

# Electroconvulsive Therapy in Child and Adolescent Psychiatry: Narrative Review

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## Abstract

Electroconvulsive therapy is characterized by the electrical induction of generalized and self-limited seizures and is currently available for the treatment of severe psychiatric disorders in children and adults. There are no absolute contraindications to electroconvulsive therapy in children and adolescents; however, there might be some relative contraindications. Electroconvulsive therapy is considered one of the safest procedures performed under general anesthesia. Its side effects in children are generally well tolerated, transient, similar to those reported by adults, and tend to decrease in subsequent sessions. Although considered safe and effective, it is still little used in Child and Adolescent Psychiatry. The reasons for its low use are related to the scarcity of studies, legal restrictions imposed by some countries, stigma, doubts about its effectiveness and safety, variable usage in different countries, and issues of ethical nature. Despite the fears, there is no technical, scientific, or ethical reason to justify the non-performance of electroconvulsive therapy in children and adolescents. Based on the literature review, this study seems to be the first narrative review carried out in Portugal on the use of electroconvulsive therapy in Child and Adolescent Psychiatry, and no other Portuguese studies were found. Since there is a correlation between knowledge and positive attitudes towards the use of electroconvulsive therapy, it is necessary to increase the studies, education, and practical experience in this area in Portugal. This non-systematic literature review aimed to inform health professionals about the importance of electroconvulsive therapy in the treatment of children and adolescents with severe mental illness.

**Keywords:** Adolescent; Child; Electroconvulsive Therapy/adverse effects; Electroconvulsive Therapy/ethics; Electroconvulsive Therapy/history; Electroconvulsive Therapy/methods; Electroconvulsive Therapy/trends; Mental Disorders/therapy

## Keypoints

### What is known:

- Although electroconvulsive therapy is considered safe and effective, it is still little used in Child and Adolescent Psychiatry.

### What is added:

- This study seems to be the first narrative review carried out in Portugal on the use of electroconvulsive therapy in child psychiatry.

## Introduction

Electroconvulsive therapy (ECT) is one of the oldest known non-pharmacologic treatments<sup>1</sup> and is currently available for the treatment of severe psychiatric disorders in children and adults.<sup>2</sup>

Electroconvulsive therapy is characterized by the electrical induction of generalized and self-limited seizures, obtained through neuronal stimulation with short electrical pulses, produced by specifically developed devices.<sup>2</sup>

There are several differences between an epileptic

seizure and a seizure caused by the electroconvulsive therapy. In an epileptic seizure, the seizure occurs spontaneously, has a gradual onset and end with a variable duration. Moreover, the patient with epileptic seizure is not monitored, oxygenated, or relaxed, which can lead to brain damage. However, in electroconvulsive therapy, the seizure is obtained in a controlled manner and has an abrupt onset and end with a duration from 30 to 60 seconds while the patient is monitored, oxygenated, and put under muscle relaxant, which reduces the risk of brain damage.<sup>3</sup>

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### Brief historical overview

The electroconvulsive therapy has been used since the early 20th century. At that time, institutionalization was one of the few existing answers for a mentally ill person and, therefore, it was mandatory to discover effective treatments for psychiatric diseases.<sup>4</sup>

It was during the 1910s and 1930s that the so-called biological therapies in psychiatry emerged.<sup>5,6</sup> Although little was known about the mechanism of action of those therapies at the time, they were considered effective and widespread in clinical practice.<sup>5,6</sup> Another type of treatment that also emerged was convulsive therapies. The first to appear was the malariotherapy or malaria fever therapy, developed in 1917 by Julius Wagner-Jauregg.<sup>4</sup> Later on, in 1927, insulin shock therapy (or Sakel's cure) emerged, developed by Manfred Sakel.<sup>4</sup>

