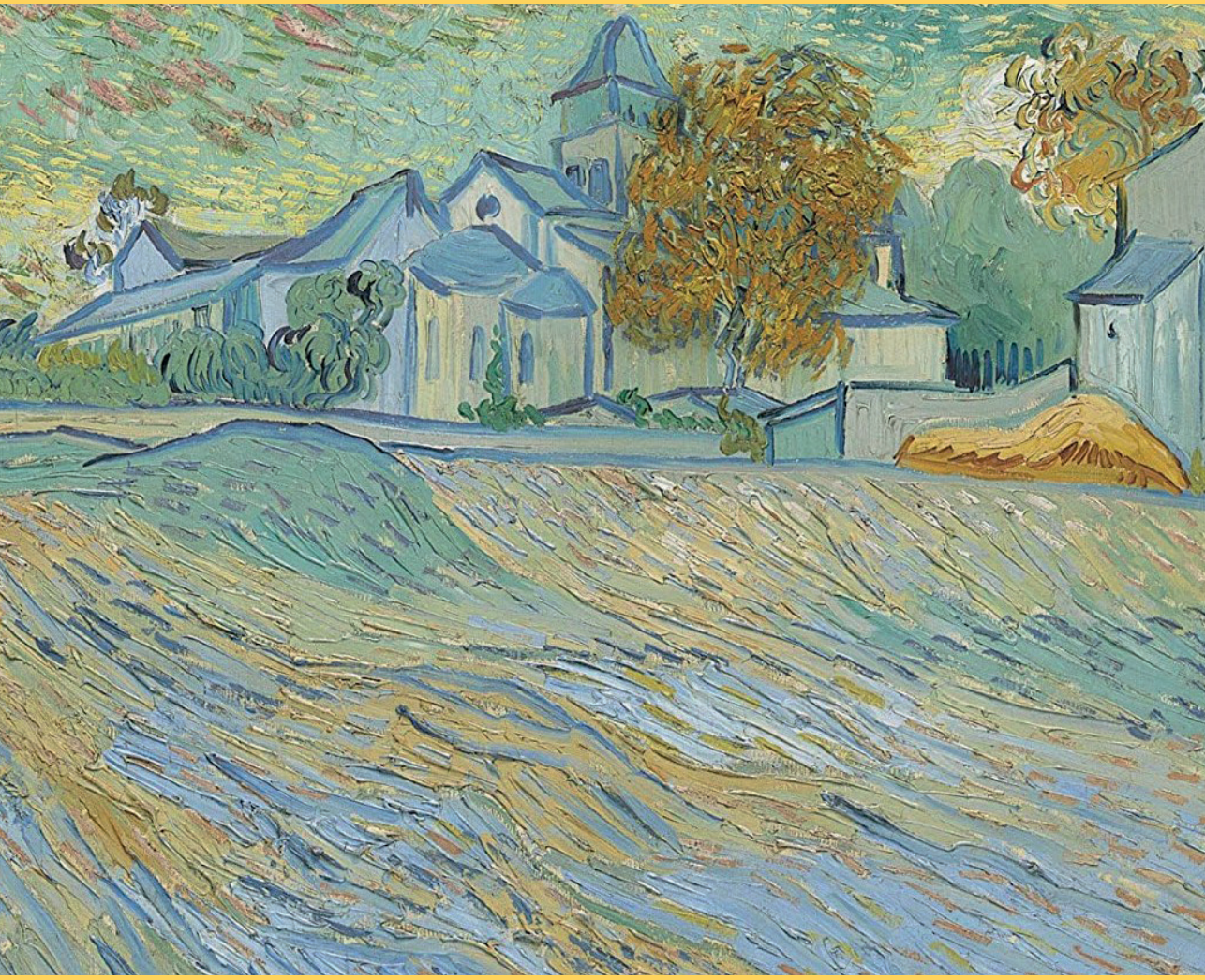
REDUCTION OF COMPULSORY PSYCHIATRIC ADMISSIONS



MARK DE JONG

Reduction of compulsory psychiatric admissions

De totstandkoming van dit proefschrift is ondersteund door Yulius GGZ te Dordrecht, in samenwerking met het Epidemiological and Social Psychiatric Research Institute (ESPRi), onderdeel van de afdeling Psychiatrie van het Erasmus MC te Rotterdam.

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REDUCTION OF COMPULSORY PSYCHIATRIC ADMISSIONS

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Copromotoren:	Dr. A.R. Van Gool Dr. A.I. Wierdsma

Voor Lydia

Contents

CHAPTER 1

General Introduction

Introduction

In this introductory chapter an overview is presented of several aspects and themes related to the main topic of this thesis. The paragraphs can be read as separate subchapters which do not necessarily have a close relation to each other, but which each as such are meant to outline the context of the research in the thesis.

Paragraph 1.1 and subparagraphs form the main part of this introduction, which cover ethical, epidemiological, clinical, and judicial aspects of coercion in psychiatry in general and of compulsory psychiatric admissions in particular. Paragraph 1.2 and 1.3 are shorter, covering psychiatric admissions in general and providing a description of the target group of patients with severe mental illnesses. These paragraphs are followed by a concise introduction (paragraph 1.4) to the five research chapters, along with the research questions at stake.

1.1 Compulsory psychiatric admissions

Coercion, universal human rights, and principles of biomedical ethics

Coercion in psychiatry is by definition understood as any decision made and executed by a professional *against the will of the patient*. Compulsory admission and involuntary hospital stay, seclusion, and enforced medication are examples of coercion in psychiatry. Coercion in psychiatry is increasingly under attention and debated.[1,2]

According to the Universal Declaration of Human Rights[3] all human beings are born free and equal in dignity and rights (Article 1 of the Declaration). Everyone has the right to life, liberty and security of person (Article 3). It is undeniable that coercion in psychiatry conflicts with these principles of freedom, liberty, and security of person. An involuntarily hospitalized patient is by definition deprived of the freedom of going where they wants, even more in case of seclusion. Enforced medication is antithetical to the right of security of person. Yet, most mental health-professionals, family members, and also patients themselves will agree[4,5] that in some situations, coercion is unavoidable and can even be beneficial,[6] for example in case of dangerous behavior due to a drug-related psychosis or due to severe mania, suicidality or depression.

On which grounds then can coercive measures be applied to psychiatric patients? The United Nations Convention on the Rights of Persons with Disabilities (CRPD)[7] clearly states

that the existence of a disability in itself shall in no case justify a deprivation of liberty. The CRPD – ratified by the Dutch parliament in 2016 – defines persons with disabilities as those who have long-term physical, mental, intellectual or sensory impairment. So, the convention is applicable to psychiatric patients, especially those who suffer from severe mental illness (SMI).[8,9] If the presence of a disability in itself cannot be the ground, other reasons than a psychiatric disorder should be present to justify compulsory hospitalization and treatment.
From the perspective of biomedical ethics the four principles as introduced by Beauchamp and Childress might help to evaluate these complex matters.[10] These principles are as follows: non-maleficence (first do no harm), beneficence (acting to benefit others), respect for autonomy (acting to acknowledge a person's right to 'self-government') and justice (providing treatment with fairness and equality among all groups in society). In case of psychiatric coercion the clinician faces the challenge of balancing these four principles, which is discussed in the subparagraph on clinical and ethical dilemmas (p. 16).

Epidemiology

In the European Union, the figures on compulsory psychiatric admissions differ remarkably between the member states. Studies in the first decade of the 21st century showed the following figures: at the lowest extreme Portugal reports 6 involuntary placements per 100.000 inhabitants per year, at the highest extreme Finland reports 218 ones.[11,12] Both the most populous countries (France, Germany, and England) and the smaller countries report rising numbers during the last decade of the 20th century, or stable numbers at best. A study by Schoevaerts e.a. showed an overall figure of compulsory admissions of 80 per year per 100.000 inhabitants per annum (The Netherlands, 2009) and 47 per 100.000 inhabitants per annum (Belgium, 2008).[13] In addition, these figures rose in The Netherlands by 25% (2002-2009) and in Belgium by 42% (1999-2008). More recent data (2003-2013) from The Netherlands showed a further increase in compulsory admissions, although data were not presented in exactly the same way as in the Schoevaerts-study.[14] The exact reasons for this increase of compulsory admissions are unknown. However, some factors, such as urbanization,[15] shorter length of stay in psychiatric hospitals, and changing social opinion leading to lower tolerance of deviant behaviour,[13,14] have been suggested to play a role.
The latest study on this topic, published in 2019, studied admission rates across Europe, Australia, and New Zealand.[16] It showed a median rate of 106.4 involuntary admissions per

100.000 inhabitants, and large differences among the countries, ranging from 14.5 (Italy) to 282 (Austria) involuntary admissions per 100.000 inhabitants. According to this study, these differences showed no relationship with legislative details of the countries involved. But higher numbers of compulsory admissions did show associations with higher numbers of available beds, higher income per capita, healthcare-spending per capita, and proportion of foreign-born individuals in the population.[16]

Outcome of compulsory psychiatric admissions

Compulsory psychiatric hospitalizations undoubtedly have strong effect on psychiatric patients and their relatives, and can even be traumatic.[17] The EUNOMIA project aimed at evaluating coercion in psychiatry in a total of 12 European countries and harmonizing best clinical practices.[18] It showed that 38% of compulsorily admitted patients in 10 different European countries were submitted to coercive interventions, such as enforced medication, seclusion and restraint.[19] In this study forced medication was the commonest coercive measure and aggression to others was the prevailing reason to apply coercive measures. Another study showed that patients having experience with compulsory hospitalization reported that fear of coerced treatment was a barrier to seeking help for a mental health problem.[20] In a qualitative study a selection of very dissatisfied patients described coercive care in strong terms, such as humiliation, oppression and imprisonment by totalitarian systems.[21] However, another qualitative study reported increased understanding of coercive measures over the course of treatment.[22] This study also reported better acceptance of non-invasive coercive measures, such as the use of a "soft room" and observation in seclusion, than invasive measures, such as mechanical restraint and forced medication.

