**IMPORTANCE** Despite a remarkable co-occurrence of obsessive-compulsive disorder (OCD) and schizophrenia, little is known about the clinical and etiological relationship of these 2 disorders. Exploring the degree to which these disorders share etiological factors might provide useful implications for clinicians, researchers, and those with the disorders.

**OBJECTIVES** To assess whether patients with OCD experience an enhanced risk of developing schizophrenia and schizophrenia spectrum disorders and to determine whether a family history of OCD constitutes a risk factor for schizophrenia and schizophrenia spectrum disorders.

**DESIGN, SETTING, AND PARTICIPANTS** Using individual data from longitudinal nationwide Danish registers, we conducted a prospective cohort study with 45 million person-years of follow-up. All survival analyses were adjusted for sex, age, calendar year, parental age, and place of residence at the time of birth. A total of 3 million people born between January 1, 1955, and November 30, 2006, were followed up from January 1, 1995, through December 31, 2012. During this period, 30 556 people developed schizophrenia or schizophrenia spectrum disorders.

**MAIN OUTCOMES AND MEASURES** The presence of a prior diagnosis of OCD and the risk of a first lifetime diagnosis of schizophrenia and a schizophrenia spectrum disorder assigned by a psychiatrist in a hospital, outpatient clinic, or emergency department setting. Incidence rate ratios (IRRs) and accompanying 95% confidence intervals are used as measures of relative risk.

**RESULTS** The presence of prior diagnosis of OCD was associated with an increased risk of developing schizophrenia (IRR = 6.90; 95% CI, 6.25-7.60) and schizophrenia spectrum disorders (IRR = 5.77; 95% CI, 5.33-6.22) later in life. Similarly, offspring of parents diagnosed as having OCD had an increased risk of schizophrenia (IRR = 4.31; 95% CI, 2.72-6.43) and schizophrenia spectrum disorders (IRR = 3.10; 95% CI, 2.17-4.27). The results remained significant after adjusting for family history of psychiatric disorders and the patient’s psychiatric history.

**CONCLUSIONS AND RELEVANCE** A diagnosis of OCD was associated with higher rates of schizophrenia and schizophrenia spectrum disorders. The observed increase in risk suggests that OCD, schizophrenia, and schizophrenia spectrum disorders probably lay on a common etiological pathway.
Although schizophrenia and obsessive-compulsive disorder (OCD) are considered distinct and infrequently overlapping nosological entities, these disorders apparently share some demographic and clinical characteristics. The disorders have prevalence rates of comparable magnitude, the onset of symptoms of schizophrenia and OCD typically occurs in adolescence or early adulthood, and they affect men and women with nearly equal frequency.\(^2,2\) Additionally, an increasing number of translational, neurophysiological, and neuroimaging studies suggest a substantial overlap in the pathophysiology of schizophrenia and OCD.\(^3,5\)

Hence, it is no surprise that obsessive-compulsive and schizophrenic symptoms coexist in a greater proportion of patients than would be expected by chance. Although earlier studies indicated that obsessive-compulsive symptoms occur only in a minority of patients with schizophrenia, recent studies revealed much higher comorbidity rates.\(^10,11\) In an extensive meta-analysis, the prevalence rate of comorbid OCD in schizophrenia was estimated to be 23%\(^12\); a newer meta-analysis reported a lower prevalence rate of 12.1%.\(^13\) As the prevalence rate of OCD in a nationally representative survey of US adults was estimated to be 1.6%,\(^14\) OCD appears to be more prevalent among patients with schizophrenia. This strikingly high comorbidity is reflected in the concept of a schizoaffective disorder.\(^5\) However, there is a lack of studies exploring the temporal relationship of these disorders in a longitudinal design.

