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ANXIETY DISORDERS (A PELISSOLO, SECTION EDITOR)

Obsessive–Compulsive Disorder During the COVID-19 Pandemic: a Systematic Review

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Abstract

Purpose of Review This systematic review evaluated the impact of the COVID-19 pandemic on obsessive–compulsive symptoms.

Recent Findings Most studies showed that obsessive–compulsive symptoms worsened during the early stages of the pandemic, particularly for individuals with contamination-related obsessive–compulsive disorder (OCD), though other symptoms dimensions were found to worsen as well. Many patients and individuals in the general population experienced new obsessive–compulsive-like symptoms centered on COVID-19. Self-reported rates of symptom exacerbation and COVID-19-focused symptoms were consistently lower in studies that recruited patients from specialty clinics (compared to online samples). Most studies were conducted in Spring/Summer, 2020.

Summary The COVID-19 pandemic has been an enormous stressor for individuals with OCD, especially for those with contamination symptoms. Regardless, there is strong reason to believe gold standard treatment approaches for OCD have maintained strong efficacy. Disseminating and effectively delivering evidence-based treatments for OCD is an urgent public health priority.

Keywords OCD · Contamination · Exposure and response prevention · Cognitive-behavioral therapy · Serotonin reuptake inhibitors

Introduction

As the COVID-19 pandemic has affected nearly every aspect of daily life across the globe, mental health professionals and communities at large raised alarm over the potential psychological impact of the pandemic. The psychological functioning of individuals with obsessive–compulsive disorder (OCD) has been a particular concern [1,2], as OCD is often characterized by recurrent fears of contamination and illness, active avoidance of potentially contaminated places and situations, and excessive washing [3]. It is conceivable, then, that public health mandates calling for intensified protective measures like physical distancing and frequent handwashing, as well as widespread attention directed toward the potential threat of the virus, were enormous stressors for individuals with OCD.

Clinical researchers across the globe began investigating OCD during the pandemic and wondered whether OCD concerns would begin centering on COVID-19. This was particularly the case during early stages of the pandemic, when public alarm about the virus was at its height and mandated lockdowns were widespread [1,4]. Similarly, investigators and clinicians alike were interested in understanding the course of obsessive–compulsive symptoms during the pandemic, and whether certain factors (e.g., obsessions and compulsions related to contamination) would be associated with a poorer prognosis [5•, 6]. This literature has become quite developed over the course of the pandemic and may allow conclusions to be drawn regarding the impact of the pandemic on obsessive–compulsive symptoms, both among patients with OCD and the general population. Reviewing this literature may inform evidence-based approaches to

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support this population as the pandemic continues to impact daily life across the globe, as well as how to prepare for the mental health impact of future pandemics or other large-scale crises.

The central questions that guided this review are as follows:

1. What has the course of obsessive–compulsive symptoms been during the pandemic, both in people with OCD and in the general population?
2. Has there been a particularly worse course for individuals with contamination-related OCD?
3. What has been the incidence and impact of COVID-19-centered obsessive–compulsive symptoms during the pandemic?
4. What factors have been associated with obsessive–compulsive distress during the pandemic?

Methods

Search Strategy

On April 29, 2021, a literature search was conducted searching for articles assessing OCD during the COVID-19 pandemic. A PubMed search was conducted with the following terms: "OCD[Title/Abstract OR obsessive–compulsive [Title/Abstract]) AND (COVID-19[Title/Abstract] OR SARS-CoV-2[Title/Abstract]," and an EmBase search was also conducted with corresponding terms: ("obsessive compulsive disorder":ti,ab,kw OR "ocd":ti,ab,kw) AND ("covid-19":ti,ab,kw OR "sars-cov-2":ti,ab,kw). Google Scholar alerts for studies of COVID-19 and OCD were also monitored until June 18, 2021. We also included a relevant study currently under review conducted by the author team. Results from these sources were combined after removing duplicates. Inclusion criteria were (1) the study investigated OCD or obsessive–compulsive symptoms during the pandemic, (2) the paper included an empirical study with data collection, and (3) the study was published in English. Case studies/series and clinical commentaries or reviews were excluded. The final number of included studies for this review was 67. Please see Fig. 1 for a PRIMSA diagram of the search approach.

