

Provision of Electroconvulsive Therapy During the COVID-19 Pandemic

A Survey Among Clinics in Germany, Austria, and Switzerland

Sebastian Karl, MD,* Carlos Schönfeldt-Lecuona, MD,†
Alexander Sartorius, MD,* and Michael Grözinger, MD‡

Abstract: The coronavirus disease 2019 (COVID-19) pandemic has had a marked impact on psychiatry. Capacity reductions also affected electroconvulsive therapy (ECT), even though ECT is an essential rather than an elective procedure. We sent a survey to all 197 clinics in Germany, Austria, and Switzerland with an ECT service between March and May 2021 to provide an overview of the changes made to ECT services in these countries during the acute phase of the COVID-19 pandemic. More than a quarter of the clinics (27.0%) reported a temporary suspension of all ECT treatments, and 28.2% of the clinics reported reductions of up to 75%. Maintenance ECT was suspended in 46.7% of the clinics and reduced by up to 75% in 30.6% of the clinics. At the time of the survey, 40.8% of the clinics still reported lower numbers of ECT treatments compared with the prepandemic situation. Reasons for the reduced number of ECT treatments included patient safety and testing measures, personnel shortages in the anesthesiology departments, and limited availability of rooms. The COVID-19 pandemic had and continues to have a marked negative impact on the provision of ECT in clinics in Germany, Austria, and Switzerland. To avoid negative consequences for patients, ECT clinics should urgently take steps to provide ECT services without disruptions.

Key Words: electroconvulsive therapy, ECT, COVID-19, pandemic, survey
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The coronavirus disease 2019 (COVID-19) pandemic has had a marked impact on the provision of medical services around the world. During the acute phase of the pandemic, many elective procedures were suspended to reduce face-to-face interactions, to divert medical resources to the pandemic response, or because of personnel shortages. At the same time, resource utilization by patients declined.^{1,2}

Many psychiatric services also reduced their capacity^{3–5} to allow for the isolation of infected patients or to allow for physical distancing measures. Just as with other medical specialties, presentations to psychiatric emergency services decreased in psychiatry.^{6–8} At the same time, many studies reported a high level of subjective stress during the acute phase of the pandemic and an increase in various psychiatric symptoms,^{9–13} especially in relation to isolation and quarantine.^{14,15} This suggests that many patients who might have been in need of psychiatric care were not getting

the help they needed in the acute phase of contact restrictions, potentially because of lockdown measures and fear of infection.^{16,17}

Within psychiatric services, capacity reductions also affected electroconvulsive therapy (ECT), one of the most effective psychiatric treatments. Many ECT services were forced to operate at reduced capacity or suspend service altogether during the early stages of the pandemic.^{18–23} However, most studies have not provided reasons for the reduction of ECT services. For example, survey data from ECT clinics in England, Wales, Northern Ireland, and the Republic of Ireland mention the unavailability of anesthesiologists, increased requirements for personal protective equipment (PPE), required infection control procedures, staff sickness, or staff redeployment as reasons for the reduction of ECT services.¹⁹ Other reasons for reducing ECT services include a shortage of muscle relaxants and fear of virus transmission.²⁴

Reduction of ECT services affected both acute ECT and continuation or maintenance ECT. Acute ECT treatments were either delayed or reduced, and sometimes completely suspended. Continuation and maintenance ECT were mostly reduced or completely abandoned. Because ECT, and especially maintenance ECT, is usually reserved to the most severely ill patients, it is possible that reduced availability of ECT resulted in negative implications. Indeed, some studies have reported high rates of relapse when maintenance ECT was abruptly discontinued.^{20,22,23} In cases where the most severely ill patients were able to stay on maintenance ECT, relapse rates were higher in the less severely ill patients whose maintenance ECT was suspended.²²

Several commentaries have called for the continued provision of ECT during the pandemic, arguing that ECT is an essential rather than an elective procedure.^{21,25,26} Other publications have provided guidance as to how ECT could be performed safely despite the risk of virus transmission.²⁴ Measures might include regular polymerase chain reaction (PCR) tests and increased monitoring for symptoms in patients scheduled to receive ECT, treatment for COVID-19 patients at the end of the day, sufficient ventilation of the treatment room, thorough disinfection after every ECT session, a reduced number of personnel present in the treatment room, the wearing of PPE, or a replacement of manual ventilation with an intensified oxygen therapy.²⁴

To date, it is unclear how the COVID-19 pandemic affected the provision of ECT in German-speaking countries. The goal of the present study was to provide an overview of the changes made to ECT services in Germany, Austria, and Switzerland during the acute phase of the COVID-19 pandemic.