In 1934, Ladislav Meduna, finding that patients suffering from epilepsy and psychosis improved after an epileptic crisis, developed the treatment of cardiazol therapy. This neuropsychiatrist postulated that epilepsy and schizophrenia were related to an increase and decrease in the volume of glial cells, respectively. In this context, he considered that the induction of a seizure (as in epilepsy) could restore the glial cells, diminished in schizophrenia, and treat this psychiatric illness. Therefore, chemical convulsive therapy induced by substances, such as camphor and metrazol, appeared.<sup>4</sup> Later, in 1938, Cerletti heard about the use of electric-induced convulsion in the slaughterhouses of Rome and suggested that electricity could replace chemical substances in the induction of seizures. His collaborator, Lucio Bini, verifying a high mortality rate in animals, formed the hypothesis that death was secondary to the electrode placement technique. Therefore, he tried to change the placement of the electrodes from the oral-rectum position to the bitemporal region and obtained promising results (with the electrodes placed in the mouth and rectum of the animals, the electric current traveled through the heart and occasionally caused fatal arrhythmias).<sup>4</sup>

In April 1938, Cerletti and Bini performed the first electroconvulsive therapy treatment on a 40-year-old patient with catatonic schizophrenia, who was discharged after 13 sessions.<sup>4</sup> At the time, the use of electroconvulsive therapy was not free from side effects and other complications, and the success of this technique created the need for its improvement. Hence, two years later, Bennet began using curare as a muscle relaxant to reduce the risk of bone fractures during seizures. In the 1950s, electroconvulsive therapy became the first-line treatment for schizophrenia. However, there was a decrease in its usage in the two following

decades with the emergence of psychopharmacology and the anti-psychiatry movement.<sup>4</sup>

In the 1980s, there was a gradual resurgence of electroconvulsive therapy as a therapeutic weapon in psychiatry which was justified by factors, such as the limited efficacy of psychotropic drugs in some serious mental illnesses, multitude of technical and scientific progresses brought into the procedure (eg, the use of anesthetics, neuromuscular blockers, right unilateral or bifrontal electrode placement, and adjuvant drugs that increase the comfort and well-being of the patient), and the safety of the procedure demonstrated in several studies.<sup>4</sup>

Regarding the use of electroconvulsive therapy in children and adolescents, the first report dates back to 1941,<sup>7</sup> in the treatment of a three-year-old child suffering from treatment-resistant epilepsy.<sup>7,8</sup> A year later, there was a reference to the treatment of two teenagers with serious mental illnesses by Heuyer and colleagues. In 1943, they published their study on the use of electroconvulsive therapy in 40 children and adolescents between 5 and 19 years old with a variety of psychiatric conditions. The results of the aforementioned research allowed the medical community to conclude that electroconvulsive therapy was a safe procedure at these ages and effective in the treatment of melancholia.<sup>4,8,9</sup>

Later, in 1947, in the United States of America (EUA), Lauretta Bender also achieved positive results in the treatment of 98 patients aged under 12 years old who suffered from "childhood schizophrenia".<sup>4,9</sup> Despite the success of the technique, its use decreased in the 1960s and 1980s due to the introduction of pharmacological agents.<sup>10</sup> Only in 1990, reappeared as an effective treatment with few side effects for pediatric patients, having gradually been incorporated into children and adolescents psychiatric treatment algorithms.<sup>10</sup>

In 2004, the American Academy of Child and Adolescent Psychiatry (AACAP) published the very first guidelines for the use of electroconvulsive therapy in children and adolescents.<sup>7,10,11</sup> Despite its efficacy and safety, it is underutilized, which is in part due to the stigma associated with the treatment.<sup>12</sup> Public perceptions of electroconvulsive therapy are mainly negative and have been influenced over the years by the representation of electroconvulsive therapy in books, films, media, and the Internet. This depiction almost always portrays it as harmful and abusive with little therapeutic benefit, which has influenced public opinion about it and can also cause fear of electroconvulsive therapy in physicians. It is necessary to promote accurate descriptions and portraits of modern electroconvulsive therapy to the



general population and health professionals to provide a balanced view of the positive and negative aspects of electroconvulsive therapy.<sup>13</sup>

### Explanatory theories

There are several explanatory theories for the improvement of the psychopathology of patients with the use of electroconvulsive therapy (Table 1).<sup>13,15,16</sup>

