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The long-term adherence following the end of Community Treatment Order (CTO): a systematic review

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Abstract

Introduction: The Community Treatment Order (CTO) is designed to deliver mental healthcare in the community and has been introduced in around 75 jurisdictions worldwide. It constitutes a legal obligation in which individuals with severe mental illness must adhere to out-of-hospital treatment plans. Despite intense criticism and the debated nature of published evidence, it has emerged as a clinical and policy response to frequent hospital readmissions and to enhance adherence in cases where there is refusal of pharmacological treatments

Aim: This systematic review outlines findings on CTO long-term adherence, after mandatory outpatient treatment has ended, in studies that include people with psychiatric disorders

Method: Following PRISMA guidelines, we performed a review of published articles from PubMed, PsycINFO, EMBASE, and CINAHL up to January 15, 2023. We included studies that assessed adherence after CTO ends. The study is registered with PROSPERO number CRD42022360879.

Results: Six independent studies analyzing the main indicators of long adherence: engagement with services and medication adherence, were included. The average methodological quality of the studies included is fair. Long-term adherence was assessed over a period ranging from 11 to 28 months. Only two studies reported a statistically significant improvement. Regarding the remaining studies, no positive correlation was observed, except for certain subgroup samples, while in one study, medication adherence decreased.

Conclusions: Scientific evidence supporting the hypothesis that CTO has a positive role on long-term adherence post-obligation is currently not sufficient. Given the importance of modern recovery-oriented approaches and the coercive nature of compulsory outpatient treatment, it is necessary that future studies ensure the role of CTO in effectively promoting adherence.

Keywords: *Coercion; involuntary outpatient commitment; community treatment order; adherence; treatment adherence; compliance*

Introduction

Despite intense criticism and ongoing debates regarding mandatory treatments [1], which highlight the complex challenges they pose across various domains including clinical, ethical, legal, economic, and professional aspects, both the rate of involuntary inpatient admissions [2, 3] and involuntary outpatient treatments have increased globally [4, 5].

Representing a conflict between the principles of respecting autonomy and of preventing harm to individuals, Community Treatment Order (CTO) is widely used and has been introduced in around 75 jurisdictions worldwide [3-5] with the aim of countering low treatment adherence, frequent relapses and controlling risk among people with Serious Mental Illness (SMI) [6, 7]. The use of community mandatory treatment is widespread across most North American jurisdictions [8]. England and Wales, Norway, Israel, Scotland, Sweden, Switzerland, Portugal, the Netherlands, and Belgium are just a few of the European nations where CTO is present [9].

Although legislative frameworks for CTOs have been established for decades across different jurisdictions, deriving a singular definition is not straightforward due to varying rates of utilization and legal provisions. Indeed, the implementation of CTOs varies in terms of treatment criteria for compulsion, duration, and Representing a conflict between the principles of respecting autonomy and of preventing harm to the individuals admission history [4]. However, it can be broadly defined as designed to deliver mental healthcare in the community and constitutes a legal obligation in which Representing a conflict between the principles of respecting autonomy and of preventing harm to the People with SMI must adhere to out-of-hospital treatment plans [8]. The essential philosophy underlying legally mandated community care is that the individual is permitted to remain in the community as long as they adhere to certain conditions of care; most commonly, taking their prescribed medication and maintaining regular contact with their mental health care team [9]. CTO regimes vary in duration (although 6 months is typical for the initial order), their threshold for compulsion, and whether individuals need a history of readmissions or non-adherence to treatment to be eligible [10]. From an ethical point of view, compulsory outpatient treatment is perceived as superior to inpatient hospitalization because of its less restrictive nature, which is supposed to enable individuals to maintain social connections within their communities and exerts a reduced stigmatizing impact compared to hospitalization [7]. However, it is still debated whether the social functioning of the individual and community support, along with other relevant clinical outcomes [1], actually benefit from community-based treatment order.

As pointed out by many authors, compliance is characterized as the degree to which a individual's actions align with medical or prescribed health guidance [11-13]. More recently adherence, as a more

impartial term, has been preferred, over compliance, which would imply paternalistic connotations towards the individual [12].