In a prospective study, perceived coercion decreased significantly during hospitalization: at discharge, most patients (87%) reported that even though they had felt coerced during their stay, their admission had been justified.[23] Another prospective study in 11 European countries reported the proportions of patients that approved of their compulsory admission, after 1 month of hospital stay and after 3 months respectively.[5] These rates of agreement varied from 39-71% after 1 month and the figures, interestingly, rose to 46-86% after 3 months. Also, interestingly, after correction for confounders, the differences between the countries were significant. The authors concluded that "international differences in

legislation and practice may be relevant to their findings and inform policy makers, particularly in countries with poorer outcomes."[5]

Compulsory admission has also been associated with improvements in psychosocial functioning and better motivation for treatment.[24] Also, symptom levels and global functioning moderately improved during 12-month follow-up in 778 involuntary patients admitted to psychiatric hospitals in England.[25] According to other findings from the EUNOMIA project, perceived coercion was associated with female gender, poorer global functioning, and more positive psychotic symptoms during admission.[26] Additionally, in this study perceived coercion significantly decreased over time.

Little is known about the view of family members, neighbours, and friends of patients, with regard to compulsory psychiatric admission. This was partly addressed in a qualitative study, in which family caregivers of 29 compulsorily admitted patients in 12 psychiatric hospitals in England were interviewed.[27] Imaginably, they experienced relief but also conflicting emotions after their relative's compulsory admission. Moreover, they reported frustration about delay in the help provided by the professionals, being burdened by the professionals with the responsibility for the patient and problems with confidentiality.

Finally and surprisingly, only one study investigated the core reason for compulsory psychiatric admission, which is dangerousness to self and others.[28] In this relatively old study by Segal (1988) clinically assessed criteria of dangerousness (danger to self, danger to others, and grave disability) were studied in association with diagnosis and psychopathology at admission. Dangerousness was associated with major mental disorder and with the severity of most symptom types. Danger to self had the fewest associations with indicators of mental disorders.[28]

Judicial aspects

As said, according to the CRPD, the mere presence of a psychiatric disorder is not sufficient to allow compulsory admission and treatment. Thus, additional grounds are needed for allowing application of coercive measures to psychiatric patients. These are operationalized in judicial criteria, which show considerable variation among countries.[16,29] In the United States and in many European countries, the core criterion for compulsory admission of psychiatric patients is a mental illness *resulting in danger* to self or others.[30,31] In certain other countries, however, *need for treatment* is a criterion, on itself or in combination with

the dangerousness criterion.[31] Furthermore, it has been proposed to allow coercion only if the decision-making capability or capacity with regard to psychiatric treatment is impaired.[32,33]

The Dutch legislation, as applicable during the period of the research projects of this thesis, with regard to coercive interventions in psychiatry focused on admission and hospitalization rather than treatment for example with forced medication. From its implementation (1994) to its expiration (2019) the act bore the name 'Bijzondere Opnemingen in Psychiatrische Ziekenhuizen (BOPZ)' which is translated as Exceptional Admissions to Psychiatric Hospitals. The regulations of the Compulsory Mental Health Care Act, in Dutch "Wet verplichte GGZ", which came into force in 2020, did not play a role in the research of this thesis.

Under the BOPZ, there were three main criteria that apply to all types of compulsory admissions, which are 1. the presence of a psychiatric disorder, 2. the presence of danger to self and / or others, resulting from the disorder, and 3. the absence of any less radical – i.e. non-compulsory – approach to avert the present danger (principle of subsidiarity). The procedure for compulsory admission must be followed, not only when the patient overtly resisted the admission, but also when the patient's consent was dubious or unreliable.

Apart from the above mentioned criteria, three main principles should be taken into account for decisions regarding compulsory psychiatric admission:

- Subsidiarity: all less burdensome and less intrusive interventions (most importantly, voluntary interventions) are considered insufficient in the given situation
- Proportionality: the severity of the intervention should be in proportion with the seriousness of the danger
- Effectiveness: the intervention might be expected to avert the danger

Two procedures for compulsory psychiatric admission existed: 1. an emergency compulsory admission sanctioned by the local mayor, and 2. a court-ordered admission sanctioned by a judge. The emergency procedure (Dutch: Inbewaringstelling, abbreviation IBS, translated: detention) was meant for crises and acutely dangerous situations, that required immediate admission. A judge reviewed the mayor's decision within five business days, in a court session in the psychiatric clinic. They decided either to terminate the detention or extend it for another three weeks. The second procedure (Dutch: Voorlopige Machtiging, abbreviation VM, translated: provisional court order) generally took several weeks to cover all necessary

steps and the patient was not admitted before the judge's decision on the order request. The provisional court order was sanctioned for a maximum of six months. The provisional order could also be sanctioned after the three weeks of detention after an emergency procedure. In that case a patient faced two court sessions within just a few weeks. By law, a lawyer was assigned to any patient who was compulsorily admitted. The legal assistance was available for all court sessions and free of charge.

Furthermore, when committed patients had sufficiently recovered and dangerousness was no longer present, a conditional discharge or leave was granted by the psychiatrist-director of the clinic. The remaining period of the court order applied to the conditional discharge. Besides, the court order could also be ended by the psychiatrist-director of the clinic. The conditional discharge was to be retracted in case of infringement of the conditions for discharge and / or in case of recurrent dangerousness. Very common conditions were the obligation to attend regular appointments at the outpatient department and to take medication, for example long-acting injectable antipsychotics, and to comply with the necessary therapeutic drug monitoring, for example white blood cell counts in clozapine users. Additionally, a community treatment order (CTO), also known as a compulsory community treatment (CCT), could be requested by the outpatient department. The CTO was also sanctioned by a judge. Although judicial details differed slightly from a conditional leave, the consequences for the patient and the mental health care professionals were quite similar.

For all compulsory admissions and also for the CTOs a psychiatric assessment was mandatory. Since the Varbanov-arrest of the European Court of Human Rights this assessment, according to Dutch jurisprudence, should be performed by a psychiatrist i.e. a physician with a specialist degree in psychiatry. The psychiatrist filled out a standardized mental health act form. He reported on current psychiatric status including psychiatric diagnosis and dangerousness criteria. He also has to indicate why no viable alternative approach, for example voluntary treatment, is available.

Clinical and ethical dilemmas

As remarked above, with regard to the use of coercive interventions not only human rights and judicial criteria are at stake. Clinicians face a delicate dilemma when a decision is needed whether or not to request a compulsory admission for a patient. They have to consider the

balance between on the one hand good clinical practice (the principles of non-maleficence and beneficence), which includes the *right* to help and provision of optimal treatment; and on the other hand prevention of harm and respect for autonomy (principles of non-maleficence and autonomy), which are in conflict with application of coercion. The question is often whether it is ethically defendable to accept the 'right to rot' as it is sometimes referred to – i.e. the 'right' to stay in the suffering of serious psychopathology and its accompanying daily misery. There are several unanswered questions in this respect, for example: does a lower threshold exist where intervention is the duty of the health care professional, even if it requires compulsory measures? In addition, how should clinicians determine such a threshold and would it not be arbitrary? And: how can family members of a patient be involved in this decision-making process? How can we know that family members have the right view and the proper intention with regard to the patient's situation? Is it possible and justifiable to follow the patients' own wishes for treatment, for example if they stated their wishes for treatment in advance-directives when they were capable and stable? Is it acceptable that patients consent afterwards with the decisions made by the clinician, even if they did not when the decisions were made? These ethical, clinical, and judicial questions do not have simple answers, and are sometimes implicitly, sometimes explicitly, addressed in the decision-making processes when deciding on applying coercion.

Also, the protection of society is at stake. In The Netherlands, over the last years, severe crimes committed by psychiatric patients gave rise to strong public fury, despite these incidents being rare events, which are extremely difficult to predict.[34] In an overview on risk categorization of patients with schizophrenia, Positive Predictive Values (PPV) and Number of high-risk categorization Needed to Predict a single adverse event (NNP) are presented with regard to several dangerousness criteria, such as suicide, assault, and homicide.[35] Besides, NNP is also referred to as Number Needed to Detain (to prevent a single adverse event). Given the very low base rates of these serious events and the far from perfect sensitivity and specificity of risk assessment tools, the PPV and NNP are disappointing: varying from 2% (PPV) and 50 (NNP) in the case of suicide to 0.040% (PPV) and 2,500 (NNP) in the case of homicide by patients after treatment.[35] Therefore, today the scientific

rationale to use risk assessment instruments in general psychiatry for predicting serious events is still subject to vivid debate.

Informal coercion

Above we defined coercion as any decision made and executed against the will of the patient. Legislation and health ethics seem to provide a language and a theoretical framework with regard to coercion. However, its application in daily practice is fraught with dilemmas and uncertainties. To complicate the matters even further, even outside the legal and ethical framework, patients can be put under pressure in order to make them consent to treatment plans. This so-called 'informal coercion' ranges from subtle to overt. In a review of 21 publications prevalence rates of informal coercion were 29-59%, depending on study site and setting.[36] According to this review informal coercion mainly existed of leverage and inducements, rather than persuasion and threat. A focus group study among mental healthcare professionals in 10 different countries identified several common themes with regard to informal coercion: "a belief that it is effective, an uncomfortable feeling using it, a dissonance between attitudes and practice (wider than theoretically right use), and a conflict of paternalism and responsibility versus respect for the patient's autonomy."[37] A hierarchy of treatment pressure was defined by Smukler and Appelbaum, comprising persuasion, interpersonal leverage, inducements, threats, and formal compulsory treatment.[38] They stated that "as one ascends in the hierarchy, the stronger must be the justification for intervention by the clinician." Money, housing, children and criminal justice can be used as leverage to ensure treatment adherence.[39,40] It is important to clearly distinguish between offers and threats. Munn et al. stated that "threats reduce the range of options available compared with pre-proposal baseline, whereas offers expand that range."[41] They analyzed threats and offers, taking the pre-proposal baseline situation of the patient, the nature of the proposal, and duties of care into account. If a proposal to a patient has the character of a threat, they concluded that this is ethically less acceptable, whereas a proposal with the character of an offer was more acceptable.