### Clinical indications

Mood disorders are the main indications for the use of electroconvulsive therapy in pediatric ages (*eg*, severe major depressive episode and severe manic episode with or without psychotic features), particularly in the cases of severe treatment-resistant symptoms, in critical or life-threatening situations (*eg*, catatonia, food or water refusal), failure of at least two previous psychopharmacological treatments at the appropriate dose and duration, or when other kinds of treatment are considered ineffective or cannot be used safely. In fact, most electroconvulsive therapy studies have been performed on patients with severe depressive symptoms, multiple areas of functional impairment, and history of resistance to treatment with several psychotropic drugs (often in combination with psychotherapy) as well as those patients whose length of hospital stay was reduced to about half when using electroconvulsive therapy (176 vs 73.8 days).<sup>17,18</sup>

In terms of psychotic features, evidence of the efficacy of electroconvulsive therapy is insufficient. Previous studies have indicated that it is more effective in the improvement of positive, affective, and catatonic symptoms, compared to negative ones. Therefore, in such clinical conditions, electroconvulsive therapy has been used in association with conventional psychopharmacological treatment, mainly when there is resistance against antipsychotics (including clozapine). The use of adjuvant electroconvulsive therapy has been shown to reduce the length of hospital stay as well as the functional, socioeconomic, life quality, and cognitive decline associated with psychosis.<sup>17,18</sup>

Guidelines indicate that electroconvulsive therapy is the most effective treatment for catatonia, regardless of its etiology, and that it should be used when there is no response to the treatment with benzodiazepines and/or when severe symptoms are present.<sup>17,19</sup> Furthermore, there is some evidence about the efficacy of electroconvulsive therapy use in children and adolescents with self-harm and self-injurious behaviors, hetero-aggression (*eg*, autism spectrum disorders, intellectual disability, and Tourette syndrome), and neuroleptic malignant syndrome which do not respond

to behavior and/or pharmacological interventions.<sup>17</sup>

In autoimmune encephalitis, especially in anti-N-methyl-D-aspartate receptor encephalitis, electroconvulsive therapy is useful when there are catatonia, autonomic instability, and/or lack of response to treatment with benzodiazepines and immunotherapy.<sup>17</sup> According to the literature, electroconvulsive therapy can also be used to improve the quality of life in mentally ill patients with residual symptoms even in the absence of life-threatening conditions, patients with the neuroleptic malignant syndrome, and patients with life-threatening anorexia nervosa.<sup>6,20,21</sup>

It is relevant to point out that the guidelines of the National Institute for Health and Care Excellence, the AACAP, and the American Psychological Association do not recommend the use of electroconvulsive therapy in patients with suicidal ideation or aggressive behavior that are not included in the clinical conditions mentioned above.<sup>17</sup>

According to previous studies, electroconvulsive therapy presents high rates of efficacy in mood disorders (63%-100% efficacy in unipolar and bipolar depression, and 80% efficacy in mania) and catatonia (75%-80% efficacy). Moreover, it has been indicated that it has a modest effect on schizophrenia (42%-52% efficacy if used alone and 75% efficacy in combination with antipsychotics). Regarding suicidal ideation, although studies are scarce and uncontrolled (which means no formal indication yet), electroconvulsive therapy seems to have an efficacy rate of 67%-79%. Regarding self-injurious behaviors and hetero aggression, the results are still uncertain since no large-scale studies have been performed to help draw conclusions. Despite the high efficacy rates, there are still only a few children and adolescents treated with this technique. Based on the literature review, the ratio of usage in adults to children and adolescents is 65:1<sup>17</sup>

### Preparation and decision-making process: A practice parameter

Consideration of electroconvulsive therapy for a child or adolescent requires a full medical and psychiatric evaluation. This evaluation includes a detailed medical-surgical and psychiatric history, documentation of illness severity (previous and current), and a thorough treatment history (including prior treatment successes and failures). Based on the history and physical examination, laboratory tests should be performed, as well as pretreatment electrocardiogram, chest radiography (except in pregnant adolescents), and pregnancy test (if applicable). Before the procedure, a gynecology / obstetrics consultation (if applicable) and

full pre-anesthesia evaluation should also be requested. This evaluation is undertaken to assess the overall health of the child and to screen for any possible underlying medical illnesses.<sup>9,10,22,23</sup>