Findings from each study were extracted according to the following themes: (1) course of obsessive–compulsive symptoms during the pandemic, (2) impact of contamination symptoms, (3) COVID-19-centered symptoms, (4) factors associated with obsessive–compulsive symptoms during the pandemic. For each study, the nature of the sample (e.g., clinical vs. non-clinical), sample size, study location, general study design characteristics, and dates of data collection were also extracted. Please see Supplemental Table 1 for a summary of this information.

Results

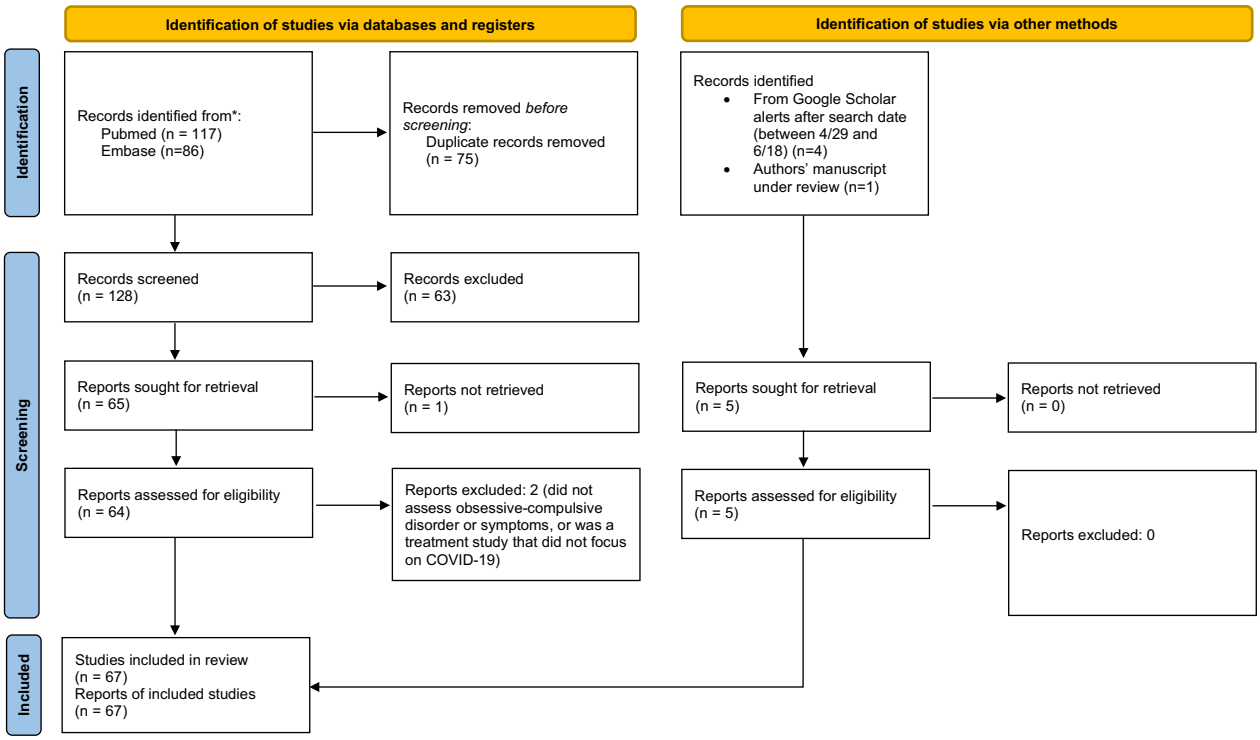
Course of Obsessive–Compulsive Symptoms during the Pandemic

Clinical Studies

Several studies assessed OCD severity at multiple timepoints, both in clinical and non-clinical samples.

