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The effect of community treatment orders on outcome as assessed by the Health of the Nation Outcome Scales

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ABSTRACT

Many studies of outpatient commitment have assessed effects on health service use rather than psychiatric symptomatology. We examined whether patients on one form of outpatient commitment, community treatment orders (CTOs), had better outcomes on the Health of the Nation Outcome Scales (HoNOS). Cases and controls from three linked Western Australian databases were matched on age, sex, diagnosis and time of hospital discharge. These databases cover the entire state (population=2.3 million). We compared HoNOS scores of CTO cases and controls at baseline, six-, and twelve-month follow-up, using multivariate analyses to further control for confounders. We identified 1296 CTO cases between 2004 and 2009 along with the same number of controls matched on age, sex, discharge date and mental health diagnosis (total n=2592). HoNOS scores were available for 1433 (55%) of the patients who could have had these recorded at baseline (748 CTO cases and 685 controls). There was no significant difference in HoNOS scores at six- and twelve-month follow-up between CTO cases and controls after adjusting for potential confounders at each time-point. Although the study was limited by missing data, outpatient commitment in the form of CTOs may not result in better psychiatric outcomes as measured by the HoNOS.

1. Introduction

Outpatient commitment may help patients with severe mental illness receive the services they require. Examples include community treatment orders and mandated outpatient treatment. Although outpatient commitment (OPC) has been introduced in many jurisdictions in North America, the United Kingdom (UK), continental Europe, and Australasia, there have been methodological problems in assessing its effectiveness. Many studies have relied on measures of mental health service use such as bed-days, admissions and outpatient contacts (Churchill et al., 2007; Kisely et al., 2011).

There are several drawbacks to the use of such measures. Firstly, there is uncertainty as to how to measure success: does outpatient commitment reduce admission rates, thereby allowing individuals to remain in their communities during treatment, or are rates increased as a result of earlier identification of relapse (Kisely, 2009; Kisely and Campbell, 2007)? Secondly these measures may not reflect areas that are important to patients such as symptom severity or social functioning. Although there are some qualitative studies of these outcomes, quantitative studies are comparatively rare. Systematic reviews have only identified two studies that measured psychiatric symptomatology or quality of life using standardized instruments such as the Positive and Negative Syndrome Scale (PANSS), or Lehman Brief Quality of Life (QoL) Index (Churchill et al., 2007; Kisely et al., 2011). Cases on outpatient commitment did not achieve better outcomes in either of these studies (Steadman et al., 2001; Swartz et al., 1999). Two subsequent studies also found no difference in outcomes between cases and controls using the Lehman Brief Quality of Life (QoL) Index, Structured Clinical Interview for DSM (SCID) or Brief Psychiatric Rating Scale (BPRS) (Burns et al., 2013; Phelan et al., 2010). However, one of these studies was of varying degrees of mandated outpatient treatment rather than a comparison of entirely voluntary versus compulsory community treatment (Burns et al., 2013).

Of mental health outcome measures that have been developed for routine use, most information concerns the Health of the Nation Outcome Scales (HoNOS). The HoNOS instrument has been validated in the UK, Canada, Europe and Australia (Bebbington et al., 1999; Delaffon et al., 2012; Kisely et al., 2010, 2007; Pirkis et al., 2005; Trauer et al., 1999; Wing et al., 1998). Field trials of this instrument indicate that it is simple to use, applicable to a wide range of psychotic and non-psychotic disorders, comprehensive of clinical and social functioning, acceptable to clinicians, sensitive to change and reliable in studies in several countries (Bebbington

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et al., 1999; Delaffon et al., 2012; Kisely et al., 2010, 2007; Pirkis et al., 2005; Trauer et al., 1999; Wing et al., 1998).

In Australia, treating clinicians are expected to complete the HoNOS on their patients on admission, review and discharge. Training and follow-up sessions are required to ensure reliability and validity of clinicians' ratings (Bebbington et al., 1999).

2. Methods

This study examined if there was any difference in psychiatric symptomatology as measured by the HoNOS between patients on outpatient commitment, and matched controls. All patients placed on a CTO from 2004 to 2009 were compared with controls not on outpatient commitment, while adjusting for patient characteristics and health service use prior to outpatient commitment. We restricted outcomes to up to 12 month follow-up as this is a commonly used time interval and one has to be very cautious of ascribing an effect beyond 1–2 years following initial placement (Kisely et al., 2011). Where work has found any difference between compulsory community treatment and controls, this has been restricted to the first year of placement (Kisely et al., 2013a, 2013b).

The Health of the Nation Outcome Scale (HoNOS) is a 12 question measure of the health and social functioning of mentally ill people (Wing et al., 1998). The total HoNOS score was used as a measure of overall psychiatric morbidity (Wing et al., 1998). The individual questions are rated 0–4, with scores of 2 and above considered to be clinically significant (Burgess et al., 2009).

Although the current Mental Health Act of Western Australia was implemented in November 1997, HoNOS scores were only included in administrative data from 2005. As in other parts of Australia and New Zealand, the Act provides for outpatient commitment through the introduction of a community treatment order (CTO). The order is made by a qualified mental health specialist, who must specify which medical practitioner is to supervise the patient's treatment or care, where the patient is to receive care, the frequency at which the medical practitioner is to report to the specialist and the duration of the order, which must not exceed 3 months in the first instance. It can be extended for another 3 months following a review by the Mental Health Review Board. A lawyer, a psychiatrist and a lay person make up the review board and hear evidence from both treating doctors and patients. After 6 months a new order must be made.