1.2 Psychiatric admissions

In the past, psychiatric patients, especially severely mentally ill patients stayed in psychiatric hospitals for very long periods of time, often with no perspective of being discharged at all. These psychiatric hospitals were usually large institutions, located at spacious terrains where patients lived, worked, and stayed as if it were a community in itself, however, separated from the rest of society. These "total institutions" as described by Goffman in his classic work *Asylums*, received increasing criticism over the decades.[42] Due to deinstitutionalization and psychiatric bed reduction patients started to live inside society.[43,44] Paradoxically, the numbers of compulsory psychiatric admissions rose during the process of bed reduction, at least in England.[45,46]

In general, planned hospital stay for a limited time of community-dwelling psychiatric patients can be necessary and useful. For example, a voluntary admission can provide extra guidance and protection for a suicidal patient. It may also be that planned psychiatric hospitalizations contribute to reducing the length of stay in crisis sensitive patients[47] or even to reducing the number of compulsory inpatient days.[48] Planned and preventive admissions may be preferable compared to unplanned crisis admissions. However, in case of psychiatric crisis accompanied by danger to self and others, the psychiatric admission sometimes becomes inevitable. If patients do not consent with a necessary psychiatric admission, the admission becomes involuntary. By stating this, it is made clear that prevention of an admission itself is not always necessarily a goal. However, prevention of acute, unplanned, and especially compulsory admissions is important.

Assertive community treatment (ACT) teams in the United States are an example of a successful strategy to prevent psychiatric admissions there.[49] The explanation for the success of ACT in the United States was mainly due to the lack of adequate community mental health services before the implementation of ACT. Patients who left the hospital did not receive the appropriate aftercare, leading to frequent rehospitalizations – the so called revolving door patients.[50,51] The success of ACT with regard to prevention of psychiatric admission, however, could not be replicated in the United Kingdom, possibly due to the presence of ACT characteristics in the care as usual condition of the study (community mental health teams).[52]

1.3 Patients with severe mental illness (SMI)

Many patients who are compulsorily admitted belong to the group of so-called patients with severe or serious (and persistent) mental illness (S(P)MI). The definition of SMI is widely discussed in the literature.[8] A Dutch consensus document, written by Delespaul and a group of experts, proposed the following definition:[9] a person is regarded as a SMI-patient when:

- a severe mental disorder is present, requiring care and treatment (no symptomatic remission)
- severe social disabilities are present (no functional remission)
- these disabilities are related to the disorder, both as a cause as well as a consequence
- the disorder and the disabilities are present for at least several years (not temporary)
- integrated care is needed to reach the goals in the treatment plan

Delespaul challenges the limitation of SMI to patients with psychotic disorders, stating that "also other psychiatric disorders can be severe." A figure in the document shows estimated proportions of patients per diagnostic group that are considered SMI, varying from 90% of patients with schizophrenia and 60% of patients with other psychotic disorders, to 40 % of patients with bipolar disorder, 30% of patients with personality disorders, autism spectrum disorders and drug abuse, and 10% of patients with alcohol abuse, depressive disorder, anxiety disorders and a rest group. Clearly, the risk of developing the whole "syndrome" of SMI is high in patients with psychotic disorders and lower in other diagnostic groups, which however does not necessarily rule out patients of those other diagnostic groups from the SMI-target group. Another figure in the document shows the estimated proportions of the diagnostic groups in the total SMI-group: 31% schizophrenia, 19% psychotic spectrum (non-schizophrenia), 10% bipolar disorder and depression with psychotic symptoms, 10% addiction and 30% other diagnostic groups. Delespaul and the consensus group calculated that there are about 160.000 adult (between 18 and 65 years old) patients with SMI in The Netherlands (2013), including addiction care and forensic care.

The main theme of this thesis is compulsory psychiatric admission. Patients with SMI are the main target group of the research in this thesis, although not exclusively these patients undergo coercion and get compulsorily admitted in psychiatry.

1.4 Purpose of the thesis and preview of the chapters

General purpose of the research in this thesis

The research in this thesis focuses on psychiatric admissions in general and compulsory psychiatric admissions in particular, and also on the main reason for a compulsory admission, namely dangerousness. Its purpose is to contribute to the currently available evidence and especially, to find ways to adapt and improve daily clinical practice in community-based mental healthcare, in order to prevent and reduce compulsory psychiatric admissions and dangerousness. The research questions involved were studied and answered in five research projects. We applied several research methods, including literature review and meta-analysis, and quantitative and qualitative research.

Interventions to reduce compulsory psychiatric admissions (chapter 2)

Before the start of our clinical investigations in the field of compulsory psychiatric admissions, we wanted to explore the available evidence from the literature. While in general most reviews and meta-analyses focus on one specific intervention and report on several outcome measures, we did the opposite in this review and meta-analysis: it focused on one specific outcome – compulsory psychiatric admission – and reports on several interventions that were designed and deployed to prevent and reduce compulsory psychiatric admissions. The research question of this study was whether, and to what extent, compulsory psychiatric admissions can be prevented or reduced by specific interventions. We chose to perform a systematic review and meta-analysis and we included only randomized controlled trials that had compulsory admissions as a primary or secondary outcome measure.

Crucial factors preceding compulsory psychiatric admissions (chapter 3)

Whereas in the study of chapter 2 the data was quantitative, the study in chapter 3 presented qualitative data with regard to compulsory psychiatric admissions. We studied the mental healthcare process preceding actual compulsory admissions and included 22 patients in regular treatment of Flexible Assertive Community Treatment (FACT) teams. The teams were employed by two mental health institutions in the Rotterdam Rijnmond-region in The Netherlands: Yulius Mental Health, covering both urban and outlying areas, and Parnassia

Bavo, covering mainly urban areas. The research question of this study was: which factors, related to both the patients and the mental health-care professionals are crucial in the mental healthcare process preceding compulsory psychiatric admission? The methods of this study comprised two steps: first we scrutinized patient records, the basic material of the study, and second, we analyzed the findings from the patient records according to the PRISMA method.[53]

An intensive group programme for patients at risk of rehospitalization (chapter 4)

In this chapter we presented the results of a prospective and controlled intervention study. The intervention consisted of an intensive group programme – which we called FACT Plus – for SMI-patients with psychotic disorders who had been hospitalized during the two years before inclusion and were considered to be at risk of rehospitalization. The patients were recruited from FACT teams at Parnassia Bavo, a mental health institution in the Rotterdam-Rijnmond area. Although we did not apply randomization, we aimed to collect evidence of the best possible quality. Thus, we included a control group (62 patients) along with the intervention group (51 patients). The control group was recruited from different FACT teams than the intervention group. The research question at stake in this study was as follows: what are the differences in number of rehospitalization days, mental healthcare costs, and compulsory admissions, between patients who participated in the FACT Plus programme compared to the control group, who only received regular FACT.

Evolution of dangerousness (chapter 5)

There are only few studies reporting on outcomes of compulsory admission and hospitalization. Also, there is only one relatively old set of studies reporting on dangerousness itself,[28,54,55] which is in many countries a core criterion for compulsory psychiatric admission. In this study presented in chapter 5, we explored the evolution of dangerousness after court-ordered compulsory psychiatric admission. For this study we developed a concise questionnaire based on the 8 dangerousness criteria in 2019 legislation on compulsory admissions in The Netherlands: the Dangerousness Inventory (DI). Assessments were carried out at baseline, at 6 months, and at 12 months follow-up. Patients were recruited from the Rotterdam-Rijnmond area and were eligible as soon as a court-ordered admission was requested by a clinician. We included 173 patients in this study. The

research question of this study was how dangerousness evolves after patients have been compulsorily admitted.

Repeated emergency compulsory psychiatric admissions (chapter 6)

Some research has been done regarding revolving door patients focusing mainly on voluntary admissions.[50,56-59] However, only few studies investigated the prevalence of and risk factors for repeated compulsory psychiatric admission.[60-62] In this study presented in chapter 6 we investigated repeated emergency compulsory psychiatric admissions (ECPAs). We used a large database of electronic patient files as used by three psychiatric emergency services in different regions in The Netherlands. We included 6,059 adult patients (aged 18 – 75 years) in our analysis. The research question of this study was: what is the frequency and what are risk factors for repeated emergency compulsory psychiatric admission (ECPA) and for time to readmission in The Netherlands, and what could be targets for interventions to reduce repeated ECPA?

Summary and discussion (chapter 7)

In the final chapter the research questions and the results will be summarized. We will present a synthesis of the findings with prevention and reduction of future compulsory psychiatric admissions as leading principle. In addition, we will formulate clinical implications for daily practice, and discuss the strengths and limitations of the research of this thesis. Finally, we will present ideas and directions for future research.

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CHAPTER 2

Interventions to reduce compulsory psychiatric admissions: a systematic review and meta-analysis

Mark H. de Jong
Astrid M. Kamperman
Margreet Oorschot
Stefan Priebe
Wichor Bramer
Roland van de Sande
Arthur R. Van Gool
Cornelis L. Mulder

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Abstract

Importance: Compulsory admissions, defined as admissions against the will of the patient (according to local judicial procedures), have a strong effect on psychiatric patients. In several Western countries, the rate of such admissions is tending to rise. Its reduction is urgently needed.

Objective: To establish which interventions effectively reduce compulsory admissions in adult psychiatric patients in outpatient settings.

Data sources: A systematic computerized literature search was performed using EMBASE, MEDLINE, Web of Science, PsycINFO, CINAHL, PubMed (not yet indexed for MEDLINE), Cochrane Central, and Google Scholar. Every database was searched from its inception until April 30, 2015.

Study selection: Randomized clinical trials (RCTs) that studied any kind of intervention designed to reduce compulsory admission rates in adult psychiatric patients (age range, 18-65 years) in outpatient settings were eligible. Eligibility was independently assessed by two of us.

Data extraction and synthesis: Two of us independently extracted relevant data. The Cochrane Collaboration's tool was used for assessing risk of bias. Overall risk reduction (random-effects estimate) was calculated in the following 4 subgroups of interventions: advance statements, community treatment orders, compliance enhancement, and integrated treatment.

Main outcomes and measures: Relative risk (RR) was calculated on the basis of the number of patients who had been compulsorily admitted.