Further evaluation may be required in some cases, including patients with a personal history of epilepsy for whom an electroencephalogram may be useful, patients with new-onset psychosis, history of head trauma, history of seizures, history of intracranial masses or systemic cancer with the risk of metastases to the brain, presence of any signs or symptoms of increased intracranial pressure, or any abnormalities on neurological examination in which case imaging tests (*eg*, computed tomography scan of the brain or nuclear magnetic resonance spectroscopy) may be required. Each patient should be evaluated on an individual basis and in consultation with a neurologist or neurosurgeon. It should be mentioned that despite these comorbidities, electroconvulsive therapy may still be safe in these patients.<sup>10</sup>

In order to minimize the risks of using electroconvulsive therapy in children and adolescents, AACAP recommends that each patient be evaluated by a second physician with specific knowledge about this therapy, to confirm its usage in the treatment course before proceeding. Furthermore, AACAP points out that legal requirements for the procedure and previous evaluation may be different in various countries. These differences are justified by the attempt of several countries to fulfill the rights of children and avoid excessive use of the technique in vulnerable patients.<sup>10</sup>

When it is decided to go on with the treatment, attending physicians must obtain informed consent. Ideally, the signed consent of the legal representatives and the oral consent of the child or adolescent who is about to be subjected to the procedure should be obtained. All must be informed about the associated benefits and risks, alternative treatment options, and opinions of specialists on the success or failure of the proposed acts, and must voluntarily accept the treatment. Provision of accurate and complete information helps combat anxiety, fears, and the stigma associated with the procedure. Patient involvement in the decision is important to the success of treatment and ongoing care. However, previous studies have indicated that the involvement of the child or adolescent is variable throughout the process, falling, in some cases, below the recommended level.<sup>10</sup>

According to the current literature, there are no absolute contraindications to the use of electroconvulsive therapy in children and adolescents; however, there might be relative contraindications, namely recent myocardial infarction, unstable angina, active pulmonary infection,

pheochromocytoma and tumors of the central nervous system associated with elevated cerebrospinal fluid levels.<sup>8-10,17,24,25</sup> Comorbidities, such as meningocele, hydrocephalus, seizures, and post-craniotomy are not contraindications to the treatment; nevertheless, since no systematic studies have been performed on this subject, some caution is necessary for these cases.<sup>8</sup>

It is important to highlight that while electroconvulsive therapy has been used to treat many types of conditions in children and adolescents, evidence supporting its use in preadolescent children is sparse due to the lack of its use in this population. Therefore, in some states of the USA, there are restrictions regarding the use of electroconvulsive therapy in children below a certain age. For example, electroconvulsive therapy is not permitted for patients below the age of 16 in Texas and Colorado, those below the age of 14 in Tennessee, and those below the age of 12 in California.<sup>9</sup> Furthermore, according to the National Institutes of Health / National Institute for Health and Care Excellence, electroconvulsive therapy is not recommended for the treatment of depression in children within the age range of 5-11 years.<sup>10</sup>

Pregnancy is not a contraindication to the treatment and may even be an indication for its use, particularly in cases of treatment-resistant major depression and bipolar disorder. The electroconvulsive therapy has been considered a treatment with high efficacy and low risk for the control of the above-mentioned disorders during the first three months of pregnancy, as well as the postpartum period.<sup>26</sup>

The electroconvulsive therapy is performed in a suitable environment, with a specialized team (psychiatrist / child and adolescent psychiatrist, anesthesiologist, nurses) under anesthesia by using a device that allows the selection of current (or pulse amplitude), pulse width, number of pulses per second (determined from the stimulus frequency), stimulus duration, and the interval between sessions. Each dose is individually titrated and all the aforementioned parameters are involved in the beneficial and deleterious treatment results. Regarding the placement of electrodes in electroconvulsive therapy, in general, unilateral and bifrontal placement has been preferred due to its reportedly reduced cognitive side effects (in comparison with bi-temporal electrode placement). Generally, in pediatric ages, electroconvulsive therapy is linked to the use of lower stimulus doses, lesser number of sessions, and equal efficacy, compared to the treatment of adults.<sup>11</sup>

