and 4=totally wrong, with responses summed to form SR and SP scores.

Dysfunctional Attitude Scale Form A (DAS-A). The DAS-A (32) is a self-report scale designed to measure the presence and intensity of dysfunctional attitudes. The DAS-A consists of 40 items; each item consists of a statement and a 7-point Likert-type scale (7=fully agree; 1=fully disagree). The total score is the sum of the 40 items with a range of 40–280. The higher the score, the more dysfunctional attitudes an individual possesses.

Cognitive functioning. The Letter-Number Sequencing Subtest of the Wechsler Adult Intelligence Scale–III (33) was used as a control measure to ensure that the observed results could not be explained by interindividual differences in working memory. In this task, which is designed to assess

verbal working memory (both retention and manipulation of information), participants hear lists of numbers and letters mixed in random order and presented in increasing length, from two to eight units. Participants are first asked to enumerate the numbers in increasing order and then the letters in alphabetical order. The dependent variable is the number of correctly repeated sequences. A high score indicates better verbal working memory performance.

Executive functioning. The Delis-Kaplan Executive Function System Trail-Making Test from the Delis-Kaplan Executive Function System (34) includes five conditions: the number-sequencing task (condition 1), which measures basic numeral processing and requires visual scanning/attentional scanning and motor functions; the letter-sequencing task (condition 2), which measures fundamental verbal skill of letter sequencing; the visual scanning task (condition 3), which provides a quick test of visual scanning and visual attention; the motor speed task (condition 4), which assesses psychomotor speed; and the number–letter switching task (condition 5), which measures cognitive flexibility. In the present study, only the fifth condition was analyzed. Errors and time (seconds) taken to complete this condition were used as the outcome measures.

Y-BOCS. The Y-BOCS (35) is a semistructured interview designed to assess OCD symptoms and symptom severity. It consists of a 74-item symptom checklist of common obsessions and compulsions as well as 10 items to assess the severity of obsessions and compulsions. The Y-BOCS has demonstrated good interrater reliability, internal consistency, and convergent validity.

Positive and Negative Syndrome Scale (PANSS). The PANSS (36) is a 30-item, seven-point (1–7) rating instrument used for the assessment of symptoms associated with schizophrenia spectrum disorders. The PANSS consists of three subscales: a seven-item positive symptoms subscale (e.g., hallucinations and delusions), a seven-item negative symptoms subscale (e.g., blunted affect and emotional withdrawal), and a 16-item general psychopathology subscale (e.g., anxiety, depression, and guilt feelings). It has good construct validity and high internal validity. In the present study, symptoms from the past 2 weeks were rated.

Procedure

Participants were tested individually in a quiet environment by a fully trained clinician. Patients were assessed by trained clinical psychologists who rated the LARS and other clinical scales after a clinical interview. Patients and control participants completed all measures in one session. All participants were native French speakers with corrected or normal vision. The study was carried out according to the code of ethics of the World Medical Association (Declaration of Helsinki). All study procedures were approved by the Institutional Review Board (Local Ethics Committee of the Epsylon Laboratory). Written consent was obtained from all patients and healthy participants.

Statistical Analysis

The Kolmogorov–Smirnov test revealed that apathy and other clinical (Y-BOCS compulsion) and neurocognitive (flexibility and working memory) variables were not normally distributed. Different transformations for nonnormal data led to further deviations from normality. Therefore, statistical analyses were conducted using nontransformed scores. Between-group differences in apathy were tested using one-way analysis of variance (ANOVA). Although Levene's test showed that the assumption of homogeneity of variance had been violated for some variables, ANOVA is robust to violations of the test's assumptions when sample sizes are equal. Differences on categorical data (sex) were tested using Pearson's chi-square test, and between-group differences on age were tested using Kruskal-Wallis H. Finally, correlational tests (Spearman's rho or Pearson) were carried out within the OCD group to test whether apathy was associated with clinical and neurocognitive variables.