First onset of obsessive-compulsive symptoms during the treatment of schizophrenia with atypical antipsychotic drugs suggested that comorbid OCD might constitute a medication-induced state. However, obsessive-compulsive symptoms seem to be present throughout the course of schizophrenia, as comparable prevalence rates were reported among individuals at ultrahigh risk for psychosis,\(^16,18\) in prodromal phases of schizophrenia,\(^19,21\) and in drug-naive patients with first-episode schizophrenia.\(^7,22\) In addition, obsessive-compulsive symptoms were observed across the life span in adolescent, adult, and elderly patients with schizophrenia, further supporting a probable association of OCD and schizophrenia.\(^23,24\) Hence, obsessive-compulsive symptoms in schizophrenia cannot simply be considered a sequel to chronic illness or to antipsychotic treatment. Rather, OCD might be considered a precursor of schizophrenia, indicating liability.

Accordingly, the etiological relationship of OCD and schizophrenia is promising to study and might provide crucial insights for clinicians, researchers, and those with these disorders. Therefore, we explored whether patients with an episode of OCD were at higher risk for developing schizophrenia or schizophrenia spectrum disorders. However, schizophrenia is highly comorbid with a broad range of psychiatric disorders,\(^22\) so we assessed the effect of a prior diagnosis of OCD in addition to the effect of a psychiatric hospital contact per se and compared the predictive value of OCD with that of other psychiatric disorders. Similarly, we investigated whether a parental diagnosis of OCD constitutes a risk factor for schizophrenia or schizophrenia spectrum disorders in offspring.

### Methods

#### Registers

The Danish Civil Registration System provides information on sex, date of birth, and vital status (continuously updated) of all persons living in Denmark and has been computerized since 1968.\(^25\) In this database, all residents of Denmark are registered by a unique personal identification number; this identification number is also used as a personal identifier in all other national registers, enabling accurate linkage between registers.

Since 1969, the Danish Psychiatric Central Register has stored data of all admissions to Danish psychiatric inpatient facilities, including psychiatric outpatient services since 1995. It is computerized and currently comprises data of approximately 855,000 persons and 3.91 million contacts, with all-embracing coverage of the entire population of Denmark.\(^26\) As there are no private psychiatric inpatient facilities in Denmark, this register is assumed to comprehensively represent psychiatric hospital admissions. Since 1977, all inpatient treatments at nonpsychiatric facilities have been recorded in the Danish National Hospital Register, which also includes outpatient and emergency department contacts since 1995.\(^27,28\)

From 1969 to 1993, the clinical diagnoses were assigned according to the Danish modification of the International Classification of Diseases, Eighth Revision (ICD-8); since 1994, ICD-10 has been used.

The investigators were blinded to the identity of cohort members in the study, and as the study did not result in any contact with the participants, no written informed consent was required. The study was approved by the Danish Data Protection Agency.

#### Study Population

All individuals who were born in Denmark between January 1, 1955, and November 30, 2006, and were alive during the study period were included in the study. The cohort was restricted to 3,068,828 individuals with known parents. Information pertaining to the diagnosis of OCD was obtained through the Danish Psychiatric Central Register and the Danish National Hospital Register. Cohort members were linked with the Danish Psychiatric Central Register to determine whether they were diagnosed as having schizophrenia or a schizophrenia spectrum disorder.

#### Assessment of Schizophrenia and Other Mental Illness

For cohort members and their parents, data were extracted regarding diagnoses of schizophrenia (ICD-8 codes 295 except 295.7; ICD-10 code F20) or schizophrenia spectrum disorders (ICD-8 codes 295, 297, 298.29, 301.09, 301.29, and 301.83; ICD-10 codes F20-F29, F60.0-F60.1) (eTable in the Supplement). In addition, we assessed their psychiatric history, whether they had been admitted to a psychiatric hospital, or whether they had received outpatient care. Date at illness onset was defined as the first contact (inpatient, outpatient, or emergency department) that led to the diagnosis of schizophrenia or schizophrenia spectrum disorder, irrespective of other previ-
A parental diagnosis of OCD increased the IRR of schizophrenia in their offspring to 4.31 (95% CI, 2.72-6.43). A prior diagnosis of OCD was significantly associated with a parental diagnosis of any psychiatric disorder to determine the specific effect of a hospital contact for OCD. The overall nonspecific effect of a prior hospital contact for OCD, relative to no prior hospital contact for OCD, increased the IRR of schizophrenia to 6.90 (95% CI, 6.25-7.60) (Table 1).

