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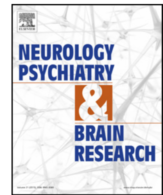

Effectiveness and cost-effectiveness of home treatment compared with inpatient care for patients with acute mental disorders in a rural catchment area in Germany

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ABSTRACT

Background and aims: Hometreatment (HT) is considered as a safe and effective alternative to inpatient treatment (IT) for the treatment of patients with acute mental disorders. To date, there are only few studies on the effectiveness and no studies on the efficiency of HT vs IT in Germany. The aim of this study is to investigate the effectiveness and cost-effectiveness of HT in comparison with IT in a rural catchment area in Germany.
Methods: In a prospective observational trial, 60 patients with acute mental disorders treated by a HT team were compared with 58 patients who were eligible for HT but received IT. Treatment outcomes (change of psychotic symptoms [PANSS], depressive symptoms [HAMD] and overall clinical and functional impairment [HoNOS] from admission to discharge) were assessed. Treatment costs were assessed on the basis of reimbursement data. Effectiveness was estimated by means of mixed effects regression (MER) models. Cost-effectiveness was estimated by a net monetary benefit (NMB) regression model. Propensity score adjustment was applied for the control of selection bias in regression models.
Results: As indicated by the results of the MER model, HT was more effective in comparison to IT with respect to HAMD reduction (b −4.11; p 0.004) and HoNOS total score decrease (b −4.43; p 0.021) but not as regards the PANSS total score (b −4.51; p 0.134). Unadjusted treatment costs did not differ between HT and IT, but after adjustment for propensity scores and for baseline values of the outcome measures HT was significantly less costly (b −7.151.10; p 0.028) than IT. NMB regression revealed a significant monetary benefit for a one unit change of the HAMD at a maximum willingness to pay (MWTP) of λ = 0 € and λ = 100 € and the HoNOS at λ = 1000 €.
Conclusions: HT is an effective and cost-effective alternative to IT for the treatment of people with acute mental disorders in the investigated catchment area. Results cannot be generalized for the whole of Germany. Further research is needed.

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1. Introduction

In psychiatric care, home treatment (HT) is commonly defined as the treatment of acute states of mental disorders at the home environment of the patient (Berhe, Puschner, Kilian, & Becker, 2005; Deutsche Gesellschaft für Psychiatrie, Psychotherapie und Nervenheilkunde (DGPPN), 2013; Gühne et al., 2011; Munz et al., 2011; Singh, Rowan, Burton, & Galletly, 2010; Smyth, 2003). HT is usually carried out by a multi-professional psychiatric team consisting of psychiatrists, psychologists, nurses and social workers who provide regular home visits several times per week in varying groups of mostly two staff members and additional regular but less frequent consultations with the whole team at the team base (Berhe et al., 2005; Gühne et al., 2011; Munz et al., 2011). While most HT activities are carried out during usual working hours, the seven days a week 24 hour availability of a crisis resolution service including crisis beds is generally considered a mandatory component of a HT service (Berhe et al., 2005; Gühne et al., 2011; Munz et al., 2011). Despite overlapping components, HT differs from crisis resolution teams (CRT) by providing full psychiatric and psychosocial treatment at the home of the patient during the acute illness phase, from community mental health

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teams (CMHT) by providing home-based acute treatment and from assertive community treatment (ACT) by not providing long-term community care (Berhe et al., 2005; Deutsche Gesellschaft für Psychiatrie, Psychotherapie und Nervenheilkunde (DGPPN), 2013; Gühne et al., 2011).

The crisis resolution and home treatment (CRT/HT) approach has been developed against the background of the dehospitalization movement in the USA during the 1980s and was originally regarded as a part of the ACT program developed by Test and Stein (Stein & Santos, 1998; Stein & Test, 1980). As their common target, all ACT-based programs aimed at transferring psychiatric treatment from the hospital to the community setting as much as possible in order to prevent mentally ill patients from the traumatic experience of psychiatric inpatient admission and the consequences of stigmatization and social exclusion (Smyth & Hoult, 2000; Stein & Santos, 1998; Stein & Test, 1980; Stein, Test, & Marx, 1975). While in the USA, Australia, Norway and the UK combined CRT/HT services have been widely implemented during the last decade, in Germany HT is provided only in a few regions (Bechdolf, Skutta, & Horn, 2011; Gühne et al., 2011; Munz et al., 2011; Schöttle, Ruppelt, Karow, & Lambert, 2015).