2.1. Data sources

The two data sources were the Mental Health Information System (MHIS) of psychiatric inpatient, outpatient and community contacts, and the Mental Health Review Board database of compulsory psychiatric treatment. Data linkage was carried out by the Western Australian Data Linkage System.

Western Australia is suitable for population-based record linkage studies as it has a well-maintained, comprehensive administrative database linking records of all private and public hospital separations (patient discharges, transfers to another facility or deaths) and contacts with state mental health services (including public outpatient clinics) for the entire state (Holman et al., 2008). The linked database was created in 1995. However, components of the MHIS date to as far back as 1966, and it is one of only a small number of such comprehensive record linkage systems in the world (Lawrence et al., 2000). Its data have been widely used for epidemiological studies in psychiatry (Lawrence et al., 2000) and other medical fields (Norman et al., 1998).

These linked components of the database enabled us to assess the psychiatric history of all patients who had been placed on outpatient commitment in Western Australia. We used a two-stage design of matching and multivariate analyses to take into account socio-demographic factors, clinical features, and previous psychiatric history.

2.2. Selection of cases and controls

We identified an inception cohort of all psychiatric patients placed on an initial CTO. Previous work indicated that around 85% of orders occurred on discharge from hospital (Kisely et al., 2006). We selected the same number of controls matched on age (within 2 years), sex, mental health diagnosis and date of discharge from hospital (termed 'index date'). In the case of the small number of community placements, commencement of the order was used as the index date. An initial matching stage was necessary because of the large number of potential confounding variables, and to reduce Type I error in the multivariate analyses. We extracted anonymized information on both groups covering up to 1 year prior to and after the index date. This included admissions, bed-days and outpatient contacts. We also collected information on the same indicators of health service prior to the implementation of CTOs in 1997 when available, as well as overall duration of psychiatric symptoms. We collected data on successive cases and controls from the index date for each year (e.g. years 1–5) until the beginning of 2009 to measure changes in the numbers and characteristics of patients placed on a CTO. We used all available scores at baseline, 6-month and 12-month follow-up to obtain sequential cross-sectional views.

2.3. Analysis

Cases and controls were regarded as independent, as there was no reason to believe that their outcomes were correlated in any way (Schafer and Kang, 2008). We used odds ratios and the *t*-test to test for differences in demographic features and total HoNOS score between cases and controls at baseline, 6-month and 12-month follow-up.

To further adjust for possible differences between the two groups at each time-point, we used multiple regression to examine the contribution of patient characteristics and use of services before the index date to subsequent HoNOS score. Predictors included inpatient admissions, bed-days, and outpatient contacts before the index date, as well as patient characteristics such as age, sex, marital status, educational level, country of birth, Aboriginal ethnicity, and CTO status. Residence was divided into metropolitan versus rural or remote area, with metropolitan area as the reference variable. We divided cases into 'schizophrenia and non-affective psychoses' and 'mood or other disorders', with the latter as the reference category. As in previous work, we used a diagnostic hierarchy that gave schizophrenia precedence (Lawrence et al., 2000). Variables were included on the basis of being associated with the independent or other dependent variables on bivariate analysis, or because previous work suggested an association with either compulsory community treatment or HoNOS scores (Churchill et al., 2007; Kisely et al., 2010).

We repeated our analyses using a propensity score derived from all possible confounders (D'Agostino, 2007). We also re-ran all the above models replacing health service use in the year prior to CTO placement with health service use prior to the implementation of CTO in 1997. This was because there was an overlap between the two variables for patients placed on a CTO in the first year of implementation of the Act. It also reduced the possibility of a Type I error through the inclusion of a large number of variables in our models. Finally, we tested the effect of including baseline HoNOS scores in terms of the available subjects (not all patients with HoNOS scores at follow-up had baseline scores), as well as 6 and 12 month outcomes.

3. Results

We identified 1296 CTO cases along with the same number of controls matched on age, sex, discharge date and mental health diagnosis (total $n=2592$). HoNOS scores were available for 1433 (55%) of the patients who could have had these recorded (748 CTO cases and 685 controls). There were no significant differences between patients with a HoNOS rating, and those without, apart from three variables. Patients with no work, home or study duties were more likely to have a HoNOS score (1227/2149 or 57.1%) than those who did not (206/443 or 46.5%) (OR=1.53; 95% CI=1.24–1.88), as did those from rural settings (206/296 or 69.6%) compared with those from urban areas (1227/2296 or 53.4%) (OR=1.99; 95% CI=1.54–2.59). The same applied to CTO cases (748/1296 or 57.7%) as opposed to controls (685/1296 or 52.9%) (OR=1.22; 95% CI=1.04–1.42).

3.1. Baseline

Table 1 compares the baseline characteristics of the CTO cases and controls who had recorded HoNOS scores. Matching on the key variables of age, sex, mental health diagnosis and index date was successful. CTO cases were more likely to have been always single or have a history of tertiary education. They were less likely to be currently engaged in work, study or home duties. Otherwise, there were no significant differences in demographic or clinical features, including HoNOS score. 80% of both cases and controls had a diagnosis of schizophrenia.

In terms of health service use, CTO cases had higher numbers of psychiatric admissions, bed-days and outpatient contacts prior to CTO placement, as well as symptom duration (Table 1). Cases also had greater health service use prior to implementation of CTOs in 1997 (Table 1).