Results: Our meta-analyses included 13 RCTs comprising 2970 psychiatric patients. The meta-analysis of the RCTs on advance statements showed a significant 23% (RR, 0.77; 95% CI, 0.60-0.98; I^2 = 2.2%) (n = 1102) risk reduction in compulsory admissions. In contrast, the RCTs on community treatment orders (RR, 0.95; 95%CI, 0.81-1.10; I^2 = 0.0%) (n = 742), compliance enhancement (RR, 0.52; 95%CI, 0.11-2.37; I^2 = 55.7%) (n = 250), and integrated treatment (RR, 0.71; 95%CI, 0.49-1.02; I^2 = 49.0%) (n = 876) showed no significant risk reduction in compulsory admissions.

Conclusions and relevance: The meta-analysis of the RCTs on advance statements showed a statistically significant and clinically relevant 23% reduction in compulsory admissions in adult psychiatric patients, whereas the meta-analyses of the RCTs on community treatment orders, compliance enhancement, and integrated treatment showed no evidence of such a reduction. To date, only 13 RCTs have used compulsory admissions as their primary or secondary outcome measure. This demonstrates the need for more research in this field.

Introduction

For various reasons, compulsory admissions of psychiatric patients should be prevented as far as possible. Being compulsorily admitted has a strong effect on patients and their relatives and can be traumatic.[1] A European multicenter study[2] showed that 30% to 50% of patients who have been compulsorily admitted undergo coercive interventions, such as enforced medication, seclusion, and restraint. Although the exact definition of compulsory admission might differ from country to country depending on the judicial context, a compulsory admission is always an admission against the will of the patient (according to local judicial procedures). Compulsory admission also conflicts with principles of autonomy, shared decision making, and recovery-focused care.[3,4] Fear of coercion may keep patients away from treatment.[5] However, the consequences of compulsory admissions are not exclusively negative: they have also been associated with improvements in psychosocial functioning and better motivation for treatment.[6] In cases of severe danger to self or others caused by a psychiatric condition, compulsory admission is commonly seen as justified and required.[7] Rates of compulsory admissions across the European Union range from only 6 per 100 000 in Portugal to just above 200 per 100 000 in Finland,[8] but it is important to realize that differences in laws, regulations, and mental health care services make a direct comparison between the countries difficult. Although recent numbers for most countries are not available, rates in several European countries are tending to rise,[8-10] albeit for reasons that are largely unknown. In England – where, as in many other countries, many patients have been moved from large institutions into the community – the reduction in the number of mental illness beds has been accompanied by a rise in compulsory admissions.[11]

In Western societies, tolerance of deviant behavior by psychiatric patients in the community seems to be decreasing, parallel to an increasing emphasis on autonomy and rights of patients and to strictly defined and regulated coercive measures.[12] Recently, the United Nations Convention on the Rights of Persons With Disabilities stated that "the existence of a disability shall in no case justify a deprivation of liberty,"[13] and it has been argued that involuntary treatment, regardless of whether patients have a mental or physical illness, would be allowed only if a person's decision-making capability for a specific treatment decision is impaired.[13] Interventions that prevent patients from being compulsorily admitted are urgently needed.

Objectives

This investigation was a systematic review and meta-analysis. We aimed to establish which interventions effectively reduce compulsory admissions in adult psychiatric patients in outpatient (ie, all noninpatient) settings.

Methods

Eligibility Criteria

Studies were eligible if they were randomized clinical trials (RCTs) investigating interventions of any kind that were designed to reduce compulsory admission rates in adult psychiatric patients (age range, 18-65 years) in outpatient settings. Any kind of noninpatient services were considered outpatient settings. A study was considered to be eligible only if it included compulsory admission, defined as stated above, as a primary or secondary outcome measure. We chose to include all articles with clear statements of compulsory admission (or related terms) as outcome measures. Articles studying compulsory admission as an intervention or any intervention during hospitalization were not eligible. Literature was searched from the inception of the databases until April 30, 2015.

Information Sources

A computerized literature search was designed and performed by 2 of us (M.H.J. and biomedical information specialist W.B.). The search was last updated on April 30, 2015. The following databases were searched: EMBASE (via embase.com), MEDLINE (via Ovid), Web of Science, PsycINFO (via OvidSP), CINAHL (via EBSCOhost), and Cochrane Central (via Wiley). Additional articles were retrieved from PubMed by selecting only those articles that had not yet been indexed by MEDLINE and on the basis of the first 300 references from Google Scholar. In addition to words in the title and abstract for EMBASE, MEDLINE, PsycINFO, and CINAHL, we used thesaurus terms when available. By scanning reference lists of key articles and review articles related to our subject, we also checked for records that might be missing.

Search

The search strategy involved the following 2 key elements: (1) *compulsory admission* and related terms (such as *involuntary hospitalization*, etc) and (2) the outcomes measured, such as *reduction*, *prevention*, *rate*, or *duration*. The full search strategies for all databases are available in in Supplement S1 (p.48).

Study Selection

A software package (EndNote, version X6; Thomson Reuters) was used for record management.[14] After deduplication and exclusion of records without abstracts, one of us (M.H.J.) screened the remaining records for eligibility on the basis of the title and abstract. Independently, 2 of us (M.H.J. and M.O.) then assessed the full texts of the remaining records for eligibility. After discussion, the panel of all authors made final decisions on disagreements between these independent authors.

Data Collection Process

Data collection and reporting adhered to the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines.[15,16] Using a data extraction form, 2 of us (M.H.J. and A.M.K.) independently extracted data. Differences in extracted data were discussed by the panel of all authors. Due to inconclusive information, we contacted the authors of 4 articles to verify whether the reported admissions were actually compulsory. Other authors were contacted because several articles had been published on a single study. We also retrieved additional data from the database of one RCT accessible to 2 of us (A.M.K. and C.L.M.), by whom the RCT in question had been performed and published.

Data Items

All the trial articles included were investigated and checked for the following: country of origin, inclusion criteria, type of intervention and control condition, risk of bias, and length of follow-up. As outcome measures, we extracted the number of patients who had been compulsorily admitted as well as the sample size in the intervention and control groups directly after randomization. Similarly, we extracted data on the number of compulsory admissions and on the number of patients as reported by the authors.

Risk of Bias in Individual Studies

On the basis of the Cochrane Collaboration's tool for assessing risk of bias,[17] two of us (M.H.J. and A.M.K.) independently assessed risk of bias in all eligible studies. The following 6 quality criteria were assessed: (1) random sequence generation, (2) allocation sequence concealment, (3) masking of participants and personnel, (4) masking of outcome assessment, (5) incomplete outcome data, and (6) selective reporting.

Summary Measures

The RCTs we included described various types of interventions, which we divided into 4 subgroups, each consisting of comparable interventions. On these groups, we performed meta-analyses, computing relative risk (RR) to estimate the effect of the intervention. Because the number of admissions could have been biased by various outliers (eg, patients with many admissions during the follow-up period [the so-called revolving-door phenomenon]), RR was calculated on the basis of the number of patients who had been compulsorily admitted (nominator) and of the sample size directly after randomization (denominator). In this way, we estimated the effect sizes of the studies on a strict intent-to-treat basis.

Synthesis of the Results

With regard to the main analysis, we used random-effects estimation and a 95% CI to calculate the overall effect for all 4 subgroups of interventions. A Cochrane *Q* test was used to examine whether heterogeneity over the pooled studies was greater than would have been expected by chance. We used random-effects analysis because, if there is substantial heterogeneity, such analysis produces a more reliable estimate of the overall admission rate than does fixed-effects analysis.

With regard to sensitivity analyses, associations with categorical characteristics were assessed using random-effects estimation to calculate overall outcomes per category. Fixed-effects estimation was used to compare differences over categories. Cochran *Q* values, I^2 statistics, and significance levels are reported. Statistical analyses were performed using a software package (metan in Stata, release 13; StataCorp LP).[18,19]

Risk of Bias Across Studies

A funnel plot was used to assess visually for publication bias, and the Harbord test[20] was used to assess formally whether the effect size decreased in proportion to increasing sample size. Plots with a symmetrical funnel shape are considered to occur only if there is little or no publication bias. An asymmetrical plot may suggest that studies with small sample sizes and nonsignificant results have been omitted.[21]

Sensitivity Analyses

We used Cochran *Q* and I^2 statistics to quantify heterogeneity across studies. Heterogeneity was further explored by conducting sensitivity analyses. Therefore, we calculated the overall effect using both fixed-effects and random-effects modeling and evaluated the effect of the modeling procedure on the overall effect per subgroup of interventions. Next, we evaluated the effect of outcome data used in the meta-analysis. Therefore, we repeated our analysis using the data as reported by the authors and the number of compulsory admissions (in contrast to the number of compulsorily admitted patients) as outcome data. Furthermore, we compared the overall effects based on the study quality criteria regarding random sequence generation, allocation sequence concealment, and masking of outcome assessment. Also, we compared the overall effects based on whether compulsory admissions were reported as primary or secondary outcomes. In addition, we compared the overall effects based on the country of origin because the judicial context might affect the prevalence of compulsory admissions. Finally, analyses were repeated with exclusion of studies with outlying results. I^2 statistics were interpreted as follows: 0% to 40% is not important, 30% to 60% is moderate, 50% to 90% is substantial, and 75% to 100% is considerable heterogeneity.[17]