Consisting of interruption or deviation from the prescribed treatment plan, lack of adherence is widely recognized as a significant public health concern [11-13] and one of the main risk factors for relapse in Serious mental illness (SMI) [14, 15].

Therapeutic alliance, service engagement, and medication adherence represent key elements of adherence, a set of active behaviours based on concordance between clinicians and service users [16, 17]. For this reason, long-term adherence is one of the central factors to consider regarding treatment outcome and recovery. In the debate on the legitimacy of compulsory treatments, it is often stated that the ethics of compulsory treatment is based on providing care to those who do not have the capacity to take a free decision and contain social dangerousness. However, this paradigm comes into question when considering cases in which compulsory treatment in itself caused a decrease in adherence in the medium and long terms, a breakdown of trust in the relationship between the individual and the clinician [18], higher symptom level and a lower level of global functioning [19].

Our previous study indicated that there is insufficient evidence that mandatory hospital-delivered treatments increase adherence [2]. It is therefore advisable to investigate whether the mandatory treatments in the community achieve the intended outcome. Some reviews and meta-analyses have been performed with the purpose of evaluating the role of the CTO on some health outcomes [1, 20, 21]. However, to our knowledge, there have been no prior systematic reviews specifically focusing on the relationship between community treatment orders and long-term adherence after mandatory outpatient treatment has ended. We aimed to evaluate the current understanding of the role of Community Treatment Orders (CTOs) in improving long-term adherence in clinical studies among people with SMI in clinical studies post-obligation.

Methods

Inclusion criteria

The systematic review is guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [22]. We included studies up to January 15, 2023, that assessed people's adherence after CTO. Pre-specified inclusion criteria were: (1) original research published in a peer-reviewed journal; (2) published in English; (3) human studies; (4) assessing adherence in people with a diagnosis of mental disorder (defined using DSM 5, ICD-10 or other specified criteria) and an experience of CTO with or without (5) control group of people with diagnosis of mental

disorders voluntary admitted to services or hospital; (6) specific adherence outcomes; (7) studies evaluating outcomes after CTO ends; (9) >10 participants in each study arm; (10) no time restrictions.

Search strategy and procedure

Six search were performed: 1) “Coercion AND treatment adherence”; 2) “Coercion AND compliance”; 3) “Involuntary outpatient commitment AND treatment adherence”; 4) “Involuntary outpatient commitment AND compliance”; 5) “Community treatment order AND treatment adherence”; 6) “Community treatment order AND compliance”; on the following databases: PubMed/Medline (<https://pubmed.ncbi.nlm.nih.gov/>), EMBASE (<https://www.embase.com/>), PsycINFO (<https://www.apa.org/pubs/databases/psycinfo>), CINAHL (<https://www.ebsco.com/>).

Duplicates across databases were excluded, as were articles repeating previously reported results of a trial or based on overlapping samples. The references of the retrieved articles, relevant studies and of the extracted reviews on the topic were also scanned to identify potentially missed studies.

Data extraction

Titles and abstracts were inspected to exclude unrelated articles. Included articles were then carefully read to determine whether they matched the inclusion criteria. Discrepancies between the two blind researchers (GK and GC) were resolved by consulting a third experienced researcher (MC). At the end of this procedure, six independent studies were included in the systematic analysis (Figure 1: PRISMA Flow chart). From the included studies, the two researchers who conducted the search extracted the following variables: authors and year of publication of the study; location of the study; design of the study; sample size and subsample group diagnosis; when present in the selected studies, the control group and its size were included; criteria and instrument to assess adherence and who the evaluator was, or if the data came from self-reports or family member; the duration period of the CTO; post-obligation period follow-up; result.

Quality assessment

The quality assessment was rated according to the different designs of the included studies: Observational cohort and cross-sectional studies; Before-after (pre-post) studies with no control group; and Controlled studies: randomized controlled studies [23].

The study is registered with PROSPERO number CRD42022360879.