RESULTS

Clinical and Demographic Variables

Mean and standard deviation for clinical and demographic variables are presented in Table 1. Regarding gender, no significant differences were found between the three groups (χ^2=0.063, p=969). In fact, the same number (N=17) of male participants was found in the three groups. Likewise, no statistically significant differences were found regarding age (p=0.444). On the other hand, statistically significant differences were found regarding years of education (F=3.466, df=2, 70, p=0.037). Bonferroni post hoc analyses indicated that patients with OCD had, on average, more years of education than patients with schizophrenia (p=0.032).

Both clinical groups scored significantly higher than control subjects on depression (F=11.846, df=2, 70, p≤0.001). Moreover, a significant effect of group on sensitivity to punishment was found (F=13.527, df= 2, 70, p≤0.001). More specifically, significant differences were found between individuals with OCD and both schizophrenia patients (p=0.017) and healthy control subjects (p≤0.001). Sensitivity to punishment between patients with schizophrenia and healthy control subjects fell short of statistical significance (p=0.070). The two groups of clinical participants had higher scores than healthy control subjects. The effect of group on sensitivity to reward was not statistically significant (F=1.944, df=2, 70, p=0.151).

Regarding the neurocognitive variables, a significant effect of group was found only for working memory (F=8.807, df=2, 70, p≤0.001). Schizophrenia patients scored significantly lower than both OCD patients (p=0.022) and healthy control subjects (p≤0.001). Likewise, a significant effect of group was found for both measures of flexibility (reaction

TABLE 1. Clinical and demographic characteristics of the study participants

	Healthy control group (N=24)		Schizophrenia group (N=24)		Obsessive-compulsive disorder (OCD) group (N=25)	
Characteristic	Mean	SD	Mean	SD	Mean	SD
Age (years)	32.58	6.43	33.71	11.73	30.52	9.84
Education (years)	11.79	2.24	11.00	1.79	12.72	2.72
Apathy total score	−28.25	5.31	−14.58	13.45	−16.16	7.75
Depression[a]	5.71	4.09	14.92	12.90	19.04	10.19
Dysfunctional Attitude Scale[b]					147.25	42.51
Clinical variables: schizophrenia						
Duration of illness			10.83	10.23		
Age at onset (years)			22.92	8.26		
Clozapine equivalent			822.79	646.56		
Positive and Negative Syndrome Scale						
Positive symptoms			13.88	4.98		
Negative symptoms			21.08	6.34		
General psychopathology			36.25	9.53		
Total score			71.21	17.42		
Scale for the Assessment of Negative Symptoms						
Apathy			7.13	3.93		
Anhedonia			12.42	6.14		
Yale-Brown Obsessive Compulsive Scale						
Obsessions					13.75	3.74
Compulsions					14.00	3.82
Total score					27.46	7.47
Sensitivity to Punishment and Sensitivity to Reward Questionnaire						
Sensitivity to reward	34.88	7.92	36.29	10.85	40.28	10.83
Sensitivity to punishment	37.04	7.99	43.58	11.17	51.52	9.85
Neurocognitive measure						
Working memory	12.04	2.85	8.33	3.25	10.80	3.23
Flexibility (reaction time)	72.67	37.08	150.63	72.35	127.35	82.28
Flexibility (errors)	0.63	0.88	4.58	5.66	1.28	1.81
Decision making	1705.83	1399.74	178.75	1069.29	1032.10	1312.61

[a] Assessed using the Beck Depression Inventory-II.
[b] Data were available for 20 patients with OCD.

time: F=8.568, df=2, 70, $p \leq 0.0001$; and errors: F=9.095, df=2, 70, $p \leq 0.0001$). Both clinical groups had a longer reaction time when compared with the healthy control group ($p \leq 0.01$). Moreover, patients with schizophrenia made significantly more errors than participants in the other two groups ($p \leq 0.004$). No differences were found between the healthy control and OCD groups regarding the number of errors ($p \geq 0.05$).