Figure 1: Flow chart showing the study-selection process

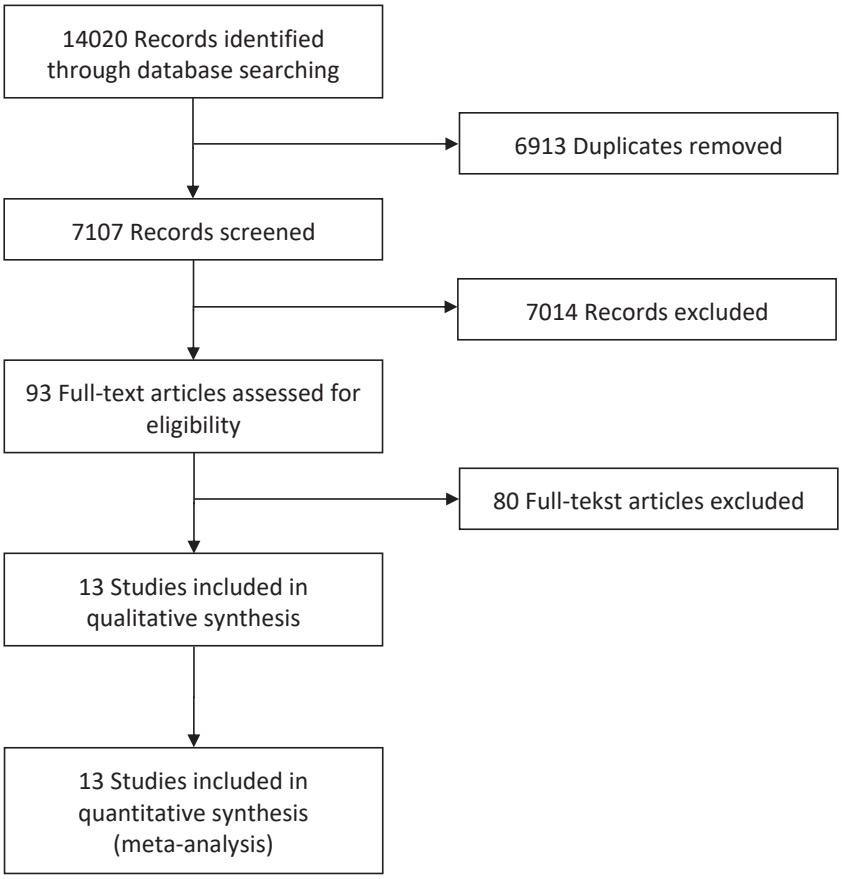


Table: Study characteristics of all included studies

Source	Main inclusion criteria	Intervention (N)	Control (N)	Follow-up
ADVANCE STATEMENTS				
Papageorgiou[22] 2002, United Kingdom	Inpatient compulsory treatment	Advance directive (80)	Standard multidisciplinary community care (81)	12 months
Henderson[23] 2004, United Kingdom	SMI and ≥ 1 admission in last 2 years	Joint crisis plan (80)	Local community mental health team (80)	15 months
Thornicroft[24] 2013, United Kingdom	Relapsing psychotic disorder, ≥ 1 admission in last 2 years	Joint crisis plan (285)	Standard multidisciplinary care (284)	18 months
Ruchlewska[25] 2014, The Netherlands	Outpatient, psychotic / bipolar disorder, ≥ 1 crisis /admission in last 2 years	Crisis plan (2 arms) (139)	Flexible Assertive Community Treatment (73)	18 months
COMMUNITY TREATMENT ORDERS				
Swartz[26] 1999, United States	SMI >1 yr, decreasing GAF score, intensive treatment for 2 year	Community treatment order (129)	Case management, without community treatment order (135)	12 months
Steadman[27] 2001, United States	Referral to outpatient commitment program	Community treatment order (78)	Standard care, without community treatment order (64)	11 months
Burns[28] 2013, United Kingdom	Currently detained with psychosis	Community treatment order (167)	Standard outpatient care, without community treatment order (169)	12 months

Table (continued)

Source	Main inclusion criteria	Intervention (N)	Control (N)	Follow-up
COMPLIANCE ENHANCEMENTS				
Staring[29] 2010, The Netherlands	Outpatient, SMI, problems with service engagement	Treatment adherence therapy (54)	Standard community mental health care (55)	12 months
Priebe[30] 2013, United Kingdom	SMI, receiving ≤75% of prescribed depot	Financial incentives (78)	Community mental health care (63)	12 months
INTEGRATED TREATMENT				
Johnson[31] 2005, United Kingdom	Crisis severe enough to consider admission	Crisis resolution teams (135)	Standard crisis care (125)	6 months
Ohlenschlaeger[32] 2008, Denmark	First-episode schizophrenia spectrum disorder	Integrated care (167)	Standard community mental health care (161)	12 months
Sigrunarson[33] 2013, Norway	Recent-onset psychosis (symptoms ≤ 2 years)	Integrated treatment (30)	Case management (20)	12 years
Lay[34] 2015, Switzerland	≥ 1 compulsory admission in past 2 years	Psycho-education + focused monitoring (119)	Standard community mental health care (119)	12 months

Abbreviations: GAF, Global Assessment of Functioning; SMI, severe mental illness

Results

Study Selection

The database searches produced 14 020 records (Figure 1, p. 37). After deduplication, 7107 unique records were reviewed on the basis of the title and abstract, 93 of which appeared to be of potential interest. Records were excluded for not being on topic or for not meeting the eligibility criteria applicable to participants, outcome measures, or study design. Thirteen of 93 records met full eligibility criteria. The main reasons for further exclusions were that the study was not randomized on second view, that an article was a study protocol rather than a study outcome article, or that different outcome measures had been used. The interrater reliability was high, with a raw interrater agreement of 96.8% (κ statistic, 0.88; 95% CI, 0.74-0.99).

Study Characteristics

These 13 studies involved a total of 2970 participants, 1541 in the intervention groups and 1429 in the control groups. While follow-up ranged in length from 6 months to 12 years, in 10 studies it was between 11 and 18 months. Study characteristics are listed in the Table (p. 38, 39). Four studies investigated advance statements (including advance directives[22] and joint crisis plans[23-25]), 3 studies[26-28] investigated community treatment orders, and 2 studies investigated different types of compliance enhancement (including treatment adherence therapy[29] and financial incentives for improving adherence to antipsychotic treatment[30]). Finally, we included 4 studies in which the common characteristic of the interventions consisted of augmentation of standard care (integrated treatment), including 1 study[31] on crisis resolution teams, 2 studies[32,33] on integrated treatment in first-episode schizophrenia, and 1 study[34] on psychoeducation combined with focused monitoring.

All studies were 2-arm RCTs except the study by Ruchlewska et al,[25] which consisted of 3 arms. In that case, we pooled 2 intervention arms together into one.

Risk of Bias Within the Studies

The Table in Supplement S2 (p. 50) lists the results of the Cochrane Collaboration's tool for assessing risk of bias. Only 5 studies[22,24,28,30,33] had low risk of bias in the 2 items regarding the randomization process (random sequence generation and allocation sequence

concealment). All other studies had unclear risk of bias in one or both items, whereas 1 study[29] had high risk of bias in the item of allocation sequence concealment. All studies scored unclear risk of bias with regard to masking of participants and personnel. In this research field, it is impossible to mask participants and health care professionals for the intervention condition, but it remains unclear whether or not this awareness led to bias. The included studies mainly scored low risk and incidentally unclear risk of bias with regard to masking of outcome assessment, incomplete outcome data, and selective reporting.

Findings of Individual Studies

A forest plot presents the results of the individual RCTs with regard to patients who had been compulsorily admitted. This result is shown in Figure 2 (p. 42).

Synthesis of the Findings

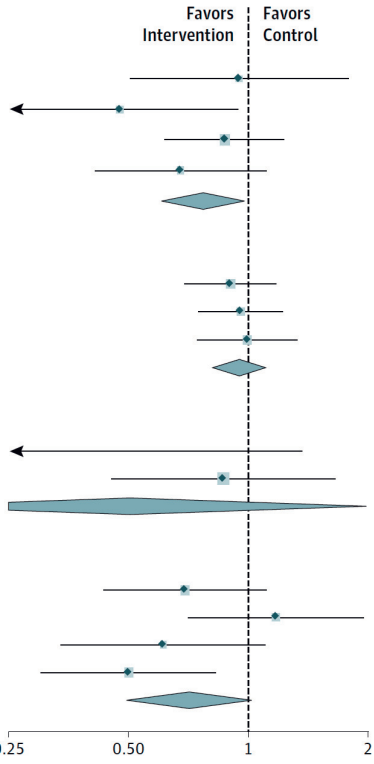
The meta-analysis of the pooled RCTs studying advance statements showed that the risk of compulsory admission had been reduced significantly by 23% (RR, 0.77; 95% CI, 0.60-0.98; I^2 = 2.2%). The meta-analysis of the pooled RCTs studying community treatment orders (RR, 0.95; 95% CI, 0.81-1.10; I^2 = 0.0%), the meta-analysis of the pooled RCTs studying compliance enhancement (RR, 0.52; 95% CI, 0.11-2.37; I^2 = 55.7%), and the meta-analysis of the pooled RCTs studying integrated treatment (RR, 0.71; 95% CI, 0.49-1.02; I^2 = 49.0%) showed no evidence that the risk of compulsory admission had been reduced. In the meta-analyses regarding compliance enhancement and integrated treatment, we found indications for moderate to substantial heterogeneity (I^2 = 55.7% and I^2 = 49.0%, respectively).

Risk of Bias Across Studies

The funnel plot (Figure 3, p. 43) is asymmetrical and shows 1 small study with a large positive effect size (ie, the study by Staring et al[29]). The corresponding Harbord test shows the significant presence of the small-study effect (intercept, −2.09; 95% CI, −4.06 to −0.11; P = .04). When the study by Staring et al[29] was excluded, the effect was no longer significant (intercept, −1.86; 95% CI, −4.40 to 0.69; P = .14). The result of the study by Lay et al[34] is on the margin of the 95% pseudoconfidence area.