In order to guarantee safety conditions during the procedure, physiologic monitoring is essential, with key indicators, including cardiovascular, motor and electroencephalographic seizure monitoring, and

oximetry (Fig. 1). Pregnant teenagers are also monitored for fetal heart activity through fetal Doppler ultrasound. The monitoring helps to ensure hemodynamic stability, as well as the assessment of the duration of seizures, airway patency, and side effects.<sup>9</sup>

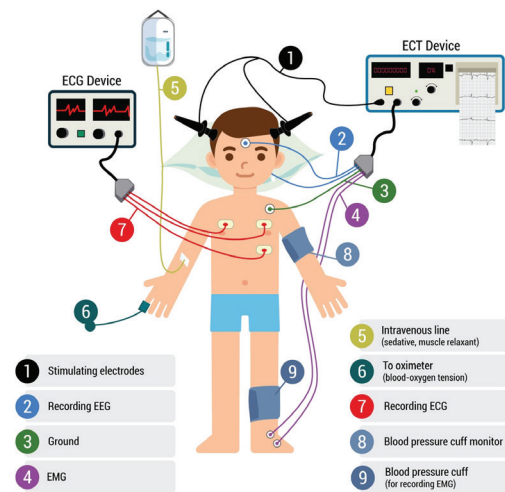
The AACAP guidelines recommend 10-12 sessions during the acute phase, with an interim evaluation after the fifth or sixth session to determine the need to proceed with the remaining sessions. Studies have indicated that the average number of sessions performed on pediatric patients is eight.<sup>27</sup> Although electroconvulsive therapy is an effective procedure for the treatment of acute illness, it does not decrease the risk of relapse. Therefore, psychopharmacological and psychotherapeutic treatments must be resumed after electroconvulsive therapy. It should be noted that studies on the use of maintenance electroconvulsive therapy in child and adolescent psychiatry are still rare.<sup>9</sup> Prognosis of patients is influenced by several factors, namely primary indication, comorbidities, pre-morbid functioning, and the presence of somatic symptoms. The presence of comorbidities may require longer courses of electroconvulsive therapy and additional therapeutic interventions. Better premorbid functioning is a predictor of the greater probability of complete remission of symptoms; however, a younger age of presentation may predict worse outcomes.<sup>18,27</sup>

**Side effects of electroconvulsive therapy treatment**

It is known that the mortality rate associated with electroconvulsive therapy treatment is extremely low (about 2.1 deaths per 100 000 procedures).<sup>17</sup> Therefore, this technique is considered one of the safest procedures performed under general anesthesia (being potentially safer in children and adolescents, compared to adults, due to the lower number of comorbidities) as its side effects are tolerable and similar to those reported by adults.<sup>6,8-10,17</sup>

The most commonly reported side effects include headaches, nausea and/or vomiting, myalgias, postictal confusion, anterograde, and retrograde amnesia. Side effects are usually transient and disappear after 24 hours.<sup>8-10,17,23,24</sup>

Regarding cognitive effects, which are the main concern related to electroconvulsive therapy use in children and adolescents, it is common to use cognitive screening tests (eg, Montreal Cognitive Assessment (MoCA)) and neuropsychological tests (e.g. Hamilton Depression Rating Scale (HDRS), Young Mania Rating Scale (YMRS), Positive and Negative Syndrome Scale (PANSS), Clinical Global Impression-Severity Scale (CGI)), in the pre-assessment phase as well as during and after treatment, which are useful for tracking cognitive effects and clarifying the diagnosis. The available literature does not suggest a high level of cognitive dysfunction after the use of electroconvulsive therapy, compared to other therapeutic options, and this impact on children is similar to the one observed in adults.<sup>8,10,17,28</sup> There



ECG - electrocardiogram; ECT - electroconvulsive therapy; EEG - electroencephalogram; EMG - electromyogram