Apathy Scores

A one-way ANOVA was performed to compare scores on apathy between groups (healthy control subjects, individuals with schizophrenia, and patients with OCD). Mean and standard deviations are displayed in Table 2. Results showed a significant effect of group for apathy total score (F=15.086, df=2, 70, $p \leq 0.0001$, $\eta^2 p=0.301$). Patients with OCD and schizophrenia scored significantly higher than control subjects on apathy total score.

Subsequently, education level and depression (as measured by the BDI-II) were entered as a covariate (analysis of covariance), as depression was correlated with apathy in both clinical groups. Effect of group remained significant for apathy total score (F=5.963, df=2, 68, p=0.004, $\eta^2 p=0.149$). Nevertheless, Bonferroni post hoc analyses showed statistically significant differences only between the control group and the schizophrenia group (p=0.003). The differences between patients with OCD and healthy control subjects were no longer significant ($p > 0.05$).

Correlation analyses (either Spearman for nonnormal variables or Pearson for normally distributed variables) showed that apathy (total score) was positively and significantly associated with dysfunctional attitudes, cognitive flexibility as measured by the Trail Making Test reaction time, and depression (Table 2).

DISCUSSION

In this study, we assessed levels of apathy, as measured by the LARS (29), in individuals with a diagnosis of OCD compared with schizophrenia patients and a healthy control group. In a sample of patients with OCD, we explored the relationships between several psychological variables that

TABLE 2. Correlations between apathy, clinical symptoms, dysfunctional attitudes, sensitivity to reward and punishment, and cognitive variables in patients with obsessive-compulsive disorder (OCD)

Variable	Apathy	Depression
Age (years)	0.351	0.270
Education level	−0.133	−0.009
Dysfunctional Attitude Scale form A[a]	**0.472***	0.314
Flexibility (RT)	**0.429***	−0.028
Flexibility (errors)	0.346	0.334
Working memory	−0.154	−0.172
Decision making	0.035	−0.051
Depression	**0.526****	
Obsessions[b]	0.259	0.063
Compulsions[b]	0.077	0.072
Sensitivity to reward	0.270	**0.475***
Sensitivity to punishment	0.042	0.221

[a] Data were available for 20 patients with OCD.
[b] Data were available for 24 patients with OCD.
*p<0.05. **p<0.01.

have been shown to be associated with apathy in neurological and psychiatric disorders.

Comparisons of Levels of Apathy Between Groups

The present study revealed that individuals with OCD scored significantly higher than control subjects on apathy total score. In addition, levels of apathy did not differ between patients with OCD and patients with schizophrenia; both groups scored significantly higher than the healthy control group on the overall apathy score of the LARS. The fact that no difference was found between individuals diagnosed with OCD and schizophrenia regarding apathy severity is particularly meaningful, because schizophrenia is considered as one of the mental disorders with the highest prevalence of apathy. This is an important result, as the prevalence of apathy in OCD and related disorders has been largely neglected.

Moreover, in our study, depression was positively correlated with apathy in both clinical groups. This is not surprising, considering the strong overlap between depression and apathy (37). In fact, the conceptual difference between apathy and depression in terms of distinct essences has been the subject of continuing debate. For some investigators (9), "pure" apathy must be defined as diminished motivation not attributable to emotional distress. Consequently, apathy and depression should be considered as distinct and separate clinical syndromes. On the other hand, as a result of the strong overlap between depression and apathy (38), some investigators have highlighted the importance of examining in detail these overlaps as well as the differences between apathy and depression rather than considering these entities as separate (12, 13). To reconcile these two points of view, one could propose a distinction between primary and secondary apathy (39). In this case, primary apathy could be conceptualized as diminished motivation not attributable to emotional distress, whereas secondary apathy could be considered as resulting from depression or other factors such as pharmacological treatments. Results showed that, after controlling for depression, differences between a healthy control group and patients with schizophrenia remained statistically significant. This finding indicates that apathy in OCD patients cannot be considered as a "pure" apathy syndrome; rather, we argue for a secondary origin of apathy in individuals with OCD.