METHODS

Between March and May of 2021, we sent a questionnaire to 197 psychiatric hospitals providing an ECT service in Germany, Austria, and Switzerland that we had identified in 2 previously published surveys.^{27,28} The mailing was extended to a total of 551 psychiatrists to also reach possible new ECT centers. The

From the *Department of Psychiatry and Psychotherapy, Central Institute of Mental Health, Medical Faculty Mannheim, Heidelberg University, Mannheim; †Department of Psychiatry and Psychotherapy III, University Clinic Ulm, Ulm; and ‡Department of Psychiatry, Psychotherapy and Psychosomatics, Faculty of Medicine, RWTH Aachen, Aachen, Germany.

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Reprints: Sebastian Karl, MD, Department of Psychiatry and Psychotherapy,

Central Institute of Mental Health, Medical Faculty Mannheim,

Heidelberg University, J5, 68159 Mannheim, Germany

(e-mail: sebastian.karl@zi-mannheim.de).

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TABLE 1. Survey Questions and Prespecified Answer Options

In which rooms is ECT performed during normal times in your institution? (single choice)	<ul style="list-style-type: none"> • In the recovery room • In an operating room • In rooms of an institute of somatic illnesses • In rooms of an intensive care ward for somatic care • In rooms of the respective psychiatric clinic • Other
Were infectious COVID-19 patients treated with ECT in your institution? (single choice)	<ul style="list-style-type: none"> • Yes, planned treatment of patients with a known SARS-CoV-2 infection • Yes, but the infection was not known at the time of the ECT treatment • No, no known treatment of patients with a SARS-CoV-2 infection
Were there infection-related complications due to the treatment of COVID-19 patients? (multiple choice)	<ul style="list-style-type: none"> • No • Quarantine of personnel • Quarantine of other patients • Infection of personnel leading to mild symptoms • Infection of personnel leading to severe symptoms • Infection of other patients leading to mild symptoms • Infection of other patients leading to severe symptoms • Other
Which hygiene measures were taken during the COVID-19 pandemic in your institution? (multiple choice)	<ul style="list-style-type: none"> • None • Use of simple medical masks • Use of FFP2 masks • Use of eye protection • Antigen test once • Antigen test before every ECT session • PCR test once • PCR test before every ECT session • ECT treatment using intubation • Other
Which other measures were taken to be able to perform ECT during the pandemic? (multiple choice)	<ul style="list-style-type: none"> • None • Reorganization of personnel in the anesthesia department • Reorganization of psychiatric personnel • Reorganization concerning rooms • Development of a special hygiene concept • Other
How did the pandemic influence the total number of ECT treatments (acute and maintenance) in your institution? (single choice)	<ul style="list-style-type: none"> • Not at all or more ECT treatments • Reduction by 25% • Reduction by 50% • Reduction by 75% • At least temporary suspension of treatments

Continued next column

TABLE 1. (Continued)

What was the reason for a reduction of ECT treatments? (multiple choice)	<ul style="list-style-type: none"> • Personnel shortage in the anesthesia department • Personnel shortage in the psychiatry department • Limited availability of rooms • Inpatients refusing ECT treatment because of the pandemic • Outpatients refusing maintenance ECT because of the pandemic • The hygiene concept restricted the number of ECT treatments
How do you match ECT demand with the reduced capacity/resources? (multiple choice)	<ul style="list-style-type: none"> • Reduction of maintenance ECTs • Reduction of treatment frequency • Use of common pharmacological combination treatments instead of ECT • Use of less common pharmacological combination treatments instead of ECT (tranylcypromine, clozapine, first-generation antipsychotics) • Discharge of patients with the possibility for reintake if needed • Other
How was maintenance ECT affected by the reductions? (single choice)	<ul style="list-style-type: none"> • Not at all or more ECT treatments • Reduction by 25% • Reduction by 50% • Reduction by 75% • At least temporary suspension of treatments • We do not perform maintenance ECT at our institution
What is the current status of ECT treatments (acute and maintenance) in your institution? (single choice)	<ul style="list-style-type: none"> • Not at all or more ECT treatments • Reduction by 25% • Reduction by 50% • Reduction by 75% • Currently no ECT treatments
What is your short- and medium-term outlook on the future conditions for ECT? (single choice)	<ul style="list-style-type: none"> • A lot worse • Worse • Unchanged • Better • A lot better

questionnaire, conducted in German, was outlined by one of the authors (M.G.) and subsequently optimized with the other authors (A.S., C.S.-L.) until the items were deemed unambiguous and covered all relevant information pertaining to COVID-19–related disruptions to ECT services (Table 1). Because the survey referred to clear-cut facts and was exclusively descriptive, further tests for reliability and validity were deemed dispensable.