Longitudinal studies with clinical samples generally recruited patients with OCD being seen in specialty care settings and compared Yale-Brown Obsessive–Compulsive Scale (Y-BOCS) [7,8] scores or other validated assessments from before the pandemic with their symptoms during the early stages of the pandemic. Three studies with adults and one with youth found significant increases in OCD severity during the early stages of the pandemic compared with prior to the pandemic using validated symptom assessments (*n*s = 127 [9••]; 30 [5•]; 270 [10••]; 61 [11••]). In contrast, one study found improvement from treatment initiation to just prior to the pandemic to just after the pandemic began and found no difference in OCD symptom course compared with another cohort followed at their clinic a year earlier ($n = 240$) [12••]. Another study found a lack of change in OCD symptoms among youth, though this was conducted with a smaller sample ($n = 29$) and used a single-item rating rather than a gold-standard assessment [13].

A more common approach in evaluating symptom course during the pandemic was through asking individuals with OCD whether their symptoms worsened during the pandemic. Studies recruited patients actively involved in treatment in specialty clinical settings or online/through prior participation in OCD research. In the clinical studies, estimates of worsened symptoms were 6% ($n = 84$) [14], 10% ($n = 60$) [6], 12% ($n = 113$) [15], 32% ($n = 65$) [16], 36% ($n = 123$) [17•], 45% ($n = 65$) [18], and 65% ($n = 127$) [9••]. The pooled rate was calculated to be 32% (95% CIs 28–35%). Notably, two of the three studies with the highest estimates of worsened symptoms were from studies conducted in Italy during the early stages of the pandemic, which was among the most severely impacted nations [9••, 17•]. One study with youth with OCD ($n = 29$) found that significantly more were rated as "improved" on the Clinical Global Impressions (CGI)-Improvement Scale (45%) than those who were "worsened" (10%), with no significant change in CGI-Severity Scale scores across assessments [11••]. Experienced exposure and response prevention clinicians provided an estimate near the middle of this range, reporting that approximately 38% on average worsened



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

Fig. 1 PRISMA 2020 flow diagram: OCD and COVID-19. From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. https://doi.org/10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

during the pandemic ($n = 137$ clinicians) [19]. Rates of worsening were higher in the online samples, including 36% ($n = 47$) [20], 73% ($n = 37$) [18], 76% ($n = 394$) [21•], 76% ($n = 252$) [22], 93% ($n = 196$) [23], resulting in a pooled estimate of 77% (95% CIs 75–80%).

Non-clinical Studies

A small number of studies also assessed obsessive–compulsive symptoms prospectively across multiple timepoints during the pandemic in non-OCD samples, yielding less consistent findings. In one large university sample in China ($n = 5,827$), estimates of elevated OCD based on self-report Y-BOCS scores in February, March, and April, 2020 were 11.3%, 3.6%, and 3.5%, respectively [24•]. Another study with college students also found OCD symptoms decreased from before the pandemic, to mid-lockdown, to after the lockdown in Italy [25]. In contrast, Loosen and colleagues [26•] assessed obsessive–compulsive symptoms in 406 adults in the UK in April/May, 2020 and again in July/August, 2021, finding significantly increased obsessive–compulsive symptoms. Similarly, OCD symptoms were also observed to increase from pre-pandemic to the early stages of the pandemic in youth with neuropsychiatric disorders [27]. A final study found that adults with ASD (without OCD) were not found to have significantly greater obsessive–compulsive symptoms from before to after the lockdown using a brief screener [28].

More broadly, several studies found higher-than-expected rates of clinically elevated OCD in the general population using established cut-point on the Obsessive–Compulsive Inventory-Revised, including 12% in Portugal in March (29) and 21% in Germany in March/April [30] or when comparing symptoms with norm values in China in February (31) as well as in the UK in April/May and July/August [26•].

Impact of Contamination on Symptom Severity, Course, and Other Outcomes

Clinical Studies

A number of studies that assessed individuals with OCD evaluated the impact of contamination symptoms on symptom severity and course.

