General Psychiatry

Accessing acute medical care to protect health: the utility of community treatment orders

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To cite: Segal SP, Badran L, Rimes L. Accessing acute medical care to protect health: the utility of community treatment orders. *General Psychiatry* 2022;**35**:e100858. doi:10.1136/gpsych-2022-100858

Received 22 June 2022
Accepted 13 November 2022

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ABSTRACT

Background The conclusion that people with severe mental illness require involuntary care to protect their health (including threats due to physical—non-psychiatric—illness) is challenged by findings indicating that they often lack access to general healthcare and the assertion that they would access such care voluntarily if available and effective. Victoria, Australia's single-payer healthcare system provides accessible medical treatment; therefore, it is an excellent context in which to test these challenges.

Aims This study replicates a previous investigation in considering whether, in Australia's easy-access single-payer healthcare system, patients placed on community treatment orders, specifically involuntary community treatment, are more likely to access acute medical care addressing potentially life-threatening physical illnesses than voluntary patients with and without severe mental illness.

Methods Replicating methods used in 2000–2010, for the years 2010–2017, this study compared the acute medical care access of three new cohorts: 7826 hospitalised patients with severe mental illness who received a post-hospitalisation, community treatment order; 13 896 patients with severe mental illness released from the hospital without a community treatment order and 12 101 outpatients who were never psychiatrically hospitalised (individuals with less morbidity risk who were not considered to have severe mental illness) during periods when they were under versus outside community mental health supervision. Logistic regression was used to determine the influence of community-based community mental health supervision and the type of community mental health supervision (community treatment order vs non-community treatment order) on the likelihood of receiving an initial diagnosis of a life-threatening physical illness requiring acute care.

Results Validating their shared elevated morbidity risk, 43.7% and 46.7%, respectively, of each hospitalised cohort (community treatment order and non-community treatment order patients) accessed an initial acute-care diagnosis for a life-threatening condition vs 26.3% of outpatients. Outside community mental health supervision, the likelihood that a community treatment order patient would receive a diagnosis of physical illness was 36% lower than non-community treatment order patients—1.30 times that of outpatients. Under community mental health supervision, their likelihood was two times greater than that of non-community treatment order patients and 6.6 times that of outpatients. Each community treatment order episode was associated with a 14.6% increase in the likelihood of a community treatment order patient receiving a diagnosis. The results replicate those found in an independent 2000–2010 cohort comparison.

Conclusions Community mental health supervision, notably community treatment order supervision, in two independent investigations over two decades appeared to facilitate access to physical healthcare in acute care settings for patients with severe mental illness who were refusing treatment—a group that has been subject to excess morbidity and mortality.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Community treatment order is controversial because evaluations are largely based on hospitalisation duration and have mixed results due to the dependence of this outcome proxy on the availability of community-based service.

⇒ When services are plentiful, hospital days are fewer and community treatment orders provide a less restrictive alternative to inpatient treatment.

⇒ When there is limited outpatient service, the community treatment order enables crisis intervention to provide the needed treatment to patients refusing treatment when they are facing imminent threats to health and safety.

WHAT THIS STUDY ADDS

⇒ The study adds to the understanding of community treatment order utility when patients face a real-life threat to health—the need for an initial diagnosis of a life-threatening illness.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Instead of considering community treatment order as simply an effort to limit hospitalisation, the focus should change to consider its utility for the achievement of real patient outcomes—the real threats to the health and safety of oneself and others.

INTRODUCTION

Community treatment orders (CTOs) and outpatient commitment in several Western nations require patient participation in community-based treatment instead of

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involuntary psychiatric hospitalisation. A central tenet of the laws as written around the world is the assumption that people in need of treatment to protect their health are refusing or failing to access such treatment due to their mental illness.[1–3] A validation of this assumption is found in the elevated morbidity and mortality experienced by people with severe mental illness (SMI)—most notably those who have experienced psychiatric hospitalisation.[4–8] The conclusion that people with SMI require involuntary care to protect their health (including threats due to physical—non-psychiatric—illness), however, is questioned by findings indicating that they often lack access to general healthcare[4] and the assertion that they would access such care voluntarily if it was available and effective.[9 10] The single-payer healthcare system in Victoria, Australia, which provides accessible medical treatment, is an excellent context in which to test this assertion.