The answers to all questions were based on the respondents' own assessment and were not validated by external assessments. Some preliminary data presented in this article have already been reported in German within a letter to the editor.²⁶

RESULTS

A total of 89 clinics in Germany, Austria, and Switzerland with an ECT service took part in the survey (response rate of 46.2%). Participating clinics were mostly located in Germany (77.5%), followed by Switzerland (12.4%) and Austria (4.5%). Five respondents did not provide a location.

TABLE 2. Precautions Taken by ECT Clinics to Prevent the Spread of Infections Apart From the Wearing of FFP 2 Masks, Simple Medical Masks, and the Wearing of Eye Protection and Apart From Performing a PCR or an Antigen Test Once or Before Every ECT Session

- Repeated PCR tests (number depending on the length of stay of the patient)
- PCR test initially and one follow-up test
- PCR test before every maintenance ECT session
- Limited number of visitors, contact restriction during leaves from the hospital
- Weekly PCR tests
- Antigen tests every 14 d
- Antigen tests for outpatient ECT, inpatients are tested on intake
- PCR test and antigen on intake, repeat PCR test 5 d after intake, antigen test on return from a leave from the hospital
- All treatments including maintenance ECT require a PCR test on the previous day
- PCR at intake for all patients, no visitors allowed, weekly tests of personnel
- Ventilation
- Use of FFP3 masks by anesthesiologists
- Combination of PCR test and antigen test for maintenance ECT, antigen test for inpatient ECT
- Antigen tests twice per week
- Further PPE
- Double screening of all patients as an intake standard
- Antigen test before every maintenance ECT session
- Special hygiene concept developed by hygiene specialists
- PCR tests twice per week
- Antigen tests once per week
- Taking temperature before ECT session, open windows, intensified disinfection, PCR test in case of suspected infection
- Use of FFP3 masks

In most clinics, ECT was conducted in dedicated rooms of the respective psychiatric hospital or department (48.3%) or in the recovery room (28.1%). Other sites included operating rooms (10.1%), rooms belonging to a nonpsychiatric hospital department (4.5%), or rooms belonging to an intensive care unit (3.4%).

None of the clinics reported knowingly treating infectious patients with confirmed COVID-19. Some clinics (6.7%) unknowingly treated patients who later tested positive for severe acute respiratory syndrome coronavirus type 2 (SARS-CoV-2), whereas most clinics did not treat any COVID-19 patients (93.3%). Among the 6 clinics that unknowingly treated SARS-CoV-2-positive patients, most reported some type of infection-related complication, including personnel having to quarantine (n = 4), patients having

to quarantine (n = 1), personnel getting infected and presenting with mild symptoms (n = 1), and patients getting infected and presenting with mild symptoms (n = 1). Two clinics reported unknowingly treating SARS-CoV-2-positive patients with no complications arising from treatment.

All clinics reported taking some kind of precaution to prevent the spread of infections. In most clinics (n = 63), these precautions were detailed in a special patient safety and assessment protocol for detection and management that was specific for the respective clinic and specified, for example, the type of mask to be worn or the frequency of tests. The most common protective measure was the wearing of filtering facepiece 2 (FFP2) masks (n = 83), followed by the wearing of simple medical masks (n = 31) and the wearing of eye protection (n = 18). In regard to testing patients for SARS-CoV-2, clinics reported performing a PCR test once (n = 37), performing an antigen test before every ECT session (n = 18), performing an antigen test once (n = 16), or performing a PCR test before every ECT session (n = 13). In addition, performing PCR tests on patients with COVID-19-related symptoms was mandatory at all times for all German hospitals. Twenty-seven clinics reported other precautions that are listed in Table 2.

Only few clinics reported reorganization concerning rooms (n = 11) and personnel of the psychiatry (n = 6) or anesthesiology departments (n = 2). Eighteen clinics reported no further measures for performing ECT.