We adjusted for first hospital contacts for any other psychiatric disorder to determine the specific effect of a hospital contact for OCD in addition to the effect of a psychiatric hospital contact per se. The specific effect of a prior OCD diagnosis increased the IRR of schizophrenia to 4.99 (95% CI, 4.53-5.48) (Table 1). Patients with inpatient (IRR = 7.39; 95% CI, 6.41-8.46) and outpatient (IRR = 4.76; 95% CI, 4.30-5.26) contacts for OCD displayed an enhanced risk of developing schizophrenia. Excluding the first months after the diagnosis, the effect of an OCD diagnosis on the risk of schizophrenia was relatively stable over time; the risk of developing schizophrenia was similarly increased 1 year (IRR = 5.96; 95% CI, 4.74-7.37) and 12 years (IRR = 5.77; 95% CI, 3.68-8.53) after the OCD diagnosis (Table 2). A prior diagnosis of OCD increased the risk of developing schizophrenia significantly more than a prior diagnosis of other childhood-onset disorders such as autism (IRR = 2.35; 95% CI, 2.08-2.64), attention-deficit/hyperactivity disorder (IRR = 2.12; 95% CI, 1.89-2.37), or bulimia nervosa (IRR = 2.29; 95% CI, 1.90-2.72) (Table 1).

A parental diagnosis of OCD increased the IRR of schizophrenia in their offspring to 4.31 (95% CI, 2.72-6.43). A prior diagnosis of OCD in the father (IRR = 4.86; 95% CI, 2.09-9.41) and the mother (IRR = 3.57; 95% CI, 2.01-5.79) increased the risk of developing schizophrenia (Table 3 and Figure). The risk associated with a parental diagnosis of OCD was significantly higher than the risk associated with a parental diagnosis of any psychiatric disorder (IRR = 1.98; 95% CI, 1.91-2.05) other than

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**Table 1. Schizophrenia and Schizophrenia Spectrum Disorder IRRs in Persons With OCD, Autism, ADHD, and Bulimia Nervosa**

<table>
<thead>
<tr>
<th>Individual Diagnosis</th>
<th>Schizophrenia (95% CI)</th>
<th>Schizophrenia Spectrum Disorder (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cases, No.</td>
<td>IRR (95% CI)</td>
</tr>
<tr>
<td>OCD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital contact</td>
<td>447</td>
<td>6.90 (6.25-7.60)</td>
</tr>
<tr>
<td>No hospital contact</td>
<td>15 784</td>
<td>1 [Reference]</td>
</tr>
<tr>
<td>Autism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital contact</td>
<td>282</td>
<td>3.06 (2.70-3.45)</td>
</tr>
<tr>
<td>No hospital contact</td>
<td>15 949</td>
<td>1 [Reference]</td>
</tr>
<tr>
<td>ADHD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital contact</td>
<td>322</td>
<td>3.58 (3.19-4.01)</td>
</tr>
<tr>
<td>No hospital contact</td>
<td>15 909</td>
<td>1 [Reference]</td>
</tr>
<tr>
<td>Bulimia nervosa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital contact</td>
<td>124</td>
<td>3.01 (2.51-3.59)</td>
</tr>
<tr>
<td>No hospital contact</td>
<td>16 107</td>
<td>1 [Reference]</td>
</tr>
</tbody>
</table>

Abbreviations: ADHD, attention-deficit/hyperactivity disorder; IRR, incidence rate ratio; OCD, obsessive-compulsive disorder.