It is agreed that people with SMI are at higher risk for physical illness.[4 11–13] Additionally, people with SMI often experience the concomitant risks of socioeconomic disadvantage,[14 15] although these do not fully explain their increased morbidity risk.[16] Reduced risks of negative mortality and morbidity outcomes for people with SMI have been associated with increased supervision by mental health personnel.[17] The CTO is designed to ensure supervision and treatment for individuals who, without such, would likely be unable to take responsibility for their own acutely needed physical and mental healthcare and would be unable to live successfully in the community. The goal of the CTO is to increase access to the highest-intensity services and to better engage (patients) in those services. An additional goal is to reduce the incidence of behaviours harmful to themselves or others[18]—here threats to health that would require acute care. Previous research in Victoria, Australia[19] and replicated in Western Australia[20] has demonstrated that CTOs may reduce preventable deaths. CTO assignment in Victoria has been associated with reduced mortality risk when accompanied by increased medical care access.[21] One explanation for this finding is that increased contact with mental health clinicians might facilitate the better identification and management of comorbid physical illness. There is considerable evidence of restricted access to physical healthcare provision for psychiatric patients.[20]

Findings in Victoria[19] and Western Australia[20] indicate that the CTO's influence on reduced mortality is attenuated after adjusting for outpatient contacts following CTO placement, which could be consistent with a possible positive impact of community mental health (CMH) supervision on medical care access. This is especially true in that patients with SMI die 10–30 years earlier than those without such illness, and a majority of their excess deaths are due to physical illness.[8 22] Case management of people with SMI involves supervising the lives of individuals who, due to their mental illness, periodically engage in behaviour that poses an imminent threat to their own health and safety. Community health supervision is offered in the form of professional advice, the acceptance of which is a voluntary decision made by the patient. Patients under CMH supervision via CTO assignment, however, may be required by law to undergo a physical examination, especially when there is a belief that their physical health is being imminently threatened due to their mental illness. In Victoria, voluntary psychiatric inpatients and outpatients have the same rights as any member of the community to consent to or refuse non-psychiatric treatment. However, this does not apply to involuntary CTO patients if such non-psychiatric treatment (including though not limited to anaesthetics, any surgery conducted under anaesthetic, radiotherapy and chemotherapy) '…is urgently required to save [their] life, or to prevent serious damage to [their] health or significant pain or distress (p. 31)'.[3]

Previous research[21] has supported the 'involuntary component' of the law. Reporting on a cohort of 39 814 patients served from 2000 to 2010, this study validated the elevated risk for people with SMI and found that during the decade, 53% of all hospitalised psychiatric patients accessed acute care for life-threatening physical illness compared with 32% of outpatients, putatively members of the general population. However, it has been reported that among patients with SMI in Australia's universal healthcare system, where individuals have complete access to healthcare, while not under CMH supervision, the likelihood that a CTO patient would receive an initial diagnosis of life-threatening physical illness was 31% lower than non-CTO patients (released psychiatrically hospitalised outpatients without involuntary treatment requirements in the community), and no difference was observed with outpatients with lower morbidity risk without SMI. However, under CMH supervision, the likelihood that CTO patients would receive an initial diagnosis of physical illness was 40% higher than non-CTO, psychiatrically hospitalised patients and 5.02 times more likely than that of outpatients. To establish the link between the CTO (ie, involuntary supervised mental healthcare) and access to acute-level medical care (ie, to contact with emergency and inpatient general medicine leading to an initial diagnosis of a major, potentially and imminently life-threatening physical illness), this study seeks to replicate these findings in a new and independent sample. Simons[23] indicates that replication is 'the cornerstone of science' because it is how researchers can confirm whether a single original study result represents a real finding or a false positive one.[24]

This study is a replication of our previous investigation.[21] It relies on the same background research summaries noted above and the same methodology, while enlisting new study cohorts in a new decade[21] to address our research hypotheses. As in the previous investigation,[21] this own-control study hypothesises that while outside CMH supervision, CTO-assigned patients are less likely to have their physical healthcare needs requiring hospital or emergency room care addressed. Furthermore, under CMH supervision—especially CTO supervision—they will be more likely to receive an initial

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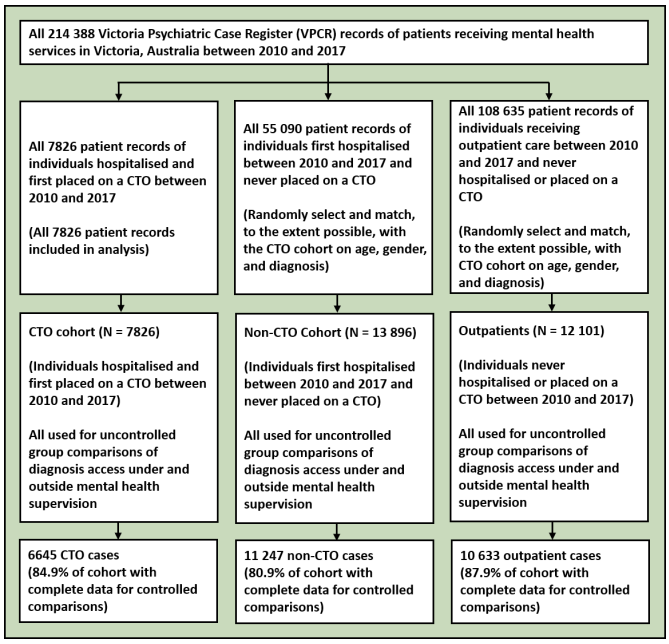

Figure 1 Sampling enrolment flowchart. CTO, community treatment order.

diagnosis of a potentially life-threatening physical illness. This study examines the role of CTO in protecting the health of individuals with SMI.