In more than a half of the clinics (55.1%), the COVID-19 pandemic negatively impacted the provision of ECT (Fig. 1). More than a quarter of the clinics (27.0%) reported a temporary suspension of ECT treatments. Almost a third of the clinics reported reductions in ECT treatments by 25% (16.9% of clinics), 50% (7.9% of clinics), or even 75% (3.4% of clinics). Reasons for the reduced number of ECT treatments included patient safety and testing measures (n = 26), personnel shortages in the anesthesiology departments (n = 17), limited availability of rooms (n = 13), outpatients refusing maintenance ECT because of the pandemic (n = 8), personnel shortages in the psychiatry departments (n = 6), or inpatients refusing ECT treatment because of the pandemic (n = 3). Other reasons are listed in Table 3. The reduced capacity for ECT was compensated for by a reduction of maintenance ECTs (n = 24), the discharge of patients with the possibility for reintake if needed (n = 18), common pharmacological combination treatments instead of ECT (n = 15), a reduction of ECT frequency (n = 6), or less common pharmacological treatments instead of ECT (n = 4). Other reasons are listed in Table 4.

Maintenance ECT was even more severely affected than acute ECT, with 46.9% of clinics reporting at least a temporary suspension of maintenance ECT (Fig. 1). One-third of the clinics

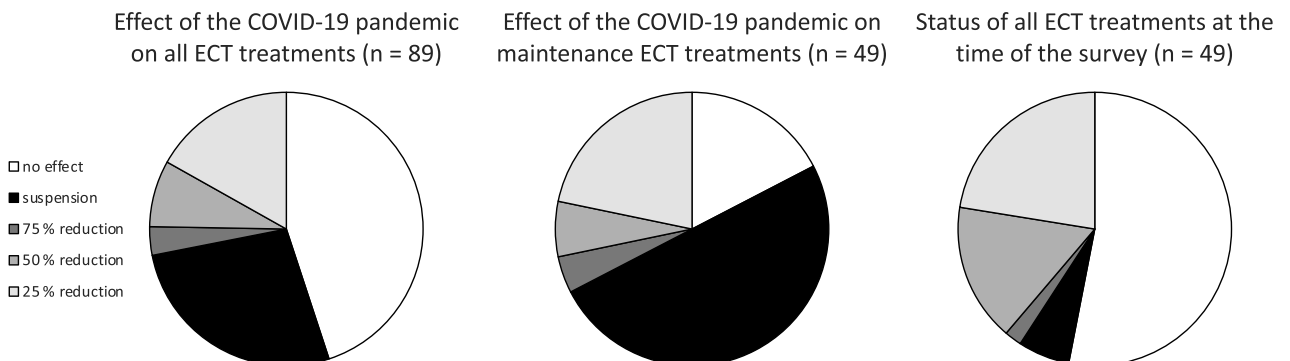


FIGURE 1. Impact of the COVID-19 pandemic on the provision of all ECTs, maintenance ECT, and status of all ECTs at the time of the survey (March through May 2021) in German-speaking ECT clinics.

TABLE 3. Reasons for the Reduced Number of ECT Treatments Other Than the Hygiene Concept, Personnel Shortages in the Anesthesiology or Psychiatry Departments, Limited Availability of Rooms, or Patients Refusing ECT Due to the Pandemic

- Decision by the psychiatry department to suspend maintenance ECT
- Decision by the clinic management to suspend elective treatments
- Insecurities regarding hygiene
- Spread of SARS-CoV-2 in the psychiatry department
- Logistical problems due to COVID-19
- Temporary reduction of the total number of patients in the clinic lead to fewer ECT treatments
- Temporary suspension of ECT treatment, temporary suspension of out-of-county treatments
- Reduced number of patients due to reduced capacity
- Early termination of maintenance treatments
- Anesthesiology department limited anesthesiology provision to life-threatening conditions, so ECT could only be provided for catatonia

reported a reduction in maintenance ECT by 25% (20.4% of clinics), by 50% (6.1% of clinics), or even by 75% (4.1% of clinics). In 6.1% of the clinics, maintenance ECT is not provided, whereas in 16.3% of the clinics, maintenance ECT remained unchanged during the pandemic.