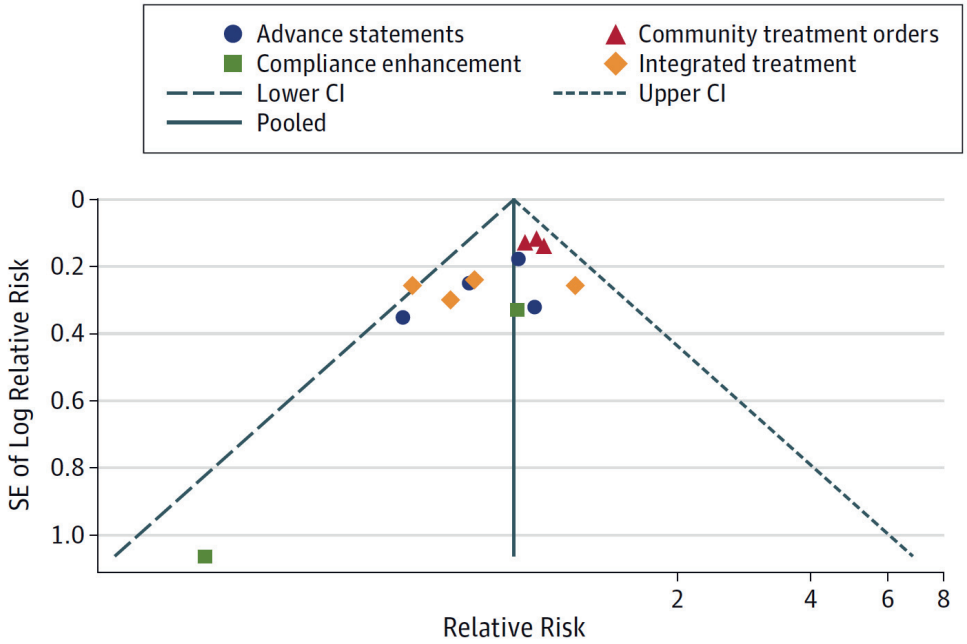
Figure 2: Relative Risk of Compulsory Admission per Subgroup of Intervention

Source	Relative Risk (95% CI)	Intervention Events	Control Events
Advance Statements			
Papageorgiou et al,[22] 2002	0.95 (0.50-1.79)	15/80	16/81
Henderson et al,[23] 2004	0.48 (0.24-0.95)	10/80	21/80
Thornicroft et al,[24] 2013	0.87 (0.62-1.23)	49/285	56/284
Ruchlewska et al,[25] 2014	0.68 (0.41-1.11)	27/139	21/73
Subtotal $I^2 = 2.2\%$, $P = .38$	0.77 (0.60-0.98)	101/584	114/518
Community Treatment Orders			
Swartz et al,[26] 1999	0.90 (0.69-1.17)	56/129	65/135
Steadman et al,[27] 2001	0.96 (0.75-1.22)	49/78	42/64
Burns et al,[28] 2013	1.00 (0.75-1.33)	59/167	60/169
Subtotal $I^2 = 0.0\%$, $P = .88$	0.95 (0.81-1.10)	164/374	167/368
Compliance Enhancement			
Staring et al,[29] 2010	0.17 (0.02-1.36)	1/54	6/55
Priebe et al,[30] 2013	0.87 (0.45-1.65)	15/78	14/63
Subtotal $I^2 = 55.7\%$, $P = .13$	0.52 (0.11-2.37)	16/132	20/118
Integrated Treatment			
Johnson et al,[31] 2005	0.69 (0.43-1.11)	24/135	32/125
Ohlenschlaeger et al,[32] 2008	1.17 (0.71-1.95)	28/167	23/161
Sigrúnarson et al,[33] 2013	0.61 (0.34-1.10)	11/30	12/20
Lay et al,[34] 2015	0.50 (0.30-0.83)	18/119	36/119
Subtotal $I^2 = 49.0\%$, $P = .12$	0.71 (0.49-1.02)	81/451	103/425



Small blue diamonds represent relative risks of the individual randomized clinical trials, gray squares represent weights, horizontal lines or arrows represent 95%CIs, and large blue diamonds represent total relative risk per type of intervention and 95%CIs.Weights are from random-effects analysis.

Figure 3: Visual Assessment of Risk of Bias Across Studies



The 95% pseudoconfidence areas are shown

Sensitivity Analyses

Modelling Procedure

Bias and potential sources of heterogeneity were tested in sensitivity analyses, which showed that neither modelling procedure had an effect in the following 3 cases: (1) advance statements (RR, 0.77; 95% CI, 0.60-0.98 for both fixed and random), (2) community treatment orders (RR, 0.95; 95% CI, 0.81-1.11 for both fixed and random), and (3) integrated treatment (RR, 0.72; 95% CI, 0.56-0.93 for fixed and RR, 0.71; 95% CI, 0.49-1.02 for random). However, with regard to compliance enhancement, the modelling procedures had a considerable effect (RR, 0.67; 95% CI, 0.37-1.23 for fixed and RR, 0.52; 95% CI, 0.11-2.37 for random).

Intent-to-Treat Analysis vs the Findings as Reported

The effect sizes calculated on the basis of the results reported by the authors produced RRs that were similar to those produced by strict intent-to-treat analysis. Relative risks were 0.78 (95% CI, 0.60-1.01; I^2 = 11.9%) for advance statements, 0.95 (95% CI, 0.81-1.10; I^2 = 0.0%) for community treatment orders, 0.48 (95% CI, 0.10-2.30; I^2 = 54.9%) for compliance enhancement, and 0.74 (95% CI, 0.54-1.01; I^2 = 35.2%) for integrated treatment.

Outcome Measures

Pooling of the only 4 studies[24,26,30,34] that also reported the total number of compulsory admissions (in contrast to the number of compulsorily admitted patients) produced a nonsignificant RR of 0.76 (95% CI, 0.54-1.06). Heterogeneity in this subgroup of 4 studies was considerable (I^2 = 87.6%).

Subgroup Analyses

Potential sources of heterogeneity were further assessed in subgroup analyses. No significant difference in the overall effect was shown based on the study quality criteria regarding random sequence generation and allocation sequence concealment (Q_1 = 0.06, P = .80), masking of assessors (Q_1 = 0.55, P = .46), or reporting of the outcome as primary vs secondary outcome (Q_1 = 2.11, P = .15). Evaluation of the country of origin (judicial context) resulted in no difference in the overall effect (Q_4 = 6.81, P = .15). Finally, exclusion of the study by Staring et al,[29] which had shown an outlying finding for the effect of compliance enhancement, resulted in an overall intervention effect RR of 0.84 (95% CI, 0.73-0.96; I^2 = 19.3%). This value was similar to the overall intervention effect calculated for the full set of inclusions (RR, 0.83; 95% CI, 0.72-0.96; I^2 = 25.9%).

Discussion

Summary of Evidence

We found only 13 RCTs in which intent to reduce compulsory admission was the first or secondary outcome measure. Because compulsory admissions have an effect on patients and their relatives and compromise the human right to freedom, this number is both small and disappointing.

With regard to the subgroups of interventions, studies on advance statements showed a statistically significant reduction (23%) in the risk of compulsory admission (with unimportant heterogeneity). In light of human rights and the effect that compulsory admissions have on psychiatric patients, we consider this figure of 23% as clinically relevant. This result highlights the fact that, by advocating patients' desires and preferences regarding a future crisis and by involving family and friends, advance treatment planning is an important and helpful process for psychiatric patients.

The studies on community treatment orders showed no evidence of a reduction in compulsory admissions (no heterogeneity). This finding is consistent with the existing literature on community treatment orders.[35] Also, the studies on compliance enhancement showed no evidence of a lower risk of compulsory admission (with substantial heterogeneity). While compliance is such a key issue, especially in the treatment of psychosis, it is surprising that so few studies have been conducted on this topic. Although there was no statistically significant risk reduction in the subgroup of integrated treatment (with moderate heterogeneity), it showed a potentially clinically relevant risk reduction of 29%. This subgroup of interventions might be most promising for further research and development. None of these findings were affected by sensitivity analyses.

Because our study includes all available RCTs in this important field and provides meta-analyses of the efficacy of several types of interventions, it presents a complete overview of all available RCT-derived evidence on the reduction in compulsory admissions. To our knowledge, this investigation is also the first study to do so.

The lack of effect of 3 out of 4 subgroups of interventions is remarkable, especially because the primary or secondary aim of the interventions is to reduce compulsory admissions. For example, the negative result with regard to community treatment orders is clear and rules out a substantial effect. Although there was no evidence of selection bias in the RCTs on

community treatment orders,[36] we do not rule out the possibility of selection bias in the other subgroups of interventions, especially regarding the most severely mentally ill patients, who are at most risk of being compulsorily admitted. To address the methodological problem of potential selection bias, we may need to add new elements into the standard RCT design (eg, the RCT design by Zelen,[37,38] in which patients are randomized to either the treatment or the control group before giving informed consent).

A decision with regard to a compulsory admission is the result of a complex set of patient-related, environmental, and health care determinants.[39] Interventions such as advance statements and integrated treatment that target the health care process as a whole are probably more effective than those such as community treatment orders and compliance enhancement, which target one specific element of the health care process. Because this result is consistent with our findings, we should be encouraged to invest in research that combines several specific interventions and thereby provides the most vulnerable patients with integrated treatment.

Limitations

Although more studies may provide data on compulsory admissions – not as a primary or secondary outcome measure but possibly as an adverse effect of the intervention being researched – our objective was to focus on studies in which titles or abstracts identified compulsory admission as their outcome measure. Despite this intent, we are unlikely to have missed a complete subgroup of interventions. Although meta-analysis is a method to increase power, some subgroups of interventions might be underpowered to provide significant evidence of smaller treatment effects.

The types of interventions included in our meta-analysis varied considerably. Although we were able to pool the interventions into 4 meaningful subgroups consisting of similar interventions, the integrated treatment subgroup was heterogeneous with regard not only to interventions (crisis resolution, integrated care, and psychoeducation with focused monitoring) but also to patient inclusion criteria (crisis severe enough to consider admission, recent-onset psychosis, and earlier compulsory admission). Such clinical and statistical heterogeneity means that the effect of these interventions on reducing compulsory admissions should be interpreted with caution.

In this review, we have also focused specifically on compulsory admissions, thereby excluding voluntary admissions. Although voluntary admission is an important outcome measure, the human rights issues and the rise in compulsory admissions in several Western countries led us to view compulsory admissions as those that most urgently need to be prevented.

It might be argued that, as an outcome measure, compulsory admission is not necessarily determined by the intervention we have researched because admissions also depend on clinical decision making. While this situation is indeed the case, it does not invalidate positive and negative results with regard to compulsory admissions, especially in randomized studies, in which all circumstances but the intervention are supposed to be the same. It is also important to realize that, in itself, the outcome measure of compulsory admission is just a matter of counting and cannot be biased by interpretation.