METHODS

Sample

This study used the same sampling algorithm[19] as the previous investigation in obtaining a three-cohort sample during 2000–2010.[21] It sampled Victoria Psychiatric Case Register (VPCR) and the Client Management Interface/Operational Data Store (CMI/ODS) systems' records of patient utilisation for the years 2010–2017. Three groups were studied: (1) all 7826 patients with SMI who had experienced psychiatric hospitalisation and a first-time CTO placement, that is, patients believed to be in need of involuntary supervision because of their refusal to accept mental healthcare required to address their behaviour that, due to their illness, posed a threat to health and safety; (2) 13 896 psychiatrically first hospitalised patients with SMI who never experienced CTO exposure—those patients with SMI believed to be voluntarily able to participate in treatment and address their own imminent threats to health; (3) 12 101 mental health outpatients who were never psychiatrically hospitalised or placed on a CTO—individuals less likely to have SMI, with lower morbidity risk for physical illness (see figure 1).[25] Patients in the hospitalised-non-CTO and outpatient cohorts were matched with the CTO cohort on age, gender and diagnosis (to the extent possible) and otherwise randomly selected.

VPCR mental health records were linked to (1) the Victorian Emergency Minimum Dataset's clinical-episode data from the emergency departments of Victorian public hospitals; (2) the Victorian Admitted Episodes Dataset's clinical-episode data for admitted episodes of care in Victorian medical hospitals and (3) the Socio-Economic Indexes for Areas records of neighbourhood disadvantage.

In documenting the patient's history of mental health treatment/supervision, all contacts with the mental health system (inpatient, voluntary outpatient community care and CTO) were organised into episodes of care. Each psychiatric hospitalisation (from the day of admission to the day of discharge) was considered a separate inpatient episode. Each continuous period of outpatient care without a service break for 90 days or more was considered a community-care episode, while a service break for 90 days or more followed by re-initiation of care was considered the start of a new community-care episode. Each CTO episode begins when a patient is placed on an order and ends when the order is terminated.

Each contact with a general hospital and/or emergency room for physical health issues was mapped into the patients' mental health history and the information recorded regarding receipt of physical illness diagnoses. These contacts were then categorised to indicate whether they occurred during a mental healthcare episode (inpatient and outpatient with and without accompanying CTO) or outside of contact with the mental health system. All medical contacts occurring during a community-based mental health episode of any type were considered to have occurred under CMH supervision; when occurring outside of a CMH episode, medical contacts were considered to have occurred outside of CMH supervision. Periods of hospitalisation for psychiatric illness were excluded as diagnoses of physical illness occurring within the period of psychiatric hospitalisation. Only initial diagnoses of a life-threatening physical illness under or outside of CMH supervision were counted in the analysis.

Design and hypotheses

This own-control study compared access to acute medical care for each of the three cohorts during time periods in which they received mental healthcare (under CMH supervision) versus time periods in which they were outside of mental healthcare (outside CMH supervision). Table 1 presents the potential comparisons.

The CTO, aside from requiring a routine physical examination, is only required to provide care for 'illness requiring immediate treatment', namely acute medical care. Such care is provided in hospitals and emergency rooms, while routine care is available at modest or no cost from general practitioners.[26] Grounded on previous research indicating that patients diagnosed with SMI experience higher morbidity than those without SMI,[8 21] this study presents four hypotheses. First, access to the acute medical care of the CTO and non-CTO cohorts is more likely to exceed that of outpatients (in part validating the differential morbidity risk of cohorts with and without SMI). Second, (realising that members of both the CTO and non-CTO cohorts are not always in an episode of care), this hypothesis is outside CMH supervision, individuals

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Table 1 Cohort and time comparison definitions

Three cohorts	Under CMH supervision	Outside CMH supervision
CTO cohort All patients first placed on a CTO between 2010 and 2017	Times between 2010 and 2017 when a patient was receiving community mental health outpatient care while under either an involuntary CTO order or voluntarily.	Times between 2010 and 2017 when the patient was not receiving mental healthcare. That is, they were not in the hospital for psychiatric reasons, and they were not receiving any form of community mental health outpatient care from a mental health provider.
Non-CTO cohort Patients hospitalised for psychiatric reasons but never placed on a CTO in the period (randomly selected and matched to CTO sample on age, gender and diagnosis)	Times between 2010 and 2017 when a patient was receiving community mental health outpatient care on a voluntary basis.	
Outpatients Patients never hospitalised or placed on a CTO in the period (randomly selected and matched to CTO sample on age, gender and diagnosis)	Times between 2010 and 2017 when a patient was receiving community mental health outpatient care on a voluntary basis.	