At the time of the survey, 53.1% of the clinics reported that the current status of acute and maintenance ECT reflects the situation before the COVID-19 pandemic, whereas 40.8% of the clinics still reported lower numbers of ECT treatments compared with the prepandemic situation by 25% (22.4% of clinics), by 50% (16.3% of clinics), or even by 75% (2.0% of clinics). In some clinics (6.1%), ECT is still suspended (Fig. 1).

When asked for their outlook on the future, 5.6% of the respondents expected the conditions for ECT to improve significantly in the short and medium terms, whereas 21.3% expected slight improvements. Most respondents (62.9%) expected conditions to remain unchanged. Only few respondents expected conditions to worsen (6.7%) or to worsen significantly (3.4%).

DISCUSSION

To our knowledge, this study is the first to provide an overview of the impact that the COVID-19 pandemic had on the provision of ECT in clinics in Germany, Austria, and Switzerland. Our survey revealed a marked reduction in ECT treatments during the acute phase of the COVID-19 pandemic, with 55.1% of the clinics reporting a reduction in acute ECT treatments and 77.6% of the clinics reporting a reduction in maintenance ECT. Even at the time of the survey and more than a year after the beginning of the pandemic, 46.9% of the clinics still reported lower ECT treatment numbers compared with prepandemic times. These findings highlight that ECT is a form of psychiatric treatment that is especially vulnerable to disruptions, for example, because of restrictions put in place to prevent the spread of SARS-CoV-2. This disruption of ECT may have a negative impact on patients, given that ECT is one of the most effective treatments psychiatry has to offer for its most severely ill patients.

This observation and potential concern are not limited to German-speaking countries. Findings from other countries show similar or even more drastic reductions in the availability of ECT during the pandemic. In the United Kingdom and Ireland, 24% of ECT clinics completely closed down, with 53% offering only emergency treatment.¹⁹ A survey among the members of the Indian Psychiatric Society showed that ECT was the most severely affected psychiatric service, with a 90.7% reduction in the initiation of new ECT treatments.¹⁸ In the United States, 80% of

ECT programs were operating at less than 50% capacity in April and May 2020, with 95% of the programs deferring or delaying new ECT patients.²¹ During this time, 70% of institutions reported the decompensation and hospitalization of patients who would usually receive maintenance ECT. Eighty percent of institutions reported that patients whose maintenance ECT was discontinued were in need for a new round of acute ECT. The study further revealed one death by suicide, and 15% of institutions reported at least 1 serious suicide attempt during the disruption of ECT.²¹

Most clinics in our study reported that the reduced ECT capacity was compensated for by a reduction in maintenance rather than acute ECT. While acute ECT treatments remained unaffected in 44.9% of the clinics, maintenance ECT only remained unaffected in 16.3% of the clinics. One reasoning behind this approach might be to reserve ECT to the patients who acutely need treatment as opposed to seemingly stable patients receiving a maintenance treatment. However, it might be advisable to avoid any reduction of ECT as much as possible, because several studies show that a disruption of maintenance ECT puts patients at a high risk for relapse. In an observational study of 37 patients receiving maintenance ECT from 2 ECT centers in Belgium, maintenance treatment was discontinued for 33 patients during the COVID-19 pandemic, whereas it remained unchanged for the remaining 4 patients. While the discontinuation group showed a relapse rate of 60.2%, none of the patients with unchanged maintenance ECT relapsed.²³ Another study from Belgium following up on 81 patients whose maintenance ECT was abruptly discontinued because of the COVID-19 pandemic reported a 44.4% relapse rate in the 6 months after the discontinuation of ECT.²⁰ In a German university hospital, maintenance ECT was reduced in frequency or stopped in 86.8% of patients and remained unmodified in 13.2% of patients, based on factors like the persistence of marked residual symptoms, a lack of treatment alternatives, or at the patients' explicit request. Even though the patients without modification of maintenance ECT were clinically judged to be at the highest risk for relapse, patients with reduced frequency or discontinuation of maintenance ECT showed a significant clinical deterioration compared with patients without treatment modification.²²

While some of the reasons for the reduced availability of ECT are difficult to avoid, such as personnel shortages due to sick leave or quarantine, others could be prevented with appropriate measures. The most commonly mentioned reasons for a reduced availability of ECT in the present survey were patient safety and testing measures of the respective clinic. However, it is completely possible to provide ECT with rigorous patient safety and testing measures in place. While none of the clinics in our survey knowingly treated COVID-19 patients, Sienaert and colleagues²⁴ describe the planned provision of ECT for patients with a confirmed