* Estimates of relative risk were adjusted for calendar year, age, maternal and paternal ages, sex, family history of psychiatric illness, first psychiatric hospital contact for any other disorder, place of residence at time of birth, and the interaction of age with sex.

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**Relative Risk of Schizophrenia**

Among the 3,036,828 persons followed up from 1995 to 2012, 16,231 developed schizophrenia during the 45,152,621 person-years at risk, corresponding to a crude incidence rate of 3.59/10,000 person-years. Of those 16,231 patients with schizophrenia, 447 were assigned a prior diagnosis of OCD. Hence, 2.75% of persons diagnosed as having schizophrenia had a prior hospital contact for OCD. The overall nonspecific effect of a prior hospital contact for OCD, relative to no prior hospital contact for OCD, increased the IRR of schizophrenia to 6.90 (95% CI, 6.25-7.60) (Table 1).

We adjusted for first hospital contacts for any other psychiatric disorder to determine the specific effect of a hospital contact for OCD in addition to the effect of a psychiatric hospital contact per se. The specific effect of a prior OCD diagnosis increased the IRR of schizophrenia to 4.99 (95% CI, 4.53-5.48) (Table 1). Patients with inpatient (IRR = 7.39; 95% CI, 6.41-8.46) and outpatient (IRR = 4.76; 95% CI, 4.30-5.26) contacts for OCD displayed an enhanced risk of developing schizophrenia. Excluding the first months after the diagnosis, the effect of an OCD diagnosis on the risk of schizophrenia was relatively stable over time; the risk of developing schizophrenia was similarly increased 1 year (IRR = 5.96; 95% CI, 4.74-7.37) and 12 years (IRR = 5.77; 95% CI, 3.68-8.53) after the OCD diagnosis (Table 2). A prior diagnosis of OCD increased the risk of developing schizophrenia significantly more than a prior diagnosis of other childhood-onset disorders such as autism (IRR = 2.35; 95% CI, 2.08-2.64), attention-deficit/hyperactivity disorder (IRR = 2.12; 95% CI, 1.89-2.37), or bulimia nervosa (IRR = 2.29; 95% CI, 1.90-2.72) (Table 1).

A parental diagnosis of OCD increased the IRR of schizophrenia in their offspring to 4.31 (95% CI, 2.72-6.43). A prior diagnosis of OCD in the father (IRR = 4.86; 95% CI, 2.09-9.41) and the mother (IRR = 3.57; 95% CI, 2.01-5.79) increased the risk of developing schizophrenia (Table 3 and Figure). The risk associated with a parental diagnosis of OCD was significantly higher than the risk associated with a parental diagnosis of any psychiatric disorder (IRR = 1.98; 95% CI, 1.91-2.05) other than...
Abbreviations: IRR, incidence rate ratio; OCD, obsessive-compulsive disorder.

A prior diagnosis of OCD increased the risk of developing a schizophrenia spectrum disorder significantly more than a prior diagnosis of another childhood-onset disorder such as autism and schizophrenia spectrum disorder (IRR = 2.50; 95% CI, 2.28-2.73), attention-deficit/hyperactivity disorder (IRR = 2.29; 95% CI, 2.11-2.49), or bulimia nervosa (IRR = 2.20; 95% CI, 1.90-2.53) (Table 1).

A parental diagnosis of OCD increased the IRR of a schizophrenia spectrum disorder in their offspring to 3.10 (95% CI, 2.17-4.27). A prior diagnosis of OCD in the father (IRR = 3.04; 95% CI, 1.52-5.33) and the mother (IRR = 2.78; 95% CI, 1.81-4.05) increased the risk of developing a schizophrenia spectrum disorder (Table 3 and Figure). The risk associated with a parental diagnosis of OCD (IRR = 1.92; 95% CI, 1.87-2.01) was higher than the risk associated with a parental diagnosis of any psychiatric disorder (IRR = 1.92, 95% CI, 1.87-2.01) other than schizophrenia (IRR = 4.97; 95% CI, 4.64-5.31) or schizophrenia spectrum disorders (IRR = 3.15; 95% CI, 2.96-3.35) (Table 3 and Figure).