CMH, community mental health; CTO, community treatment order.

in the CTO cohort are less likely to access acute medical care than individuals in the non-CTO hospitalised cohort (confirming, in part, the assumption that the CTO cohort is voluntarily less willing or able to address acute-level health threats). Third, when under CMH supervision, the CTO cohort will be more likely to address or have their acute-level healthcare needs addressed to the same degree as the non-CTO cohort (in part, validating their shared morbidity risk). Fourth, the experience of each CTO will be associated with an increase in the probability of accessing acute-level medical care, in part validating the utility of CTO in protecting health.

Measurement and analyses

The unit of analysis was the individual. The primary dependent variable was the receipt of at least one initial diagnosis related to a major physical illness (ie, since multiple diagnoses have a greater likelihood of following a single diagnosis, the number of diagnoses seems less important than receiving a diagnosis). Comparisons were made as to whether an initial diagnosis was received within or outside a CMH care episode. Single initial acute-level medical contact is one leading to a medical diagnosis related to five conditions believed most likely to be imminently life-threatening: cancer, ischaemia, cerebrovascular disorder, diabetes and physical trauma.

All analyses were performed using SPSS V.27. Analysis of variance, χ^2 tests and difference in proportions tests were used to evaluate group differences. Four logistic regressions were run to determine the relative risk of receipt of at least one medical/physical illness diagnosis indicating healthcare need. As in the previous investigation,[21] figure 2 outlines the structure of the models: two for the period when patients were outside CMH supervision and two for when they were under CMH supervision. The four models were run with and without controls for social bias indicators, demographics and diagnoses (see footnote to figure 2 for the list of control variables).

CTO experience is also the cumulative experience of having one or more CTOs. As such, logistic analyses were also conducted using the number of CTOs as the primary independent variable, thus allowing for the evaluation of each additional CTO episode on

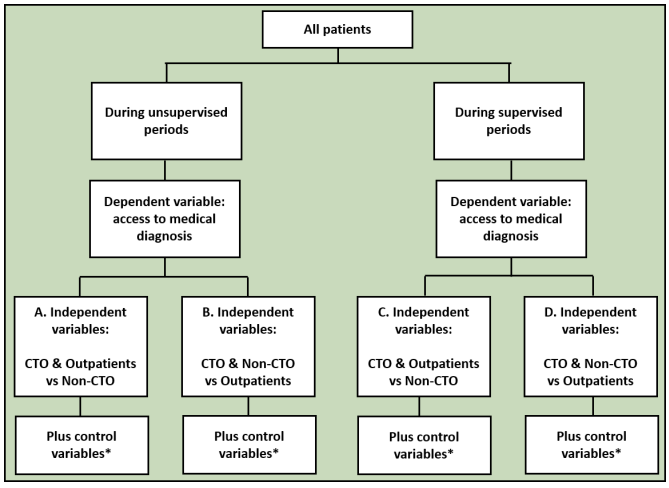

Figure 2 Risk models' own-control structure.[21] *Potential risk adjustments/controls were entered into the logistic regression models in five groupings: (1) social bias indicators: neighbourhood social disadvantage score of the most disadvantaged area of patient residence (Socio-Economic Indexes for Areas score)[30]; Aboriginal/Torres Strait Islander status; (2) individual socioeconomic status indicators, including <11th grade education, being employed and being homeless or marginally housed; (3) demographic Indicators: age, gender, current marriage and never married; (4) diagnoses: schizophrenia, paranoia and other psychotic disorders, major affective disorders and dementia (with the reference category being other or no diagnosis); (5) resource allocation: ratio of inpatients in community mental health catchment under the care of case managers responsible for their care in the community. CTO, community treatment order.

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the probability of receiving an initial physical illness diagnosis.

RESULTS

The average age of sample members (n=33 823) was 41.4 (19.3) years of age; 52.4% were male and 45.9% had never married; 26.9% had less than an 11th grade education and 48.8% were unemployed on entry into the study cohort. The three groups differed mostly in their mental health diagnoses (see table 2).

In the total sample, 38.7% (n=13 086) had an initial diagnosis of one of the five physical conditions (cancer, ischaemia, cerebrovascular disorder, diabetes and physical trauma). In total, 43.7% (n=3420) of the 7826 CTO patients had an initial diagnosis, proportionally fewer than the 46.7% (n=6486) of all 13 896 non-CTO patients (Z=4.26, p<0.001). Both groups had a significantly greater proportion of such diagnoses than the 12 101 outpatients, of whom 26.3% (n=3180) had these initial diagnoses (outpatients vs CTO, Z=25.48, p<0.001; outpatients vs non-CTO, Z=33.94, p<0.001).