Since the 1980s, the effectiveness and the safety of HT in comparison with inpatient treatment has been proved with regard to a reduction in hospital admissions, cases of treatment discontinuation, family burden and improved satisfaction of patients and relatives in several studies conducted in the USA (Catty, Goddard, & Burns, 2005; Deutsche Gesellschaft für Psychiatrie, Psychotherapie und Nervenheilkunde (DGPPN), 2013; Smyth & Hoult, 2000). However, most of the earlier studies compared ACT with the treatment in the old asylum-type mental hospitals, and it has been criticized that the results of these studies are outdated because of the general improvements achieved in mental health care (Pelosi & Jackson, 2000; Singh et al., 2010). Some studies have investigated the safety, effectiveness and the cost-effectiveness of combined CRT/HT services in comparison to treatment as usual in modern mental health care systems (Deutsche Gesellschaft für Psychiatrie, Psychotherapie und Nervenheilkunde (DGPPN), 2013; Gühne et al., 2011; Murphy, Irving, Adams, & Driver, 2012a; Wheeler et al., 2015). In the UK Johnson et al. (2005) investigated the effectiveness and the cost-effectiveness (McCrone, Johnson et al., 2009) of acute mental health care by a crisis resolution team in comparison to treatment as usual (TAU) in London. The study revealed that during an eight-week period, patients in the CRT/HT group had a lower risk of psychiatric inpatient admission and were more satisfied with mental health care than those in the TAU group. In their health-economic evaluation of the intervention, McCrone, Johnson et al. (2009) found that total costs of mental health care in the CRT/HT group were about £ 2.428 lower than in the TAU group. In Norway, Hasselberg, Gråwe, Johnson, and Ruud (2011) conducted an uncontrolled naturalistic study of 680 persons with acute mental illness treated by 8CRT/HT teams across the country. Results of the study indicated that patients improved significantly with regard to clinical impairment and functional capacity. In Australia, Singh et al. (2010) followed a group of 111 patients with acute mental illness treated by a hospital-at-home team in Adelaide over 12 months and found that about 20% of the patients were transferred to inpatient care during the study period. Nevertheless, the remaining 83 patients improved significantly with regard to clinical impairment, psychopathological symptoms and risk assessment. In Germany, Bechdolf et al. (2011) examined 14 patients with schizophrenia treated by a HT team and found a significant improvement of psychopathological symptoms. Munz et al. (2011) compared a group of 60 patients with acute severe mental illness treated by a HT team with 18 patients receiving acute inpatient treatment but fulfilling the criteria for HT and identified similar significant improvements of depressive and psychotic symptoms as well as a reduced level of clinical impairment.

Currently, in Germany no health economic evaluation of HT in comparison to TAU is available. Due to substantial differences in the organization and funding of health care services, results of studies from the USA or UK cannot be transferred to the German context. In this article, the results of a naturalistic prospective controlled study on the effectiveness and cost-effectiveness of HT vs. TAU in a rural catchment area in Germany will be presented.

2. Material and methods

2.1. Study setting

The Department of Psychiatry II of Ulm University at the Bezirkskrankenhaus Günzburg provides inpatient and outpatient psychiatric care for a rural catchment area of about 600,000 inhabitants in the western part of Bavaria. In 2005, a HT service was implemented as an alternative to acute psychiatric inpatient treatment. Patients are eligible for HT if they have an acute psychiatric disorder with an indication for inpatient admission, if they do not present a danger to themselves or others and if the patient and family are considered adherent with treatment. The HT service is provided by a multi-professional team consisting of psychiatric nurses, social workers and physicians and headed by a psychiatric consultant. The HT package includes psychopharmacological and psychosocial treatment and systemic based psychotherapy regularly provided in varying team compositions at averagely three home visits per week and weekend phone contacts. The HT care package also includes a 24 h crisis service available 7 days per week.

2.2. Study design and study sample

The current study uses data already presented by Munz et al. (2011) with an extended control group and additional health economic analyses. In this naturalistic study, 60 patients with acute mental illness treated by a HT team between 2006 and 2008 will be compared with 58 patients who fulfilled the criteria for HT but were admitted to a psychiatric hospital for acute inpatient treatment (IT) between June 2009 and December 2010. Since patients were assessed at the start and end of the index treatment episode, the study duration varied between 7 and 321 days.

2.3. Assessment

Psychotic symptoms were assessed by means of the Positive and Negative Syndrome Scale (PANSS) (Kay, Opler, & Lindemeyer, 1989), depressive symptoms were assessed by means of the Hamilton Rating Scale for Depression (HAMD-21) (Hamilton, 1960), and the general level of clinical and functional impairment was assessed by means of the Health of the Nation Outcome Scale (HoNOS) (Andreas et al., 2007). Assessment was performed by experienced clinical staff members at admission and discharge from HT or inpatient care.

Total treatment costs for psychiatric treatment during the index treatment episode were provided by the hospital administration. Costs for IT were calculated on the basis of a daily rate of 260 €. Costs for HT were calculated on a fee for service basis depending on the service use of the individual patient. Since IT daily rates include full medication costs while HT fee-for-service calculation does not include medication costs, a flat rate of 25% for medication costs based on Salize and Kilian (2010) were added to the total HT costs.

2.4. Statistical analysis

Treatment effectiveness was analyzed by means of random effects regression models for the PANSS total score, the HAMD-21

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