Psychological and Emotional Processes Associated With Apathy in Patients With OCD

Correlational analyses showed that apathy was positively associated with depression and negatively with cognitive flexibility. Thus, these results support previous studies in neurologic and psychiatric disorders by showing that depression and cognition, particularly executive functioning, might be two mechanisms associated with apathetic manifestations in OCD. It is important to note that depression was the main variable associated with apathy in the OCD group, indicating their close relationship, as previously shown in schizophrenia (37) or neurological disorder such as stroke (4).

Another original finding of this study was the relationship between apathy and defeatist performance beliefs. To our knowledge, the present study is the first outside schizophrenia literature to demonstrate a link between dysfunctional performance beliefs (i.e., overgeneralized negative beliefs about one's ability to successfully perform tasks) and motivation deficit in OCD (40). This result provides further support of the cognitive model of negative symptoms (18). Moreover, it suggests that maladaptive performance beliefs not only underlie amotivation in individuals with a diagnosis of schizophrenia but also are related to variation in the severity of apathetic manifestations among OCD participants. From a clinical perspective, these findings support the value of dysfunctional attitudes for understanding the determinants of apathy in individuals with OCD and suggest that cognitive interventions targeting these defeatist attitudes may facilitate better functioning.

Relationships Between Apathy and OCD Symptoms

Finally, there was no significant correlation between the obsession and compulsion factors of the Y-BOCS and apathy. Thus, this result suggests that apathy may be independent of obsessive-compulsive symptom severity. On the other hand, this lack of a significant association between apathy and obsessive-compulsive symptoms may be due to the nature of the Y-BOCS. Indeed, Y-BOCS constitutes an overly general measure of OCD symptom severity. Future studies using a multidimensional measure of OCD symptom severity, such as the Dimensional Obsessive-Compulsive Scale (41), could be of particular interest to explore whether one or several specific dimensions of obsessive-compulsive symptoms (e.g., contamination/washing, harm obsessions/checking compulsions, symmetry/ordering, and unacceptable thoughts) are associated with levels of apathy.

Limitations

Some limitations of the study should be mentioned. First, the sample of OCD patients was small. Therefore, the results should only be generalized with caution. Second, because of

the cross-sectional nature of the study, it remains unclear whether apathy is a cause or a consequence of depression, cognitive flexibility deficits, or dysfunctional performance beliefs. Consequently, longitudinal studies are needed to better appraise how these three variables contribute to the development or maintenance of apathy in individuals with OCD. Third, future studies should also explore whether symptoms of apathy are not, in fact, the result of specific OCD symptomatology. Indeed, several symptom subtypes of OCD have been identified, including obsessions and checking, symmetry and ordering, contamination and cleaning, and hoarding (41). For example, individuals with high contamination fear may no longer go out and enjoy some activities—not due to reduced motivation, but instead because of their fear of being contaminated.

Fourth, SSRI-induced apathy was not assessed in the present study. In the existing literature, it has been shown that SSRI exposure was occasionally associated with an apathy syndrome that could be reversed through discontinuation of the agent (42). Even if it is not clear whether apathy represents residual symptoms of depression or is related to the different modes of action of the SSRIs, further studies are needed to explore the potential link between SSRI exposure and apathy in individuals with OCD. Finally, the biopsychosocial model of behavior suggests that future research needs to consider other possible social contributors to apathy in individuals with OCD (43). Such contributors may include role loss, hopelessness associated with repeated failures, reduced social network, and stigmatization (44).

CONCLUSIONS

Despite these limitations, this study is the first one to assess apathy in a sample of patients with OCD. Overall, these findings suggest that individuals with OCD score significantly higher than nonclinical control subjects on apathy total score; various mechanisms are at play in apathy among individuals with OCD, including depression but also defeatist beliefs and executive dysfunction. The fact that depression is the variable most associated with apathy indicates that apathetic symptoms in patients with OCD should be considered as secondary rather than primary symptoms. The addition of psychological interventions specifically targeting both depression and defeatist performance beliefs to exposure and prevention response could be considered as an adjunctive treatment for OCD patients with high levels of apathy.

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