Results

The evaluation of the studies revealed two main long-adherence indicators: engagement with service and medication adherence. As detailed in Table 1, at the end of the selection process six studies in which long adherence was measured at the following period after the CTO ends were included.

Medication adherence and engagement with services post-obligation

Only two out of six studies show an improvement in medication adherence [25, 26]. In one of them both long-adherence indicators increased [25] and in the other there was no concurrent improvement in engagement with services [26]. Regarding the remaining studies no positive association was found on long term adherence or not clearly reported [27, 29]. On the contrary, a study demonstrated that after discontinuation of the CTO, non-compliance with medication increased [28] and in one other medication adherence improves only for a subgroup who have undergone a period of more than 6 months of CTO [24]. Specifically, in two studies, engagement with service tends to improve only during the period when the mandatory treatment is still in effect, but this trend discontinues during the follow-up period when the CTO is no longer in force [26, 27].

Differences in outpatient commitment treatment orders

Studies are from different countries: the USA [24, 25], UK [27], Canada [26] and Australia [28, 29]. The evaluation period after CTO (follow-up) varies in months from 11 [27] to 28 months [25, 28]. The duration of the CTO from 6 months [25] to 36 months [26].

As presented by the authors of the included studies, alongside the variability in duration, as complex interventions, the CTOs may vary in relation to the diverse settings under a distinct set of legal provisions and varying service delivery characteristics.

The particularity of the low-intensity, short-duration involuntary outpatient commitment program, as defined by the authors, in Oregon [25], lies in the presence of a mental health monitor with whom the individual negotiates regarding the treatment pathway. This monitor maintains regular communication with the individual, treatment providers, and members of their support network. The program may entail residing in a structured environment, undergoing outpatient treatment, adhering to medication and refraining from substance use. Non-adherence can lead to a court hearing and hospital readmission.

Similarly in Australia [28, 29], under the order, individuals are required to live in a specific residence, take prescribed medications, attend counseling sessions, and abstain from substance use. Those who fail to comply with these agreements may be admitted to a psychiatric hospital for involuntary care. In order to obtain a CTO, mental health services must present a community management plan to the Mental Health Tribunal, typically including requirements to accept medication and attend outpatient appointments, and sometimes rehabilitation programs. "If the individual breaches these obligations, the power to detain them as an inpatient and to forcibly administer medication is exercised after an intermediate phase of negotiation through counseling sessions. The New York's assisted outpatient treatment (AOT) program [24], defined as intensive, community-based case management services, is developed to improve distal goals of increased community tenure and reduced hospitalization. It is ordered by a judge towards a patient to follow a court-ordered treatment plan in the community.

Instead, beyond the extended duration of involuntary outpatient commitment in Quebec [24], which lasts three years on average compared to six months in other states, the peculiar aspect of the CTO involves the scenario where if the individual fails to attend appointments and take medications, the court order can be sent to the local police, who promptly transport them to the hospital for administration of the required long-acting injectable (LAI). In the jurisdiction in which the study was carried out there were no community outpatient services but hospital outpatient services integrated with psychosocial interventions in the individual's psychosocial environment and rehabilitation activities.

Community treatment orders in England [27], are applicable to individuals detained in hospital for treatment but for whom it is not deemed necessary continued detention, provided there is a possibility of recall to hospital in case of risk to the individual's or others' health or safety. The purpose of recall is to allow an assessment period of up to 72 hours to determine if the CTO can continue or if compulsory admission is necessary. In this case the CTO is revoked and the person is treated under the original order.

Samples

All clinical populations assessed in the included studies have been diagnosed with schizophrenia or disorders with a psychotic component; three, in particular, also included individuals diagnosed with depression [29, 25, 24], two [27, 25], also people with bipolar disorders. Data loss, during the studies evaluation period, ranged between 22% [25] and 66.7% [27] of the sample in the only two studies in which it was reported.

Long-compliance measurement instruments

Regarding the two main adherence indicators, engagement with service and medication adherence, it should be noted that none of the included studies utilized standardized and validated measurement instruments. All included studies were conducted with rating measures of visits attendance or rating of taking the prescribed/possess medication.