**Figure 1.** Illustration of an electroconvulsive therapy session.

**Table 1.** Explanatory theories for the improvement of the psychopathology of patients with the use of electroconvulsive therapy

|                                    | Effects of using electroconvulsive therapy   |
|------------------------------------|--|
| <b>Theory of neurotransmission</b> | - Restores neurotransmitters balance, increasing its concentration or acting on brain receptors.<br>- Promotes increased levels of monoamines (adrenaline, noradrenaline, serotonin and dopamine).   |
| <b>Theory of neuroplasticity</b>   | - Promotes volumetric changes in the connection areas of the prefrontal cortex and limbic structures.<br>- Promotes volumetric changes in gray matter, white matter and other brain structures.<br>- Promotes neuroplastic changes in the synapse (synaptogenesis), neurons (neurogenesis), dendrites (dendrogenesis), vasculature (angiogenesis) and glial cells (gliogenesis). |
| <b>Neuroendocrine theory</b>       | - Promotes changes in the hypothalamic-pituitary-adrenal axis.   |
| <b>Epigenetic theory</b>           | - Promotes increased expression of multiple genes.   |
| <b>Neurophysiological theory</b>   | - Promotes changes in brain metabolism (frontal cortex and temporal lobes).  |
| <b>Immune system theory</b>        | - Promotes neuroinflammation reduction (electroconvulsive therapy regulates the proinflammatory and anti-inflammatory cytokine levels, the peripheral immune system cells' proliferation and activity, and the immune central nervous system activity such as microglia and astrocytes).   |

is no evidence of long-term effects on concentration, attention, verbal memory, visual memory, verbal fluency, social and/or school functioning, or in the motor development of the child.<sup>8,10,17,28</sup>

The least reported effects are psychomotor agitation, urinary retention, prolonged seizures (longer than 180 seconds), tardive seizures (which occur after the end of convulsion from electroconvulsive therapy and after full consciousness recovery), manic switch, and fetal bradycardia. Studies have indicated that prolonged and tardive seizures are more common in pediatric age, and this may be explained by the lower seizure threshold in children. Prolonged seizures occur in approximately 5%-10% of children and adolescents (and 1.1% of adults) and tardive seizures in about 10% of them. The latter is considered the most serious complication of electroconvulsive therapy in the pediatric age.<sup>10,17,23</sup> To avoid its occurrence, all medications that lower the threshold of seizure should be discontinued before the procedure, and 24 hours inpatient monitoring is also recommended.<sup>9,10,17</sup> The treatment of seizures is performed using benzodiazepines (eg, diazepam or lorazepam).<sup>17</sup>

Based on previous research, with prophylactic and supportive measures, side effects tend to decrease in subsequent sessions.<sup>10</sup> In order to minimize side effects, specific variations of the technique can be used, namely the use of propofol as an anesthetic drug (once it decreases the risk of prolonged seizures and fetal bradycardia), performance of the procedure in a hospital environment, use of brief or ultra-brief stimulation, and right unilateral or bifrontal electrode placement.<sup>6</sup>

### Ethical considerations

Despite concerns about ethical issues, the literature indicates that there are no ethical aspects that are not respected when using electroconvulsive therapy in pediatric age.<sup>6</sup> With regard to the principle of autonomy (the right to give or withdraw consent to carry out any medical act), if during the decision-making process, professional staff identify any conflictual situation between the patient and the legal representative, measures must be taken to achieve consensus within reasonable limits. If the minor, who is old enough and capable to express their opinion, refuses the treatment while their representative expresses consent, the best interest of the patient should be considered.

It is relevant to point out that in some countries, it is mandatory to have a time interval of 72 hours between obtaining informed consent and carrying out the first treatment. This procedure allows to ensure the accomplishment of the autonomy of the patient and

provides time for reflection on this important decision. After the beginning of the treatment, both the patient and the legal representative can revoke their consent at any time, which emphasizes that the autonomy principle is present throughout the entire process.<sup>6,9</sup>

Regarding the principle of non-maleficence, the objective is to prevent the treatment from causing more harm than its possible benefits. However, as mentioned above, electroconvulsive therapy is considered a safe procedure and is always performed after a pre-procedure assessment with a multidisciplinary team to assess its risks and benefits.<sup>6,9</sup>