Six studies found evidence for a poorer course for those with contamination symptoms, including three that found having contamination-related OCD prior to the pandemic predicted greater increases in overall symptom severity

during the pandemic (*n*s = 30 [5•], 127 [9••], and 394 [21•]). Importantly, this was the case in two longitudinal studies investigating this question [5•, 9••]. Similarly, a longitudinal study with youth found significantly higher rates of contamination symptoms but not other dimensions during the pandemic [11••]. In their prospective study of patients with OCD (*n* = 270), Khosravani and colleagues found that OCD symptoms worsened in all domains, including contamination as well as symmetry/completeness, harm, and unacceptable thoughts [10••]. Although all domains significantly worsened, effect sizes appeared largest for contamination and comparisons of whether increases were greater for the contamination group were not conducted. A retrospective evaluation (*n* = 196) found higher worsening in those with contamination compared with symmetry symptoms (though no differences with harm or unacceptable thoughts were noted) [23]. A study of patients with remitted or partially remitted OCD found that all patients with worsened OCD during the pandemic (based on repeated Y-BOCS administrations) had a primary contamination presentation [6].

In contrast, five studies did not find evidence for differences in course among those with contamination symptoms. This included one longitudinal study (*n* = 240) [12••], three retrospective studies (*n*s = 113 [15], 123 [16], and 65 [17•]), and in one asking for clinician retrospective reports of their patients' symptoms during the course of the pandemic [19].

Together, although these findings were overall mixed, it should be noted that three longitudinal studies that directly compared the course of individuals with contamination vs. other symptoms found a poorer course for contamination [5•, 9••, 11••], compared with one that did not find a difference (though this study was an outlier in terms of minimal overall worsening in patients with OCD) [12••]. Two studies specifically compared symptom domain scores across time, finding significantly worsened contamination, harm, and taboo-related symptoms during the pandemic [10••, 23], though direct comparisons of trajectories across symptom domains were not conducted.

Contamination symptoms in individuals with OCD were associated with increased COVID-19-related stress [32], COVID-related fear [22], new OCD symptoms focused on COVID-19 [9••], and COVID-19 dysfunctional beliefs (e.g., that the pandemic was caused by people being careless with hygiene, that fears/dangers about the world are confirmed) [21•].

Non-clinical Studies

Among 6041 individuals texting a support line in March, 2020, 60% endorsed obsession-like thoughts related to contamination and excessive washing, which were associated with increased distress levels [33,34]. Contamination symptoms were found to increase during the pandemic in college students [35], non-clinical adults [26•, 36]. One of these studies found that contamination-related OCD symptoms were similar to previously validated clinical samples and significantly greater than non-clinical samples across timepoints (April/May and again in July/August) [26•]. Finally, in one study of patients with ST-elevation myocardial infarction, contamination-related OCD symptoms were associated with significant delays in going to the hospital [37].

COVID-19-Centered Obsessive–Compulsive Symptoms

Clinical Studies

Studies investigated whether people began experiencing obsessions and compulsions with COVID-19 themes. A divide in frequency across samples recruited from clinic vs. online settings was again observed. In studies with online participants who self-identified with OCD, estimates of new, COVID-centered obsessions and compulsions were 35% in a youth sample (*n* = 37 [18]) and 58% in an adult sample (*n* = 252 [22]), for a pooled estimate of 55% (95% CI 47–58%). In contrast, rates of new COVID-19-centered obsessions and compulsions were generally lower in samples recruited from patients being treated in specialty clinics, including 4% (*n* = 113) [15], 5% (*n* = 240) [12••], and 15% (*n* = 65) [18]. A study conducted in Italy was an exception to this pattern (*n* = 127), with 45% experiencing COVID-19-focused obsessions and compulsions early in the pandemic [9••]. Across these four studies, the pooled incidence of new COVID-19-focused symptoms among patients being followed in clinic was 16% (95% CI 13–20%).