Figure 3 contrasts the hypothesised versus observed outcomes for the CTO cohort's relative chances of obtaining an initial acute physical diagnosis for all medical conditions without adjusting for group differences. It reports both relative risks inside and outside of mental health supervision, contrasting the CTO cohort with the two other cohorts. CTO's hypothesised chances (see vertical access) would indicate no effect of the CTO assignment, in that the CTO cohort does not differ from its non-CTO comparisons whether under or outside mental health supervision (CTO vs non-CTO is at a 0% difference in both conditions) (figure 3). However, both the CTO and non-CTO cohorts are hypothesised to be 150% more likely to access a diagnosis than outpatients, assuming that patients with SMI have at least 1.5 times the risk of experiencing a medical condition compared with outpatients (ie, this being the lower end of the risk range reported in the literature).[8]

The results for the observed risks reported in figure 3 are from the four logistic models reported in table 3.1 of table 3. The models reported in table 3.2 of table 3 repeat those in table3.1, while adjusting for the four sets of control factors. Unless otherwise noted, all models are significant at p<0.001; the CTO, non-CTO and outpatient variable Exp(b) coefficients are significant in all models at p<0.001. The contrast group varied between the non-CTO and outpatient cohorts for each model. The results are reported in table 3.

Accessing a diagnosis outside CMH supervision

As noted in table 3, row 1 shows four models that consider the likelihood of having access to a diagnosis (medical/physical illness diagnosis). Outside CMH supervision, CTO patients were 36% less likely than non-CTO patients to access a diagnosis (all control variables considered, 22% less likely). Outside CMH supervision, CTO patients were 1.30 times more likely than outpatients to access a diagnosis (71% more likely with all control variables considered).

Accessing a diagnosis under CMH supervision

Under CMH supervision, CTO patients were 2.04 times more likely than non-CTOs to access a diagnosis (1.66 times more likely with all control variables considered). Under CMH supervision, CTO patients were 6.56 times more likely to access a diagnosis than outpatients (5.04 times more likely with all control variables considered).

In comparing the experience of the CTO cohort with the other cohorts while under CMH supervision, it should be noted that members of the CTO cohort participated in outpatient mental health service on a voluntary basis at times as well as participating under CTO supervision. Considering this fact, the data indicate that a member of the CTO cohort was 3.6 times more likely to receive an initial diagnosis of a life-threatening physical illness, while the order was in effect than when they had transitioned to a status of voluntary CMH care. These findings confirm the potential effect of CTO involuntary oversites in facilitating such access. The inclusion of all CTO cohort patients in the risk models is based on an understanding that once assigned to a CTO, a patient is more likely to receive additional attention even during voluntary outpatient service and they may cooperate with supervision based on the recognition that they can be re-assigned to a CTO. The supervision they receive is likely to be more intense than that of those who cooperate freely with treatment. Alternatively, as has been observed in CTO follow-up studies,[27] once a CTO order has been terminated and the patient achieves voluntary status, they reduce their treatment involvement; in doing so, their behaviour frequently deteriorates, and they go into a crisis requiring a return to the hospital for psychiatric treatment. All physical illness diagnoses received when the CTO order had expired fit this latter category. CTOs were used for crisis intervention, and patients returned to the hospital for a psychiatric evaluation when they received their diagnosis of a life-threatening physical illness.

Contribution of each CTO to accessing a diagnosis

Each additional CTO episode in the CTO cohort was associated with a 14.6% increase in access to diagnosis (Exp(b), p<0.001), with all control variables included.

DISCUSSION

Main findings

Previous research has indicated that people with SMI experience an elevated morbidity risk of major physical illnesses.[10 26] Here, hypothesis 1, as in our previous investigation,[21] was supported in that both hospitalised cohorts were found to have significantly greater access to diagnoses of a life-threatening physical illness over the course of the study decade (43.7% for CTO and 46.7% for

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Table 2 Characteristics of mental health patients in Victoria, Australia between 2010 and 2017