### Table 2. Schizophrenia and Schizophrenia Spectrum Disorder IRRs in Persons With a Prior Diagnosis of OCD

<table>
<thead>
<tr>
<th>Time Since OCD Diagnosis, y</th>
<th>Schizophrenia</th>
<th>Schizophrenia Spectrum Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IRR (95% CI)</td>
<td>Cases, No.</td>
</tr>
<tr>
<td>&lt;1</td>
<td>19.97 (17.04-23.24)</td>
<td>166</td>
</tr>
<tr>
<td>1</td>
<td>10.56 (8.40-13.07)</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>5.82 (4.19-7.83)</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>5.01 (3.44-6.99)</td>
<td>31</td>
</tr>
<tr>
<td>4</td>
<td>4.70 (3.11-6.75)</td>
<td>26</td>
</tr>
<tr>
<td>5</td>
<td>3.48 (2.08-5.42)</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>4.01 (2.43-6.17)</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>3.02 (1.62-5.07)</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>2.87 (1.44-5.03)</td>
<td>10</td>
</tr>
<tr>
<td>9</td>
<td>3.64 (1.89-6.24)</td>
<td>11</td>
</tr>
<tr>
<td>10</td>
<td>1.99 (0.71-4.27)</td>
<td>5</td>
</tr>
<tr>
<td>11</td>
<td>4.48 (2.15-8.08)</td>
<td>9</td>
</tr>
<tr>
<td>≥12</td>
<td>3.68 (2.35-5.45)</td>
<td>22</td>
</tr>
<tr>
<td>No OCD</td>
<td>15 784</td>
<td>1  (Reference)</td>
</tr>
</tbody>
</table>

Abbreviations: IRR, incidence rate ratio; OCD, obsessive-compulsive disorder.

* Estimates of relative risk were adjusted for calendar year, age, maternal and paternal ages, sex, family history of psychiatric illness, place of residence at time of birth, and the interaction of age with sex.

** Estimates of relative risk were adjusted for calendar year, age, maternal and paternal ages, sex, family history of psychiatric illness, first psychiatric hospital contact for any other disorder, place of residence at time of birth, and the interaction of age with sex.

### Discussion

In this national cohort study, an elevated risk of schizophrenia and schizophrenia spectrum disorders was observed in association with a prior diagnosis of OCD in the patients and the parents. The greater risk was observed despite controlling for the patient’s psychiatric history, family history of psychiatric disorders, degree of urbanization at place of residence, or parental age. Whereas no enhanced risk was observed in a review of 13 early follow-up studies, we found our results in line with a small newer study conducted in North America similarly reporting an enhanced risk of developing schizophrenia for patients with OCD.

The strengths of this study are the prospective design and the prediction based on the population-based nationwide registers in Denmark, ensuring a large study population in which all exposures were recorded independently of the outcome.
which minimized probable selection or recall bias effects. The extensive Danish registers allowed us to examine the effects of an OCD diagnosis in the patients and their parents on the risk of developing the narrowly defined phenotype of schizophrenia and the more broadly defined phenotype of schizophrenia spectrum disorders. The consistent results observed in the study imply that the effect of OCD does not depend on the phenotypic definition of the disorder of interest. A major limitation of our study is that individuals not yet diagnosed as having schizophrenia or a schizophrenia spectrum disorder may have had nonspecific psychiatric symptoms and possible initial misclassification, which could have affected the results. In Denmark, on average 1 year passes until patients with schizophrenia receive an adequate treatment. Accordingly, some patients might have been diagnosed solely as having OCD even though they already had coexisting psychosis. As we observed an increased risk even 12 years after the OCD diagnosis, it is unlikely that the effect of OCD can be attributed to coexisting untreated psychosis alone. Overall, the reliance on routinely acquired clinical information has its deficits, especially with regard to the validity and reliability of diagnoses. However, some reassuring results do exist from studies documenting the validity of schizophrenia diagnoses acquired from the Danish Psychiatric Central Register.