Four of the six selected studies assess both outcomes [25-28], one study only engagement with services [29] and one only medication adherence [24].

Design and quality rating of the included studies

Out of six, two studies are retrospective observational studies [24, 29], one is a retrospective case-control study [28], one is retrospective naturalistic mirror-image study [26], one is a prospective observational study [27] and one has a prospective observational design [25] (Tables 1).

The quality rating of the studies, available in its extended form in the appendix, was evaluated with two different quality assessment tools [23]. We used the Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies [25, 26, 28, 29] and the Quality Assessment Tool for Before-After (Pre-Post) Studies with No Control Group [24, 27]. All included studies exhibit a 'fair' level of quality, with the exception of one [27] which has a 'poor' level of quality. Fair studies are susceptible to some bias, but bias is probably not sufficient to invalidate the results.

Discussion

Only two out of six studies, focusing on the period following the conclusion of the Community Treatment Order (CTO), demonstrate enhancement in medication adherence [25, 26]. In one of these studies, both long-term adherence indicators exhibited improvement [25], while in the other, there was no concurrent enhancement in engagement with services [26]. Concerning the remaining studies, no positive correlation was observed regarding long-term adherence, or it was not clearly elucidated [27, 29]. Conversely, a study revealed that discontinuation of the CTO was associated with an increase in medication non-compliance [28], and in another, medication adherence improved solely for a subgroup subjected to a CTO period exceeding 6 months [24].

The hypothesis that compulsory outpatient treatment as a medical procedure could have a positive effect on adherence outcomes, critical for recovery, is inconsistent and not supported by sufficient findings in the long-term period after CTO. It is important to note that for studies that highlight an improvement in pharmacological adherence in subsamples or samples subjected to depot

formulations [26, 28], individuals prescribed with depot medication likely have distinct clinical characteristics, and the specific characteristics of this therapy administration presents complexities that limits generalization to other pharmacological treatments.

To our knowledge, this is the only systematic review that has specifically addressed whether compliance improves or worsens once the CTO has ended and a reasonable period of time has elapsed to assess whether adherence persists over time. Previously, other reviews have examined the increase in the utilization of community services and adherence to pharmacological treatments [1, 20, 21] during the CTO, even highlighting unsatisfactory results [1, 20] or suggesting that it may be useful in enforcing the use of outpatient treatment or increasing service provision, relative to the period during the order [21].

Other evidence, on the contrary, has highlighted how coercion can be a negative experience in medical practices that results in a profound loss of trust in the therapeutic relationship [18, 30], primary component in compliance, and can also have long-term negative consequences in terms of service avoidance, resulting in decreased access to mental healthcare [31]. Large sample studies have also shown that increased care and medication provided during compulsory treatment does not reduce mortality during CTOs [32, 33]. A meta-analysis pointed out that CTO in jurisdictions with higher rates of use, have significantly worse outcomes in terms of a greater number of mean bed-days [34]. Two papers reported that there were no significant differences in overall functioning between CTO cases and controls at 12-month follow-up [35, 36].

Furthermore, the variability in the conditions of the CTO making it difficult to evaluate the outcomes is another aspect that has been highlighted in this study as well as in previous reviews on the topic [20]. Indeed, duration and obligations can vary not only between countries but also across regions and among individual psychiatrists within jurisdictions [37,38]. This variation of CTO adds complexity to the study of its impact. For instance, the intensity and frequency of visits during it may vary significantly, as well as the presence of additional specialized personnel for monitoring and coordination with the clinical staff, person, and family. Additionally, the motivation behind its establishment can vary, and the criterion is not always prior hospitalization.

Moreover, it is crucial to note that CTO often represents a recurring experience in the lives of individuals with SMI. This recurrent nature further complicates the establishment of standards that can be easily attributed to a singular outcome.