Variables	Total (n=33 823)		Hospitalised and CTO-assigned (n=7826)		Hospitalised and non-CTO (n=13 896)		Outpatients/ General population (n=12 101)	
	N	M (SD) or %	N	M (SD) or %	N	M (SD) or %	N	M (SD) or %
Age at last mental health contact	32 973	41.4 (19.3)	7826	42.2 (14.9)	13 896	42.2 (18.8)	11 251	39.8 (22.4)
Gender								
Male	17 709	52.4	4500	57.5	7175	51.6	6034	49.9
Female	16 098	47.6	3323	42.5	6710	48.3	6065	50.1
Education (four categories)								
Never attended	223	0.7	17	0.2	27	0.2	179	1.5
Attended up to 11th grade	9095	26.9	1869	23.9	3343	24.0	3883	32.1
Educated 11th grade and beyond	11 538	34.1	2895	37.0	4824	37.0	3819	31.6
Vocational	666	2.0	167	2.1	266	1.9	233	1.9
Aboriginal and/or Torres Strait Islander	444	1.3	141	1.8	244	1.8	59	0.5
Non-Caucasian ethnicity (by birth country)	2733	8.1	1044	14.2	1352	10.6	337	7.6
Employment								
Unemployed/Pensioner	16 512	48.8	5226	66.8	6691	48.2	4595	38.0
Employed	5519	16.3	808	10.1	2404	17.3	2306	19.1
Not in labour force	7543	22.3	611	7.8	2151	15.5	3986	6.0
Marital status								
Never married	15 527	45.9	4013	51.3	5942	42.8	5572	46.0
Currently married	7899	23.4	1243	15.9	3532	25.4	3124	25.8
Once married	3056	9	841	10.7	1263	9.1	952	7.9
Separated	2526	7.5	608	7.8	1109	8.0	809	6.7
Widowed	1160	3.4	147	1.9	458	3.3	555	4.6
Housing status								
Independent living (house or flat)	27 820	82.3	6131	78.4	11 389	81.9	10 300	85.1
Hospitalised	151	0.5	38	0.5	77	0.6	36	0.3
Supported accommodation	2013	6.0	511	6.6	790	5.7	712	5.8
Homeless/Marginally housed	3571	10.6	1056	13.5	1529	11.2	986	8.1
Neighbourhood disadvantage score								
Lowest SEIFA score	30 565	273.1 (210.1)	7792	228.0 (203.1)	9227	289.2 (213.8)	11 848	291.4 (207.5)
Lowest SEIFA decile ranking	30 565	4.5 (3.0)	7792	3.8 (2.8)	9227	4.7 (3.0)	11 848	4.7 (3.0)
Psychiatric diagnoses								
Schizophrenia	12 181	36	5552	70.9	4665	33.6	1964	16.2
Major affective disorder	5863	17.3	635	8.1	3470	25.0	1758	14.5
Paranoia or other psychosis	3232	9.6	700	8.9	1547	11.1	985	8.1
Dementia	3227	9.5	662	8,5	1423	10.2	1142	9.4
Diagnoses not associated with SMI and unspecified diagnoses	9320	27.8	277	3.6	2791	20.1	6252	51.8

CTO, community treatment order; M, mean; SD, standard deviation; SEIFA, Socio-Economic Indexes for Areas; SMI, severe mental illness.

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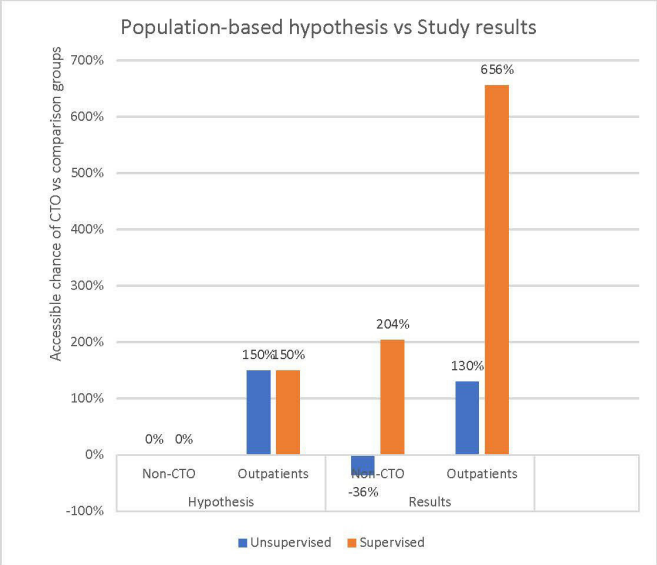

Figure 3 Community treatment order (CTO) patients' chance of obtaining an initial acute physical illness diagnosis versus non-CTO and outpatient groups with and without CMH supervision. CMH, community mental health.

non-CTO patients) and had significantly greater access compared with the outpatient cohort (26.3%), thus validating, to some extent, their shared elevated morbidity risk.

As in the previous decade,[21] our results seem to confirm that access to a physical illness diagnosis is facilitated by mental health supervision for the individuals with the most severe illnesses in the hospitalised cohorts. Confirming hypothesis 2, the results indicated that outside the supervision of a mental health system, individuals in the CTO cohort were 36% less likely than their non-CTO comparisons to access an initial acute medical care diagnosis and only 1.30 times more likely than outpatients to access such care. These findings partially support the assumption that the CTO cohort is voluntarily less willing or able to address acute-level health threats. Additional support comes from the findings related to hypothesis 3, the expectation of which was that under CMH supervision, the CTO cohort would address their acute-level healthcare needs with the same probability as their non-CTO comparisons. The findings indicated that their probability of doing so was 2.04 times more likely than that of the non-CTO cohort, compensating for neglect outside of mental health supervision, and 6.56 times more likely than outpatients, validating the extent of their elevated morbidity not addressed outside supervision. The role of the CTO in supporting increased access was supported by the findings affirming hypothesis 4, which indicates that the experience of each CTO was associated with a 14.6% increase in access to a diagnosis.