Relatedly, COVID-19-stress syndrome has now been a widely studied construct, a cluster of stress responses to the pandemic including socio-economic consequences, traumatic stress, xenophobia, and most notably, danger/contamination fears and compulsive checking, which could be conceptualized as COVID-19-centered COVID-19 symptoms [38]. Unsurprisingly, it appears that greater OCD severity, especially contamination and checking symptoms, are associated with all these COVID-19 stress symptoms, including contamination fears and excessive COVID-19-related checking [32]. This study found that patients with OCD had greater stress across COVID-19 stress syndrome domains than patients with social anxiety disorder or specific phobias, and similar levels as those with panic and generalized anxiety disorders [32].

Non-clinical Studies

Non-clinical studies also showed the increased obsessive–compulsive symptom severity was associated with more intrusive thoughts and repetitive behaviors centered on COVID-19 [39,40], as well as COVID-19-related safety behaviors [41]. Contamination symptoms specifically were also associated with COVID-19 safety behaviors [41]. One of these studies adapted a standard OCD measure to assess COVID-specific concerns found that certain repetitive thoughts and behaviors were relatively prevalent in the general Chinese population, with 18% endorsing repetitively telling others to take precautions and 12% endorsing excessive news-checking.

Factors Associated With Obsessive–Compulsive Symptoms During the Pandemic

Clinical Studies

People with OCD have been found to have more pandemic-related fears [11••, 22] and stress [32], with COVID-19-related stress predicting a poorer longitudinal course of obsessive–compulsive symptoms in one study [10••]. Another study found that financial stress caused by the pandemic, pathological doubt, and being an adult (vs. a child), and being medically at risk for COVID-19 all corresponded with a poorer course of exposure and response prevention treatment [19]. Greater pre-pandemic depression, OCD severity, and less social support all predicted greater exacerbations of OCD severity as well [9••]. In one of the only studies of youth with OCD during the pandemic, Tanir and colleagues found that attention toward COVID-19-related information, OCD duration, and knowing someone who had COVID-19 all predicted OCD exacerbations [11••].

Studies that compared individuals with OCD with healthy controls found that individuals with OCD experienced more internalizing symptoms, suicidal thoughts, sleep and appetite changes, fewer impulse control problems [9••], more COVID-related stress [20], and fear [22], as well as poorer coping strategies and less social support [42]. One study compared mental health trajectories among individuals with psychiatric diagnoses, including OCD, with healthy controls [43]. This study found greater increases in mental health symptoms in individuals without psychiatric diagnoses relative to people with more comorbid diagnoses (including OCD, anxiety disorders, and depressive disorders), though it is important to note individuals with OCD specifically were not evaluated nor were obsessive–compulsive symptoms as an outcome.

OCD severity during the pandemic has also been found to be directly correlated with suicidal ideation [9••, 17•, 44], poor coping [42,45–49], sleep disturbances [17•], family accommodation [17•], family conflict [46], avoidance [18], anxiety [18], depression [18], and medication adjustments [9••, 17•]. A greater number of OCD consults were seen in one emergency room psychiatry consult service during March, 2020, compared with March, 2019 [50].

Non-clinical Studies

In non-clinical samples, multiple studies showed that increased obsessive–compulsive symptoms were associated with increased adherence to guidelines [26•, 51], underscoring the potential adaptive role of obsessive–compulsive symptoms (e.g., washing, checking) in the presence of a true viral threat. In one of these studies, information-seeking in April/May, 2020 predicted increased OCD symptoms in July/August, 2020, which in turn predicted greater guideline adherence [26•]. That said, in a representative USA sample, COVID prevention behaviors were associated with having clinically elevated OCD symptoms, both broadly assessed and specific to contamination [41]. Relatedly, COVID-19 media consumption was also associated with OCD in college student sample [52].

COVID-19-related fears were also associated with OCD severity in non-clinical samples [53,54]. Other factors associated with OCD included intolerance of uncertainty [53], being at risk for COVID-19 [41], emotional contagion [52], family conflict [55], loss of income [56], younger age [29,56], female gender [56,57], less psychological resilience [30], and psychiatric comorbidity [58].