It is also important to consider the limited number of studies that can effectively address long-term adherence once the obligation for treatment adherence has ceased. Given the significance of

pharmacological adherence and the relationship with mental health care services in the treatment journey of individuals with psychiatric illnesses, it is surprising that this aspect has not been adequately explored. Moreover, despite its importance in treatment success within modern recovery-oriented approaches [39], another noteworthy aspect is the lack of consensus on definitions and measurements of treatment adherence and service engagement in clinical practice [40], particularly regarding their long-term trends. Another controversial aspect is the surprising omission of dropout rates in studies evaluating long-term adherence after CTO. Dropout rates can serve as indicators of adherence unless discontinuations are due to factors beyond the individual's control. Furthermore, although there is an understandable difficulty in conducting Randomized Controlled Trials (RCTs) in this specific area, it should be noted that observational design, often regarded as methodologically inferior to RCTs, is inadequate for determining the effectiveness of interventions. Therefore, given the designs of all included studies, drawing conclusions on the effectiveness of CTOs is particularly complex.

However, considering the widespread utilization of CTO and its controversial nature as a medical coercive measure, it is crucial to engage in critical reflection, emphasizing the necessity to comprehend both key outcomes and limits of empirical investigations. Expanding the body of evidence concerning its possible role emerges as a pertinent concern within the broader mental health agenda, particularly in light of the evolving trends in human rights and recovery-oriented approaches. CTO indeed appears to be inconsistent with one of the central objectives of modern recovery guidelines, which is to promote individual autonomy [41, 42]. Understandably, advocates for civil rights, medical professionals, and certain patient associations are advocating for the adoption of measures free from coercion that do not violate the rights of people with psychosocial disabilities [43-45] aligning with the principles outlined in the Convention on the Rights of Persons with Disabilities (CRPD). The CRPD aims to empower individuals with psychosocial disabilities to make their own treatment decisions while safeguarding them from any form of violence, coercion, or degrading treatment [46]. Concerning this matter, The World Health Organization (WHO) QualityRights program [47], which builds upon the CRPD to provide a framework for mental health and human rights, points to the overwhelmingly detrimental effects of using coercive methods, including increased stigmatization, trauma and harm, and generally overall poorer clinical outcomes in the long term. On the other hand, studies on recovery-oriented practices, aiming to evaluate the role of a strong therapeutic alliance and the respect for the autonomy of the person through practices such as recognition of individual needs and shared decision-making, are significantly shedding light on the crucial impact they have on people's care journey and health, particularly in community mental health services [48].

There is limited scientific literature evaluating compulsory outpatient treatment and evidence does not suggest improved outcomes with some studies suggesting potential harms. For this reason, there is a need for more structured and intentional data collection with better study design in order to determine whether a coercive measure such as the CTO actually promotes health of people with psychosocial disabilities.

Limitations

Administrative datasets were used by many of the included studies. Reduced validity is a known issue with this type of data collection. Given the long-term nature of the CTO intervention, the required extended follow-up periods in some studies are necessary, but they also introduce confounding factors like changes in clinical settings and service design as well as the natural fluctuation of illness severity. Most states limit the duration of CTOs to six months [8], after which a new application is necessary to renew the CTO. It's possible that those who were kept on CTO after six months were those who responded well to the CTO intervention. A similar lack of clear categorization is registered in the recording of community service contacts. An increase in contacts is frequently used as a predictive factor for better engagement, even though the level of community support available is likely to vary significantly between services. There needs to be consensus on the standardization of outcome measures before research on CTO can move forward. A very important limitation is the fact that, depending on the country in which CTO are used, there are different types of CTO, that is, in the form of orders, housing, or just follow-up by case managers. Our review is also limited by the restricted geographical location of the studies included, due to the fact that CTOs only exist in Western industrialized nations. Furthermore, a significant limitation of this review is that we only evaluated papers written in English. Consequently, our findings may not fully represent broader global studies, thus limiting their generalizability. Additionally, it was deemed inappropriate to perform a meta-analysis, opting instead for a narrative description of the results given that there are only three studies evaluating adherence to pharmacological treatments, one of which solely focuses on the administration of injection medicine [26], which has compliance dynamics significantly different from oral medications. Moreover, the tools used to assess adherence are excessively heterogeneous (self-report vs. clinical records) for both treatment adherence and engagement with services. Another evaluation factor was the almost total absence of data on long-term dropouts. Moreover, it should be noted that the control groups selected in the included studies often exhibit characteristics of lower clinical severity compared to the cases, as stated by the authors themselves [25, 26, 28], thus making actual comparisons misleading.