In the meta-analyses, the most reliable basis for calculating the outcome measure of compulsory admission was the number of patients who have been compulsorily admitted at least once. This choice might have led the effect to be underestimated, at least in patients with many admissions during the follow-up period. However, sensitivity analysis of the effects on the number of admissions did not significantly change the results.

Conclusions

The meta-analysis of the RCTs on advance statements showed a statistically significant and clinically relevant 23% reduction in compulsory admissions in adult psychiatric patients. In contrast, the meta-analyses of the RCTs on community treatment orders, compliance enhancement, and integrated treatment showed no evidence of such a reduction. However, there was substantial heterogeneity among the subgroups of intervention studies.

To date, only 13 RCTs have used compulsory admission as their primary or secondary outcome measure when investigating this issue. This small number demonstrates the urgent need for developing interventions based on knowledge of risk factors for compulsory admission (advance statements are most promising) and using modified RCT designs (eg, in which informed consent is requested after randomization).

Supplements

S1. Full search strategy per database

Embase.com

('mandatory program'/de OR 'involuntary commitment'/de OR (((coerci* OR mandator* OR compuls* OR involunta*) NEAR/6 (treat* OR admiss* OR admit* OR readmiss* OR program* OR hospital* OR commit* OR detain* OR care OR healthcare OR psychiatr* OR mental OR interven*)) OR 'mental health act' OR 'Mental Treatment Act' OR 'civil commitment' OR 'Outpatient Commitment'):ab,ti) AND (((coerci* OR mandator* OR compuls* OR involunta* OR admiss* OR readmiss* OR hospitali* OR stay* OR commit* OR voluntar*) NEAR/6 (prevent* OR reduc* OR rate* OR incidence* OR duration* OR prolong* OR longer OR shorten* OR shorter OR exten* OR increase* OR decrease* OR limit* OR high OR higher OR low OR lower OR number* OR length* OR less OR predict* OR prevalen* OR risk))):ab,ti

Medline (OvidSP)

("Mandatory Programs"/ OR "Coercion"/ OR (((coerci* OR mandator* OR compuls* OR involunta*) ADJ6 (treat* OR admiss* OR admit* OR readmiss* OR program* OR hospital* OR commit* OR detain* OR care OR healthcare OR psychiatr* OR mental OR interven*)) OR "mental health act" OR "Mental Treatment Act" OR "civil commitment" OR "Outpatient Commitment").ab,ti.) AND (((coerci* OR mandator* OR compuls* OR involunta* OR admiss* OR readmiss* OR hospitali* OR stay* OR commit* OR voluntar*) ADJ6 (prevent* OR reduc* OR rate* OR incidence* OR duration* OR prolong* OR shorten* OR exten* OR increase* OR decrease* OR limit* OR high OR higher OR low OR lower OR number* OR length* OR less OR predict* OR prevalen* OR risk))).ab,ti.

PsycINFO (OvidSP)

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Cochrane

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Treatment Act' OR 'civil commitment' OR 'Outpatient Commitment'):ab,ti) AND (((coerci* OR mandator* OR compuls* OR involunta* OR admiss* OR readmiss* OR hospitali* OR stay* OR commit* OR voluntar*) NEAR/6 (prevent* OR reduc* OR rate* OR incidence* OR duration* OR prolong* OR longer OR shorten* OR shorter OR exten* OR increase* OR decrease* OR limit* OR high OR higher OR low OR lower OR number* OR length* OR less OR predict* OR prevalen* OR risk))):ab,ti

Web-of-science

TS=(((((coerci* OR mandator* OR compuls* OR involunta*) NEAR/6 (treat* OR admiss* OR admit* OR readmiss* OR program* OR hospital* OR commit* OR detain* OR care OR healthcare OR psychiatr* OR mental OR interven*)) OR "mental health act" OR "Mental Treatment Act" OR "civil commitment" OR "Outpatient Commitment")) AND (((coerci* OR mandator* OR compuls* OR involunta* OR admiss* OR readmiss* OR hospitali* OR stay* OR commit* OR voluntar*) NEAR/6 (prevent* OR reduc* OR rate* OR incidence* OR duration* OR prolong* OR longer OR shorten* OR shorter OR exten* OR increase* OR decrease* OR limit* OR high OR higher OR low OR lower OR number* OR length* OR less OR predict* OR prevalen* OR risk))))

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S2. Table: Risk of bias summary (Cochrane Collaboration's tool)[17]

Author (year)	Random sequence generation	Allocation sequence concealment	Blinding of participants & personnel	Blinding of outcome assessment	Incomplete outcome data	Selective outcome reporting*
Papageorgiou (2002)[22]	+	+	?	+	+	+
Henderson (2004)[23]	+	?	?	+	+	+
Thornicroft (2013)[24]	+	+	?	+	+	+
Ruchlewska (2014)[25]	?	?	?	+	+	+
Swartz (1999)[26]	?	?	?	+	+	+
Steadman (2001)[27]	+	?	?	+	+	+
Burns (2013)[28]	+	+	?	?	+	+
Staring (2010)[29]	+	-	?	?	+	?
Priebe (2013)[30]	+	+	?	+	+	?
Johnson (2005)[31]	?	+	?	?	+	?
Ohlenschlaeger (2008)[32]	+	+	?	+	+	+
Sigrunarson (2013)[33]	+	+	?	+	+	?
Lay (2015)[34]	?	?	?	?	?	+

+ Low risk of bias ? Unclear risk of bias – High risk of bias

* Since we were interested in the outcome "compulsory admission", we have evaluated "selective outcome reporting" only with regard to this outcome measure

S3: Correspondence with regard to the article as published in JAMA Psychiatry[40]

In Reply We thank Schneeberger and colleagues for their kind remarks on our study.[41] They raise 2 issues concerning this article. First, they point to the fact that we limited our inclusions to randomized clinical trials (RCTs) to obtain the highest level of evidence, thus excluding a large part of the literature. We acknowledge that quasiexperimental and naturalistic studies may be valuable. However, RCT-derived evidence on a certain intervention will always prevail over evidence derived from quasiexperimental and naturalistic studies. This has been clearly pointed out in the discussion on community treatment orders.[36,42] Second, Schneeberger et al state that inpatient interventions, such as open-door policies in psychiatric wards, lead to a reduction of compulsory measures, referring to their own research. An admission is just one point in a patient's trajectory through mental health care, and it is an appealing idea that reducing coercion along the total mental health chain, including ward stays, might lead to less compulsory measures. However, the statement that "a less-restrictive therapeutic environment… might ultimately reduce the need for involuntary admissions" is, in our view, unsubstantiated so far. Further, we exclusively focused on outpatient (in contrast to inpatient) interventions. In our study,[41] we found that only advance statements showed statistically significant effect, in contrast to community treatment orders, interventions to enhance compliance, and integrated treatment. Our promising result with regard to advance statements obtained from 4 different RCTs was robust and had low heterogeneity. As all circumstances but the intervention in RCTs are supposed to be the same, we may conclude that, regardless of the specific mental health care context, advance statements can make a substantial difference. In the RCT on advance statements by Ruchlewska et al,[43] 64% of the patients in the intervention group completed a crisis plan, and plans were consulted by only a third of the patients who actually experienced a crisis. If implementation of advance statements could be significantly improved – of course, this means a real challenge for clinicians – the outcome with regard to compulsory admissions might become better. We would like to emphasize what is also implied by the letter by Schneeberger et al: that clinical research in patients with severe mental illness, especially with regard to reduction of all kinds of compulsory treatment, is very complicated. Moreover, it is carried out in a field of competing interests with regard to human rights, public safety, and decreasing tolerance of

deviant behavior.[12,44] Therefore, we welcome all kinds of research – preferably RCTs – that contributes to reduction of compulsory admissions and other compulsory measures.

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CHAPTER 3

Crucial factors preceding compulsory psychiatric admission: a qualitative patient-record study

Mark H. de Jong
Margreet Oorschot
Astrid M. Kamperman
Petra E. Brussaard
Esther M. Knijff
Roland van de Sande
Arthur R. Van Gool
Cornelis L. Mulder

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Abstract

Background: Compulsory admissions have a strong effect on psychiatric patients and represent a deprivation of personal liberty. Although the rate of such admissions is tending to rise in several Western countries, there is little qualitative research on the mental health-care process preceding compulsory admission. The objective of the study was to identify crucial factors in the mental health-care process preceding compulsory admission of adult psychiatric patients.

Methods: This retrospective, qualitative multiple-case study was based on the patient records of patients with severe mental illness, mainly schizophrenia and other psychotic disorders. Twenty two patient records were analyzed. Patients' demographic and clinical characteristics were heterogeneous. All were treated by Flexible Assertive Community Treatment teams (FACT teams) at two mental health institutions in the greater Rotterdam area in The Netherlands and had a compulsory admission in a predefined inclusion period. The data were analyzed according to the Prevention and Recovery System for Monitoring and Analysis (PRISMA) method, assessing acts, events, conditions, and circumstances, failing protective barriers and protective recovery factors.

Results: The most important patient factors in the process preceding compulsory admission were psychosis, aggression, lack of insight, care avoidance, and unauthorized reduction or cessation of medication. Neither were health-care professionals as assertive as they could be in managing early signs of relapse and care avoidance of these particular patients.

Conclusion: The health-care process preceding compulsory admission is complex, being influenced by acts, events, conditions and circumstances, failing barriers, and protective factors. The most crucial factors are patients' lack of insight and cessation of medication, and health-care professionals' lack of assertiveness.