Limitations

This study has some limitations. It is based on administrative data, although these are linked to reimbursements. Its analyses are correlational and do not confirm causation as might a true controlled trial—one that actually accounts for a post-randomisation experience. However, this study examined an entire state population over a decade, employing multivariate methods and a quasi-experimental, own-control design. Furthermore, it considered access to acute medical care while considering both individual and area indicators of socioeconomic disadvantage. Most importantly, it replicates a previous decade's findings, and replication is the pillar of scientific endeavour.

Implications

Australia has one of the most accessible healthcare systems in the world; thus, people with SMI should be able to voluntarily address their acute care needs. Thus, the reduced probability of use of acute settings by the CTO cohort when outside of CMH supervision and their increased probability of use under supervision is a commentary on the voluntary priorities of the CTO population and/or the failures of the medical care system to serve their needs. It is also a credit to the mental health system for enabling medical care access during periods of CMH supervision—access exceeding the non-CTO group and, when all conditions are considered, seemingly approaching the expected need.

The increased access to acute medical care by the CTO cohort is also consistent with previous study findings on the increased use of mental health services by CTO cohorts (to a level equivalent to that of non-CTO, hospitalised patient samples), while, under CTO supervision, utilisation levels that did not continue beyond the duration of the CTO episode.[27] Given these findings, which indicate that CTO patients stop using mental health treatments once the CTO has ended, we foresee continuing problems for CTO patients outside mental health supervision.

Of particular concern are changes in the law and advocacy focused on 'defeating' CTOs[28] as well as cuts in CMH services that are taking a toll on patient care and outcomes.[29] CMH supervision is expected to meet the whole range of health and social needs. More significant and sustained outreach efforts are needed in general medicine and mental health services to better engage and enable this population to address their own health needs. While there is 'no health without mental health', recovery is hindered by unattended life-threatening illness.

CTO is a delivery system that seems to improve access to acute healthcare. These analyses show the replicated significant impact of the mental health system and CTOs on the receipt of acute medical care. They show that voluntary utilisation, or perhaps utilisation without mental health system advocacy, is less likely—even in Australia's highly accessible healthcare system—to produce access to acute healthcare among the people with SMI selected for CTO supervision. The CTO's facilitation of access to acute medical care could decrease the need for more costly state-funded medical services in this single-payer healthcare system. This represents an avenue for future research. Such research should also consider that the

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Table 3 Logistic regressions assessing the relative risk of receiving an initial physical illness diagnosis outside versus under community mental health supervision

Medical contact	Outside CMH supervision						Under CMH supervision					
	CTO and outpatients			CTO and non-CTO			CTO and outpatients			CTO and non-CTO		
	Compared with non-CTO			Compared with outpatients			Compared with non-CTO			Compared with outpatients		
Variables in equations	Exp(b)	95% CI	P value	Exp(b)	95% CI	P value	Exp(b)	95% CI	P value	Exp(b)	95% CI	P value
Table 3.1: Logistic regressions assessing the relative risk of receipt of a cohort member receiving a physical illness diagnosis*												
Group contrasts												
CTO patients	0.64	0.60 to 0.68	<0.001	1.30	1.22 to 1.39	<0.001	2.04	1.87 to 2.23	<0.001	6.56	5.77 to 7.45	<0.001
Non-CTO patients	†	†		2.04	1.93 to 2.15	<0.001	†	†		3.21	2.82 to 3.64	<0.001
Outpatients	0.49	0.46 to 0.52	<0.001	†	†		0.31	0.27 to 0.35	<0.001	†	†	
Statistics	N for regression=33 823, df=2; χ^2=715.12, p<0.001			N for regression=33 823, df=2; χ^2=715.12, p<0.001			N for regression=33 823, df=2; χ^2=1043.34, p<0.001			N for regression=33 823, df=2; χ^2=1043.34, p<0.001		
Table 3.2: Logistic regressions assessing the relative risk of receipt of a physical illness diagnosis when the models are adjusted for bias indicators, individual SES indicators, demographics, diagnoses and CMH resources												
Group contrasts												
CTO patients	0.78	0.73 to 0.84	<0.001	1.71	1.58 to 1.85	<0.001	1.66	1.50 to 1.84	<0.001	5.04	4.33 to 5.85	<0.001
Non-CTO patients	†	†		2.18	2.04 to 2.33	<0.001	†	†		3.04	2.62 to 3.51	<0.001
Outpatients	0.46	0.43 to 0.49	<0.001	†	†		0.33	0.28 to 0.38	<0.001	†	†	
Indigenous	1.84	1.48 to 2.29	<0.001	1.84	1.48 to 2.29	<0.001	1.85	1.38 to 2.48	<0.001	1.85	1.38 to 2.48	<0.001
Social disadvantage score (SEIFA)	0.98	0.98 to 0.99	<0.001	0.98	0.98 to 0.99	<0.001	0.98	0.98 to 0.99	<0.001	0.98	0.98 to 0.99	<0.001
Education <11th grade	1.06	1.00 to 1.13	0.49	1.06	1.00 to 1.13	0.49	1.23	1.11 to 1.35	<0.001	1.23	1.11 to 1.35	<0.001
Employed	0.91	0.84 to 0.98	0.018	0.91	0.84 to 0.98	0.018	0.74	0.63 to 0.86	<0.001	0.74	0.63 to 0.86	<0.001
Homeless/Marginally housed	1.13	1.04 to 1.23	0.006	1.13	1.04 to 1.23	0.006	0.94	0.82 to 1.08	0.387	0.94	0.82 to 1.08	0.387
Demographics												
Age	1.01	1.01 to 1.01	0.306	1.01	1.01 to 1.01	0.306	1.01	1.00 to 1.01	<0.001	1.01	1.00 to 1.01	<0.001
Gender	0.75	0.71 to 0.79	<0.001	0.75	0.71 to 0.79	<0.001	1.01	0.92 to 1.10	0.878	1.01	0.92 to 1.10	0.878
Never married	0.96	0.90 to 1.03	0.960	0.96	0.90 to 1.03	0.960	1.20	1.07 to 1.34	0.002	1.20	1.07 to 1.34	0.002
Currently married	0.89	0.83 to 0.96	0.002	0.89	0.83 to 0.96	0.002	0.84	0.74 to 0.96	0.011	0.84	0.74 to 0.96	0.011
Diagnoses												
Schizophrenia	0.61	0.56 to 0.66	<0.001	0.61	0.56 to 0.66	<0.001	1.40	1.19 to 1.65	<0.001	1.40	1.19 to 1.65	<0.001
Paranoia/Other psychosis	0.86	0.77 to 0.95	0.005	0.86	0.77 to 0.95	0.005	0.84	0.66 to 1.05	0.128	0.84	0.66 to 1.05	0.128
Major affective disorder	1.03	0.94 to 1.13	0.484	1.03	0.94 to 1.13	0.484	1.15	0.94 to 1.39	0.175	1.15	0.94 to 1.39	0.175