Conclusion

The research hypotheses that community treatment orders as medical procedures could have a positive effect on adherence outcomes are not supported by enough evidence in the post-CTO period. Studies implemented so far show evident methodological weaknesses due to a high frequency of drop-outs, control groups with characteristics likely different from experimental groups, and poorly reliable assessment tools. Given the importance of modern recovery-oriented approaches and the controversial and coercive nature of compulsory outpatient treatment, it is necessary that future longitudinal studies with appropriate methodologies ascertain the role of CTO in effectively promoting adherence following its cessation.

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Disclosure

The authors report no conflicts of interest

Data availability

All data generated or analyzed during this study are included in this published article.

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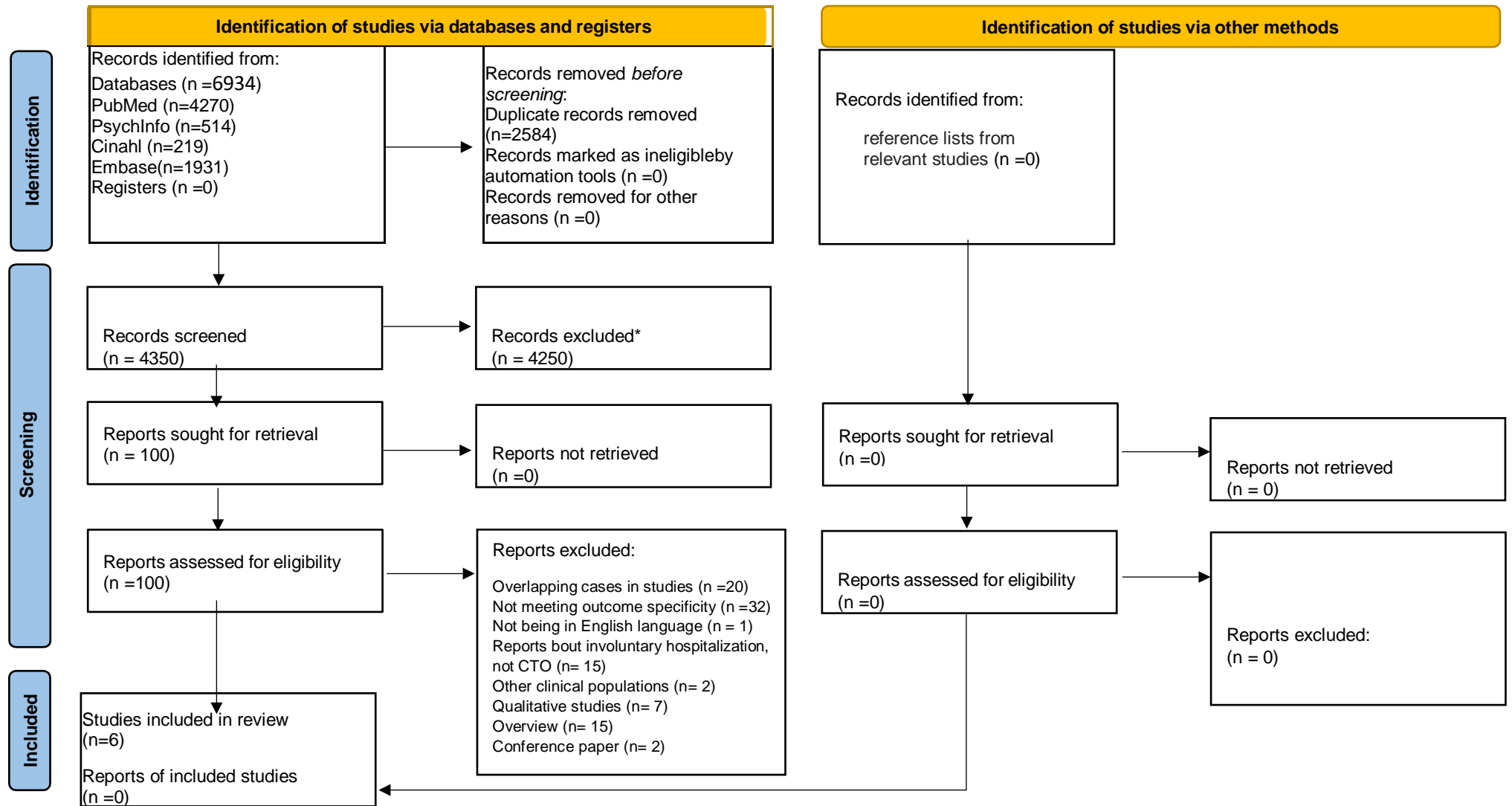
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Fig. 1