A number of studies investigated whether healthcare workers experienced more obsessive–compulsive symptoms. Associations were found between healthcare worker status and compulsions [59], contamination symptoms [60], and overall OCD severity [57,61,62], though one did not find a difference in OCD severity [63].

Discussion

As anticipated [1,2], COVID-19 has proven to be an enormous stressor for individuals with OCD. A wide body of literature now shows that that obsessive–compulsive symptoms increased during the early stages of the pandemic, both in those with OCD and the general population. COVID-19 became a central theme for many people with OCD, particularly those with contamination symptoms independent of COVID-19, more COVID-related stress, and more fear of COVID-19. Although multiple studies found that obsessive–compulsive symptoms worsened across symptom dimensions, high-quality studies (those that used longitudinal designs, use of repeated validated assessments) that directly compared outcomes across domains found evidence for a poorer course among patients with contamination

symptoms in three of four studies. When comparing studies conducted within specialty clinics vs. those that recruited online samples, participants in specialty care reported less impact from the pandemic, underscoring the importance of evidence-based treatment to mitigate the detrimental impact of the pandemic for many with OCD. OCD has been associated with several psychosocial factors during the pandemic, with poor coping, suicidal ideation, and situational COVID-19-related stressors (e.g., losing income, knowing someone who was sick, or working in healthcare) being the most replicated variables in addition to COVID-19-related fear, further highlighting the need to extend outreach to individuals with OCD who have suffered most during the pandemic.

This pattern of findings speaks to our earlier calls for continued robust delivery of evidence-based treatments for OCD, including exposure and response prevention and serotonin reuptake inhibitor therapy [2,64]. Although 32% of patients with OCD in specialty clinics self-reported worsening symptoms during the pandemic across studies, as well as 16% with new COVID-19-related symptoms, in samples recruited outside specialty care, these estimates were 77% and 55%, respectively. Thus, being under the care of experienced OCD specialists appears to mitigate the harms of the pandemic, and in many cases likely results in clinical improvement.

During non-pandemic times, most therapists have been hesitant to deliver exposure and response prevention with the intensity that has been shown to produce best outcomes (e.g., minimizing avoidance and safety behaviors, engaging in exposures that are highly anxiety provoking and thus effectively target obsessive fears) [65]. It is conceivable that many therapists will deliver this treatment especially cautiously for individuals with contamination-related symptoms even after vaccines have been widely adopted and the threat of the virus is lower, as patterns of active avoidance that developed during this time may persist. Considering the immense suffering many people with contamination-based OCD experienced during the pandemic, it is imperative that clinicians follow public health guidelines without overestimating the threat of the virus themselves [2,66]. With the rapid adoption of telehealth that has occurred in the wake of the pandemic, psychological and psychiatric treatment remains feasible for many people with OCD. It will be important to continue monitoring both patients with OCD and clinicians when the world begins to slowly recover from the pandemic, but residual apprehension and new norms around contamination, cleaning, and social distancing may remain in place.

Although trajectories and rates of clinical worsening were relatively better in clinical samples, it is important to note there was still a larger than expected rate of clinical worsening during the pandemic among patients under specialty care, with symptoms significantly increasing in five of six longitudinal studies. Despite these follow-up periods spanning multiple months, which generally corresponds with at least part of a course of evidence-based psychological or pharmacological therapy, many of these studies found high rates of no change or worsening. Thus, although specialty care may have minimized the impact of the pandemic for many, treatment outcomes may have been less robust than what clinicians aim for in typical times.