We observed a specific association with OCD. Although a psychiatric hospital contact per se increased the risk of developing schizophrenia and schizophrenia spectrum disorders, a prior diagnosis of OCD explained some additional variation in the disease’s susceptibility. Other childhood-onset disorder such as attention-deficit/hyperactivity disorder, autism, and bulimia nervosa did not increase the risk of developing schizophrenia and schizophrenia spectrum disorders as much as OCD, indicating a specifically strong effect of OCD on the disease’s susceptibility.

In addition, we observed an effect of parental OCD on the risk of developing schizophrenia and schizophrenia spectrum disorders. This effect of parental OCD on the risk of developing schizophrenia and schizophrenia spectrum disorders was not explained by a parental history of other mental disorders leading to a psychiatric contact. Prior inpatient and outpatient hospital contacts for OCD increased the risk of developing schizophrenia and schizophrenia spectrum disorders. This suggests an effect of OCD in general, not just especially severe forms of the disorder requiring inpatient hospitalization. Unfortunately, patients with mildly or moderately severe OCD are mostly outpatients treated by general clinicians. Hence, OCD rates are probably underestimated in this study, as we only included patients with OCD with psychiatric hospital contacts. Therefore, the effect of OCD on schizophrenia might not be generalizable to patients with OCD who only contact their general clinicians. Antidepressants constitute the medication of choice in OCD, and withdrawal symptoms and adverse effects of antidepressants can mimic psychotic symptoms. However, only 1% of the patients treated with antidepressants seem to develop schizophrenia, indicating that the results observed are not solely due to medication effects.

Without much doubt the statistical models applied in this study are complete, as they do not take into account etiological heterogeneity, which is common to complex disorders such as schizophrenia and schizophrenia spectrum disorders. Additionally, it is reasonable to assume that the true etiological model involves some confounding effects such as genetic variation shared between the patients with OCD and patients with schizophrenia or a schizophrenia spectrum disorder, common environmental risk factors, or gene-by-environment interactions. The substantial heritability estimates for OCD and schizophrenia spectrum disorders suggest that genetic variation and environmental exposure interact to influence the risk of developing these disorders. Further research is needed to identify specific genetic and environmental factors that contribute to the risk of these disorders.

Abbreviations: IRR, incidence rate ratio; OCD, obsessive-compulsive disorder.

Table 3. Schizophrenia and Schizophrenia Spectrum Disorder IRRs in Offspring of Parents With Schizophrenia, Schizophrenia Spectrum Disorder, OCD, and Other Psychiatric Diagnosis*

<table>
<thead>
<tr>
<th>Parental Diagnosis</th>
<th>Schizophrenia</th>
<th>Schizophrenia Spectrum Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>5.35 (4.79-5.95)</td>
<td>4.57 (4.19-4.98)</td>
</tr>
<tr>
<td>Schizophrenia spectrum disorder</td>
<td>3.22 (2.91-3.56)</td>
<td>3.02 (2.80-3.26)</td>
</tr>
<tr>
<td>OCD</td>
<td>3.57 (2.01-5.79)</td>
<td>2.78 (1.81-4.05)</td>
</tr>
<tr>
<td>Other</td>
<td>1.93 (1.84-2.01)</td>
<td>1.90 (1.84-1.97)</td>
</tr>
<tr>
<td>None</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
</tr>
<tr>
<td>Paternal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>5.04 (4.42-5.72)</td>
<td>4.74 (4.29-5.21)</td>
</tr>
<tr>
<td>Schizophrenia spectrum disorder</td>
<td>3.22 (2.83-3.63)</td>
<td>2.82 (2.55-3.10)</td>
</tr>
<tr>
<td>OCD</td>
<td>4.86 (2.09-9.41)</td>
<td>3.04 (1.52-5.33)</td>
</tr>
<tr>
<td>Other</td>
<td>1.89 (1.80-1.98)</td>
<td>1.84 (1.77-1.90)</td>
</tr>
<tr>
<td>None</td>
<td>1 [Reference]</td>
<td>1 [Reference]</td>
</tr>
</tbody>
</table>