*excluded blind by two researchers (DG, GK); discrepancies resolved consulting a third experienced researcher (GC) . 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/>

TAB 1 - Studies evaluating long-term adherence (medical adherence and engagement) during and after CTO											
Author/Year	Country	Design	Sample	Diagnosis	Outcome measure MA/E	CTO Mean in months	After CTO evaluation period in months	Evaluator	Data loss (%)	Methodology quality	Result <i>MA=medical adherence</i> <i>E=engagement</i>
Dye (2012) [27]	UK	Retrospective/prospective observational study	TOT 21; NO CONTROL	Paranoid schizophrenia:14 Bipolar disorder: 4 Schizoaffective disorder: 1 Persistent delusional disorder:1 Unspecified schizophrenia: 1	MA: Rating of taking the prescribed medication E: Rating of visits attendance	13	11	Clinicians	66.7%	Poor	MA: Not reported after CTO E: Not reported after CTO (Statistically associated only during the CTO) (The confounding variables and lack of power in the study precluded further detailed statistical comparisons of this)
Van Dorn (2010) [24]	USA	Retrospective observational study	TOT 3,576; NO CONTROL	Schizophrenia: 2927 Bipolar disorder: 423 Major Depressive Disorder: 145 Other conditions: 78	MA: Rating of medication possession	Not reported	Not clearly specified	Clinicians	Not reported	Fair	MA: Statistically associated with improved medication adherence after CTO only for those who have undergone a period of more than 6 months of CTO
Vaughan (2000) [28]	Australia	Retrospective case-control	TOT 246; CTO 123; Controls 123	Schizophrenia: 203 Schizoaffective disorder: 18 Schizophreniform disorder: 14 Atypical psychosis: 11	MA: Rating of taking the prescribed medication E: Frequency of consultations	9.6	27.7	Persons and family notes	Not reported	Fair	MA Statistically associated with worsened medication adherence after CTO except for individuals undergoing depot medications in which it improves E: No association was found after CTO.
Frank. (2020) [26]	Canada	Retrospective naturalistic mirror-image study	TOT 367; CTO 77; Controls 290	Schizophrenia; schizoaffective disorder (not clearly specified)	MA: Rating of injection adherence	36	12	Clinicians		Fair	MA: Statistically injection adherence rate increased after CTO

					E: Rating of visits attendance				Not reported		E: No association was found after CTO (Statistically associated only during the CTO)
Segal (2006) [29]	Australia	Retrospective observational study	TOT 1182; CTO 591; Controls 591	Schizophrenia: 1050, Major affective disorder: 60; Other condition: 72 (not clearly specified)	E: Rating of visits attendance	13	15	Clinicians	Not reported	Fair	. E: No association was found after CTO.
Pollack. (2005) [25]	USA	Prospective observational study	TOT 290; CTO 150; Controls 140	Schizophrenia: 102 Depression: 12 Bipolar disorder: 33 Other conditions: 3	MA: Rating of taking the prescribed medication E: Rating of visits attendance	6	28	Self-reported/ Clinicians	22% CTO 27.86 Controls	Fair	MA: Statistically associated with medical adherence after CTO E: Statistically associated with engagement after CTO
<i>MA=medical adherence/ E=engagement with services</i>											

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