When viewing the pattern of results from the studies in this review, there do appear to be a range of outcomes, with some finding minimal impact from the pandemic and others finding a substantial detriment. These at times contrasting results likely reflect different states of the pandemic in different parts of the world at different snapshots in time. Two examples demonstrate the importance of considering location and timing when interpreting the literature that has emerged during this crisis. One of these examples comes from examining two studies from Italy early in the pandemic, one of the most impacted countries during the early stages. As one might expect, these studies showed higher rates of clinical worsening than other studies using similar methods [9••, 17•]. A longitudinal study from China highlights the importance of considering timing and geography; in this study, investigators followed thousands of university students in February, March, and April; self-reported OCD severity above a clinical cutoff was 11% in February, but had already dropped to typical levels by March and April [24•]. This study suggests OCD exacerbations may have reflected a relatively short-lived acute stress response in the general population in China, though studies conducted in the UK, the USA, and Iran found that obsessive–compulsive symptoms either maintained or worsened through mid-to-late summer in clinical and non-clinical samples [10••, 19, 26•]. When viewing findings together, the data are clear that the pandemic has placed significant strain on the wellbeing of those with OCD, though the degree of impact is highly dependent on the particular circumstances of the pandemic at a given point in time and geographical are.

Although there was evidence for a particularly worse course for those with contamination symptoms, several studies found that obsessive–compulsive symptoms increased across domains. This suggests that COVID-19 has been both a broad stressor that may lead to increased obsessive–compulsive symptoms regardless of symptom content, though has also had a specific effect on those with contamination symptoms in particular, as contamination symptoms were also associated with COVID-19-related distress more specifically in several studies.

A few studies found that public health guideline adherence was cross-sectionally and longitudinally associated with obsessive–compulsive severity [26•, 51] (though see one exception [15]). This may reflect what has been called the "behavioral immune system," or an adaptive change in

behaviors (e.g., checking, washing) in response to a true viral threat [66]. Clearly, however, this pattern can become maladaptive when it is excessive and irrational (for example, individuals who continued to clean their groceries after it was determined there was a low risk of COVID-19 spreading via surfaces). It would be interesting to know whether this change in behavior has translated to fewer infections in individuals with OCD, though to our knowledge, this question has not been directly addressed. Carefully assessing pathological vs. normative safety behaviors in the context of a pandemic will continue to be an important element of psychiatric assessment.

Although, beyond the scope of this review, it is worth noting there is strong preliminary evidence drawing an association between SARS-CoV-2 infection and OCD as well [67,68], and there are well-documented mood and anxiety sequelae related to COVID-19 [69]. It is likely that both the psychological stress the virus causes and the central nervous system inflammation caused by the immune response itself contribute to increased risk for OCD in this population [67,68]. Indeed, elevated obsessive–compulsive symptoms were found in 20% of 402 COVID-19 survivors in one report at 1-month follow-up [67], which were found to worsen 2 months later in a subsample of this cohort [68]. Research on the neuropsychiatric sequelae of SARS-CoV-2 should continue to include obsessive–compulsive symptoms as an important outcome.

A notable limitation of this review was that a vast majority of research was conducted in the first months of the pandemic, and it is much less clear how the longer course has been for patients with OCD. That said, the few studies with follow-ups into late summer or fall, 2020, generally did not show an improved course for those with OCD [10••, 19, 22, 23, 26•]. Continued monitoring of the literature is highlighted in order to observe whether further follow-ups are conducted, which may offer continued guidance for how clinicians may best support this population. Another limitation of this review was the difficulty in accurately aggregating results across studies that frequently used study-specific assessments that were not psychometrically validated or were retrospectively rated. That said, in drawing conclusions for this paper, we focused on summarizing replicated findings from studies with stronger designs.

Conclusions

The COVID-19 pandemic has proven to be a tremendous stressor for both the general population and individuals with OCD, with many experiencing exacerbations in obsessive–compulsive symptoms and the emergence of new symptoms focused on COVID-19. Regardless, there is good reason to believe that evidence-based treatments maintained efficacy during this time and mitigated the impact of the pandemic for many people. Dissemination and effective delivery of evidence-based therapies for children and adults with OCD remains a top priority for our field, a priority that has become even more urgent during the COVID-19 pandemic.

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Compliance with Ethical Standards

Disclaimer The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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