Abbreviations: IRR, incidence rate ratio; OCD, obsessive-compulsive disorder.
*Maternal and paternal diagnoses were categorized hierarchically as having a history of OCD, schizophrenia, schizophrenia spectrum disorder, or other psychiatric disorder. Estimates of relative risk were adjusted for calendar year, age, maternal and paternal ages, sex, place of residence at time of birth, and the interaction of age with sex.
support the assumption of plausible confounding effects. Interestingly, the enhanced risk of children with parents diagnosed as having OCD developing schizophrenia or a schizophrenia spectrum disorder reported in this study can be considered comparable to the risk of second- and third-degree relatives of patients with OCD developing OCD. Despite the fact that our results indicate putative overlapping etiological factors of OCD and schizophrenia or schizophrenia spectrum disorders, they do not necessarily suggest that these disorders should be aggregated into 1 global diagnosis. However, given these findings and the fact that OCD and schizophrenia co-occur with one another at a higher rate than would be expected in the general population, the phenotypes of these disorders are potentially more similar than currently acknowledged. Preclinical, neuroimaging, and neurochemical studies indicate an overlap in pathophysiological mechanisms of the 2 disorders, and several environmental risk factors such as advanced paternal age, obstetric complications, and infections seem to be shared. Hence, it might be promising to reexamine which features are truly distinct and which constitute putative common mechanisms underlying both disorders.

The clinical classification systems probably rely on exemplary patients with distinct and unequivocal symptoms, but such definitions might not prove valid and feasible in clinical practice as many cases will display complex and mutable combinations of symptoms. Delusions and obsessions refer to irrational thoughts. However, whereas obsessions often relate to ideas of contamination, aggressive impulses, or sexual impulses, delusions usually relate to convictions around the possession of special powers, persecution, special connections to events or objects in the environment, or delusional explanations of other psychotic experiences. In addition, compulsions or obsessions are not consistent with the individual’s self-perception, whereas delusions are false, incorrigible convictions or judgments consistent with the self-conception. The Diagnostic and Statistical Manual of Mental Disorders, fifth edition, enables the diagnosis of OCD with the specification “with absent insight/delusional beliefs.” This modification further enhances the difficulty of classifying the 2 disorders. Traditionally, OCD has been found to be distinguishable from psychotic disorders by the fact that the patient recognizes the compulsions or obsessions as products of his or her own mind. Even if the differentiation of obsessions and delusions would be perfectly possible, though, it is a matter of interpretation and judgment to classify a particular cognition or behavior as a delusion or obsession. Our results might indicate a marked need of prevention in patients with OCD, especially as comorbid OCD seems to implicate negative outcomes of schizophrenia. Patients with schizophrenia and comorbid OCD are reported to have an earlier age at onset, more depressive symptoms and suicide attempts, higher hospitalization and unemployment rates, higher symptom severity, and greater disability.

Conclusions
Our findings indicate that OCD, schizophrenia, and schizophrenia spectrum disorders might share etiological risk factors. A significantly elevated risk of schizophrenia and schizophrenia spectrum disorders was observed in association with a prior diagnosis of OCD in the patients or their parents. Future research is needed to disentangle which genetic and environmental risk factors are truly common to OCD and schizophrenia spectrum disorders.

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