Continued

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Table 3 Continued

Medical contact	Outside CMH supervision						Under CMH supervision					
	CTO and outpatients			CTO and non-CTO			CTO and outpatients			CTO and non-CTO		
	Compared with non-CTO			Compared with outpatients			Compared with non-CTO			Compared with outpatients		
Variables in equations	Exp(b)	95% CI	P value	Exp(b)	95% CI	P value	Exp(b)	95% CI	P value	Exp(b)	95% CI	P value
Dementia	1.25	1.13 to 1.39	<0.001	1.25	1.13 to 1.39	<0.001	1.58	1.29 to 1.93	<0.001	1.58	1.29 to 1.93	<0.001
CMH resources												
Inpatients-to-CMH staff ratio	0.97	0.95 to 0.98	<0.001	0.97	0.95 to 0.98	<0.001	1.04	1.03 to 1.06	<0.001	1.04	1.03 to 1.06	<0.001
Statistics	N for regression=28 525; df=16; χ^2=1496.56, p<0.001			N for regression=28 525; df=16; χ^2=1496.56, p<0.001			N for regression=28 525; df=16; χ^2=1271.38, p<0.001			N for regression=28 525; df=16; χ^2=1271.38, p<0.001		

*There are four regressions: two for the period outside supervision and two for the period under supervision.
†Reference group: logistic regression models were rerun to show contrast group effects.
CMH, community mental health; CTO, community treatment order; SEIFA, Socio-Economic Indexes for Areas; SES, socioeconomic status.

CTO's positive effect is diminished in countries where outpatient commitment has no statutory provision for influencing access to medical care, or where such medical services are not available.

CONCLUSIONS

CTOs seem to be associated with improved acute health services access and, as such, may offer a potential point of focus for addressing excess morbidity and mortality in the population requiring such supervision, namely individuals who are less likely or able to voluntarily address their major medical care needs. In addition, until an alternative intervention is discovered, CTOs address some of the difficulties that the medical care system has in engaging people with SMI.

Acknowledgements We acknowledge the assistance of the Victoria Department of Health and Human Services in providing access to the Victoria Psychiatric Case Register (VPCR) and assisting with data linkages.

Contributors All three authors contributed to the preparation of the manuscript and have access to the data on which its conclusions are based. SPS as guarantor accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

Funding This study was funded by National Institute of Mental Health (Grant # MH 18828B) and Fulbright Association: Exchange Visitor Programme #G-1-00005.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval The project was approved by the University of California, Berkeley Institutional Review Board (IRB) and two Victoria Department of Health and Human Services (VDHHS) ethics committees. The study complied with the data regulations set by all participating organisations; no data breaches or otherwise adverse events occurred during the study.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data may be obtained from a third party and are not publicly available. The data belong to the Department of Health and Human Services and require independent Ethics/Human Subjects protection application for access in a de-identifed, confidentiality protected, format.

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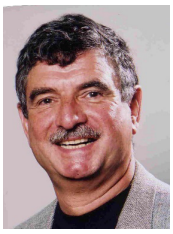

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