In the case of the principle of prudence, the use of electroconvulsive therapy depends on the identification of the potentially negative effects, the evaluation of the available scientific data, and the determination of the extent of the scientific uncertainties. Therefore, respect for this principle is based on the use of standards of good medical practice. In some countries, treatment can only be carried out after a court order or evaluation by two or three psychiatrists.<sup>6,9</sup>

Regarding the principle of justice, the aim is that patients have access to the best treatments available in their healthcare system which may be in total agreement with their needs. Therefore, whenever there is a clinical indication, electroconvulsive therapy should be equally made available for all patients regardless of any particular characteristics, such as their age.<sup>6,9</sup>

### Final remarks

Although electroconvulsive therapy is considered a safe and effective treatment in Child and Adolescent Psychiatry, it is still seldom used.<sup>10,24</sup> Reasons for its limited use are related to the scarcity of studies on the subject, the imposed legal restrictions on its use in some countries, the associated stigma (electroconvulsive therapy is still associated with torture and medical negligence), prejudices about its safety and effectiveness, the variable degrees of its use in different countries, and ethical issues.<sup>6,9,10,23</sup>

Longitudinal studies following up on children subjected to electroconvulsive therapy are very scarce in the literature, but they would be relevant. According to the review of the related literature, this narrative review seems to be the first one carried out in Portugal on the use of electroconvulsive therapy in Child and Adolescent Psychiatry. Once there is a correlation between knowledge and positive attitudes towards the use of electroconvulsive therapy in children and adolescents, it becomes necessary to increase the number of studies on this subject as well as the theoretical and practical knowledge in this area in Portugal.



### Author Contributions

AMC, APJ, RG and ML participated in the study conception or design. AMC and APJ participated in the drafting of the manuscript. RG and ML participated in the critical revision of the manuscript. All authors approved the final manuscript and are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

### Conflicts of Interest

The authors declare that there were no conflicts of interest in conducting this study.

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The authors declare that they have followed the protocols of their work center on the publication of patient data.

### Consent for publication

Consent for publication was obtained.

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### Eletoconvulsivoterapia na Pedopsiquiatria: Revisão Narrativa

A eletroconvulsivoterapia é um tratamento caracterizado pela indução elétrica de crises convulsivas generalizadas e autolimitadas, estando disponível, atualmente, para o tratamento de patologias psiquiátricas graves, em crianças e adultos. Não existem contra-indicações absolutas à realização de eletroconvulsivoterapia em crianças e adolescentes, mas poderão existir contra-indicações relativas. A eletroconvulsivoterapia é considerada um dos procedimentos realizados sob anestesia geral mais seguros. Os efeitos secundários, geralmente, são bem tolerados, transitórios, semelhantes aos reportados em adultos, e tendem a diminuir em sessões subsequentes. Embora a eletroconvulsivoterapia seja considerada segura e eficaz, ainda é pouco utilizada em Pedopsiquiatria. As razões para a sua parca utilização estão relacionadas com a escassez de estudos, restrições legais impostas por alguns países, estigma associado, preconceitos acerca da sua segurança e eficácia, grau de utilização variável em diferentes países, e questões de natureza ética. Apesar dos receios, não existe qualquer motivo de ordem técnica, científica ou ética que

justifique a não realização da eletroconvulsivoterapia em crianças e adolescentes. Da pesquisa efetuada, esta parece ser a primeira revisão narrativa realizada em Portugal sobre a utilização de eletroconvulsivoterapia na Pedopsiquiatria, não tendo sido encontrados outros estudos portugueses sobre esta matéria. Uma vez que existe uma correlação entre o conhecimento e as atitudes positivas face à utilização da eletroconvulsivoterapia, torna-se necessário aumentar o número de estudos, formação e experiência prática nesta área em Portugal. Esta revisão bibliográfica não sistemática tem como objetivo informar os profissionais de saúde acerca da importância da eletroconvulsivoterapia no tratamento de crianças e adolescentes com doença mental grave.

**Palavras-chave:** Adolescente; Criança; Eletroconvulsivoterapia/efeitos adversos; Eletroconvulsivoterapia/ética; Eletroconvulsivoterapia/história; Eletroconvulsivoterapia/métodos; Eletroconvulsivoterapia/tendências; Perturbações Mentais/tratamento