TABLE 4. Compensation of Reduced Capacity for ECT Other Than by a Reduction of Maintenance ECTs, the Discharge of Patients With the Possibility for Reintake if Needed, Common Pharmacological Combination Treatments Instead of ECT, a Reduction of ECT Frequency, or Less Common Pharmacological Treatments Instead of ECT

- Reduction of acute ECTs and continuation of maintenance ECTs
- Focus on inpatients, fewer acceptance of referrals from other clinics
- Stricter indication for ECT
- No patients from outside the area for which the clinic has the mandate of care
- Capacity was reduced because of reduced need for ECT
- Reduction of outpatient ECT, no acceptance of referrals from other clinics

SARS-CoV-2 infection. The most common consequence of unknowingly treating SARS-CoV-2–positive patients in our study was personnel having to quarantine, which could be avoided when appropriate patient safety and testing measures are taken beforehand. The fact that infections after the treatment of SARS-CoV-2–positive patients were only reported by 2 clinics and resulted only in mild symptoms confirms the safety of ECT even during the current pandemic.

Precautions taken to prevent the spread of infections in the context of ECT, including testing requirements, were very heterogeneous. Although we did not directly assess the rationale behind different testing strategies, one might argue that performing tests before every ECT session increases safety from infection, but increases effort and cost. This in turn might limit the availability of ECT as a result of clinics trying to reduce associated cost and effort. In the case of PCR tests, another limitation for testing patients before every ECT session might also be the delayed availability of results, which might also limit the availability of ECT. This heterogeneity in precautions highlights the need for general recommendations. Several attempts at giving such general recommendations have been made. In April 2020, the Society for Neuroscience in Anesthesiology and Critical Care (headquartered in Richmond, Virginia) published a consensus statement in which they recommended that only patients without symptoms for COVID-19 should be considered for ECT and that each patient should be tested for SARS-CoV-2 before ECT. Procedural recommendations included a negative pressure single airborne ECT suite, the use of full PPE, a reduced number of personnel, thorough disinfection, an extended wait time (at least 30 minutes) between patients, the use of glycopyrrolate to reduce hypersalivation, the use of remifentanyl to reduce coughing, minimized use of bag-mask ventilation, and the consideration of laryngeal mask ventilation as an alternative to bag-mask ventilation.²⁹ However, it seems questionable whether psychiatric aspects have been considered adequately in this guideline. For example, the strict recommendation to consider only patients without COVID-19 symptoms for ECT is at least arguable, because such patients might still be in dire need of ECT treatment and other studies have shown that it is feasible to treat patients with a confirmed infection of SARS-CoV-2 with ECT.²⁴ In an expert consensus statement from November 2020 for performing ECT in older individuals during the COVID-19 pandemic, Lapid and colleagues³⁰ recommended the use of PPE consisting of N95 respirators, eye protection, gloves, and gowns, thorough disinfection of ECT suites at the end of each treatment day and between individual patients, the “clustering” of ECT patients to reduce the risk of cross-contamination, a screening of patients for symptoms of COVID-19, and the testing of symptomatic patients. Procedural recommendations included the use of high-efficiency particulate air filters for masked ventilation, the use of preoxygenation with a regular nonrebreather mask to avoid bag-mask ventilation, and adjusting the time between treatments to air circulation times of the respective ECT suite. However, none of these recommendations have been specifically tested for the ECT procedure or compared against other surveillance measures. To date, no general recommendations for the German context have been published.

Limitations of the present study include the descriptive nature of the survey results. This precludes the deduction of general recommendations for specific measures to prevent the spread of SARS-CoV-2 in the context of ECT and keep ECT services up and running. Also, our results do not allow for recommendations regarding the allocation of resources during an acute pandemic. More studies are needed to generate data that could help formulate general recommendations for how to allocate resources to specific patients or patient groups in times when these resources are

limited. Furthermore, the answers to all survey questions were based on the judgment of the respondents.

In conclusion, the COVID-19 pandemic had and continues to have a marked negative impact on the provision of ECT in German-speaking ECT clinics. This is concerning because ECT should not be considered an elective procedure, a plea that has been made in the early stages of the pandemic²⁵ and has since been repeated.^{21,26} Electroconvulsive therapy clinics should urgently take the necessary steps to be able to provide ECT services without disruptions. The rather positive outlook respondents had for the short and medium terms of ECT gives confidence that patients can be hopeful for a swift return of normal conditions for the provision of ECT.

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