Background

Compulsory admissions have a strong effect on psychiatric patients and their relatives, and can even be traumatic.[1] They are also contrary to human rights and to the principles of shared decision-making and recovery-focused care.[2,3] During compulsory hospitalization, 30-50% of the patients undergo coercive interventions, such as enforced medication, seclusion and restraint.[4] Fearing coercion, some may therefore stay away from treatment.[5] A selection of very dissatisfied patients described coercive care in strong terms, such as humiliation, oppression and imprisonment by totalitarian systems.[6] In a prospective study, however, perceived coercion decreased significantly during hospitalization: at discharge, most patients (87%) reported that even though they had felt coerced during their stay, their admission had been justified.[7] Compulsory admission has also been associated with improvements in psychosocial functioning and better motivation for treatment.[8] Overall, compulsory psychiatric admission is commonly seen as unavoidable in patients whose psychiatric condition makes them a severe danger to themselves or to others.[9]

In several European countries including The Netherlands, rates of compulsory admission are tending to rise.[10-12] Various factors may explain this rising trend, including shorter hospital stays (if patients are discharged from hospital earlier, they are presumably readmitted more often); increased provision of community mental health care (i.e. more individuals living in the community are identified as psychiatric patients); and urbanization.[13] Tolerance of behaviour that the general public labels as deviant (such as wearing dirty clothes or behaving strangely in the streets) seems to be decreasing, at least in Western countries. This might also lead rates of compulsory admission to rise.[14]

A Dutch study among psychiatric crisis patients found the following factors to be associated with a higher risk of compulsory admission: previous compulsory admission, living alone, and patients' dissatisfaction with the mental health care they received.[15] An Italian study among schizophrenia-spectrum patients found that previous compulsory admission, drop-out from mental health care, severity of illness, positive symptoms, excitement, emotion perception, and insight all differed significantly between patients who had been admitted compulsorily and those admitted voluntarily, This study stressed the importance of giving

patients proper attention during the phase in which their emotional perception and insight are diminished.[16]

While human rights considerations and the rising rates of compulsory admissions both indicate the urgent need to reduce compulsory admission rates, there has been little qualitative research on the mental health-care process that precedes compulsory admission. A study focussing on the family perspective showed that family members experience relief and conflicting emotions when a relative is admitted compulsorily.[17] Greater understanding of important factors in the health-care process that precedes compulsory admission might help to target interventions for reducing these admission rates. To our knowledge, however, the perspective of health-care professionals has not been used for detailed qualitative analysis of the process preceding compulsory admissions.

Objective

In this study we therefore aimed to identify crucial factors in the health-care process preceding compulsory admissions of adult psychiatric patients. By "health-care process" we understand the whole process of service provision, including factors regarding patients and their relatives, health-care professionals, and the context of the local mental health care.

Methods

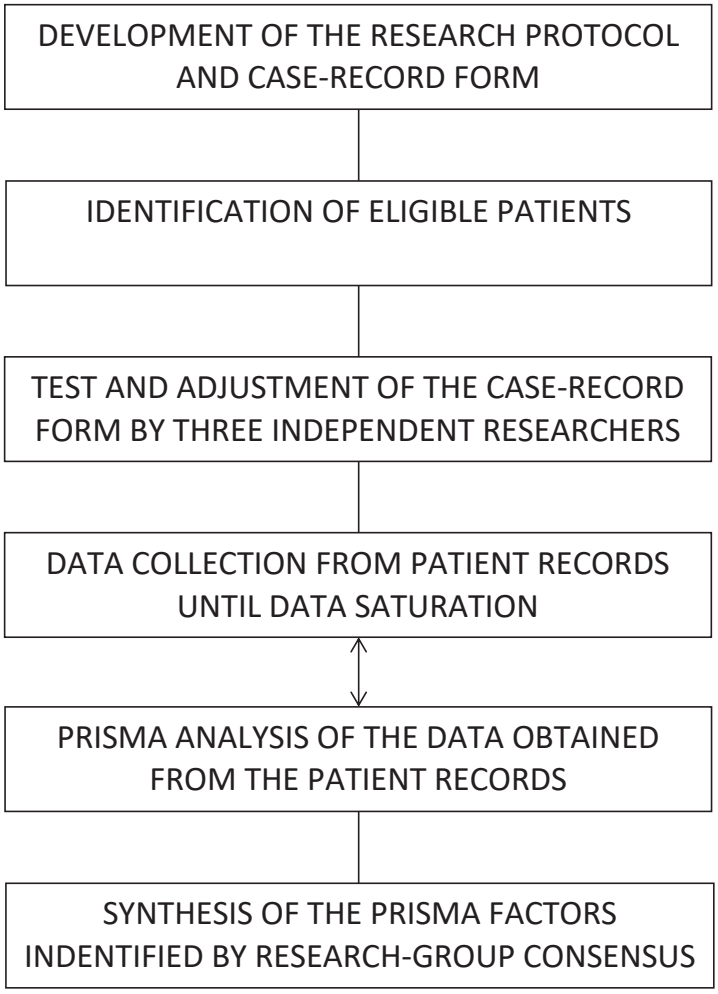
Qualitative approach

We based this retrospective multiple case study on detailed and structured analysis of patient records, assuming that this would increase our general understanding of the mental health-care process that precedes compulsory admission. This method reflects an interpretivist paradigm. We summarized all main steps in the research process in a flow chart (Figure 1, p. 61).

Researcher characteristics

The following researchers were involved in the patient record analysis: a psychologist (MO), a psychiatry resident (PB), and two psychiatrists (EK, MJ). All had relevant clinical experience. To prevent biased analysis of the processes in question, no researchers studied the records of patients they themselves had treated.

Figure 1: Flow chart of the qualitative research process



Context

The records studied were those of patients treated by the Flexible Assertive Community Treatment (FACT) teams[18] at Yulius and Bavo Europoort, two mental health institutions in the greater Rotterdam area, which cover various urban and outlying areas. The FACT teams provide assertive community treatment for unstable and care-avoiding patients; and coordinated, multidisciplinary treatment and recovery-oriented care for stable long-term patients. The mean number of patients per team is 200. They are treated for severe mental illness, mainly schizophrenia and other psychotic disorders. As patients with severe mental illness have the highest risk of being admitted compulsorily, they are logically the most important target group for interventions intended to reduce compulsory admission rates. The teams consist of doctors, nurses, social workers, psychologists, and peer workers. All team members generate entries in the electronic patient records, which consist of reports on regular home visits and appointments at the office, crisis reports, notes of multidisciplinary meetings, psychiatric, psychological and physical assessments, treatment plans, treatment plan evaluations, crisis plans, medication prescriptions, judicial procedures, and correspondence. Basically, all activities with or regarding the patient are recorded in the patient record. Since the information and reports in the patient records are usually generated by the health-care professionals, the records reflect the professionals' views and interpretations of the patient's current situation.

Sampling strategy

All FACT patients who had been compulsorily admitted to one of these institutions during the reference period were eligible. Using the lists of consecutive admissions derived from the institutions' databases, we started with the latest compulsory admission (reference date 1 September 2014), and then tracked them in reverse order. Most compulsory admissions included in this study occurred within the 6 months prior to the reference date. Data collection was stopped after 22 patient records had been studied, as no more new information emerged from the records: in other words, data saturation had been reached.[19] Patient demographic and clinical characteristics are summarized in Table 1 (p. 63 and 64).

Table 1: Baseline demographics and clinical characteristics of all included patients (N=22)

BASELINE DEMOGRAPHICS	Mean / N	Range / %
Age	39.7	21-59
Sex		
Female	11	50
Male	11	50
Employment		
Yes	0	0
Marital status		
Living alone	14	64
Married	3	14
Divorced	1	4
Living with parent(s)	4	18
CLINICAL CHARACTERISTICS		
DSM-IV Axis I		
Schizophrenia	12	55
Psychotic disorder NAO	6	27
Schizoaffective disorder	2	9
Delusional disorder	1	4
Bipolar disorder	1	4
Duration of treatment in mental health care (years)	8.4	0-24
Previous compulsory admission	15	68

Table 1 (continued)

	Mean / N	Range / %
Compulsory admission procedure		
Emergency admission	17	77
Court-ordered admission	5	23
Most important danger		
To self	11	50
To others / environment	11	50
GAF[a] at admission	32.7	25-45
Crisis plan present	3	14
Medication total	20	91
Antipsychotics (all)	19	86
Antipsychotics (depot)	2	9
Antidepressants	4	18
Mood stabilizers	1	4
Benzodiazepines	12	55
Other	8	36
Substance abuse total	12	55
Alcohol	6	27
Cannabis	8	36
Cocaine	3	14
Amphetamines	1	4

a. GAF = Global Assessment of Functioning

Ethical issues and data processing

Under The Netherlands' Agreement on Medical Treatment Act (Dutch abbreviation WGBO), patient record research does not require patients' informed consent if individual patients cannot be identified on the basis of the data. Our study was approved by an accredited Medical Research Ethics Committee (MREC), which classified it as outside the scope of The Netherlands' Medical Research Involving Human Subjects Act (Dutch abbreviation WMO), and which confirmed that no informed consent was required. As required under the applicable Dutch laws, all researchers involved were bound to strict confidentiality.

According to our protocol, the patient record numbers were irreducibly coded to a research number by a research assistant at the Research Bureau (Yulius) who was not involved in the research itself and had no access to patient records. The coding list was stored at the Research Bureau and was inaccessible to all researchers involved. All data derived from patient records were carefully anonymized and saved according to the research numbers.

Data collection methods

The data were collected on the basis of a detailed case-record form. Three researchers (EK, MJ, MO) used two patient records to test its first version for feasibility and agreement on its interpretation. Next, in a consensus meeting, they used these initial findings to adjust the case-record form, whose definitive version was used for analysis of all further patient records. Each of these researchers analysed different patient records, collecting socio-demographic and clinical data such as age, sex, employment and marital status, and also data on duration of treatment in mental health care, former compulsory admissions, diagnosis, medication, and substance abuse.

The Netherlands' Exceptional Admissions to Psychiatric Hospitals Act (Dutch abbreviation BOPZ) has two main procedures for compulsory admission: emergency admission sanctioned by the mayor of the town in question and court-ordered admission. We therefore noted the type of compulsory admission.

The key step in the data collection process was as follows: starting six months prior to the admission date, we scrutinized all the reports in the patient records made by all the healthcare professionals involved, noting all information seen as relevant to compulsory admission: patients' behaviour (e.g. symptoms and medication use), the activities of the

health-care professionals in the FACT teams, all relevant events and occasions, and other potential contributory factors.

Data analysis

All data retrieved in the initial process were then analysed according to the Prevention and Recovery System for Monitoring and Analysis (PRISMA) method, a method for critical incident analysis.[20] Such analysis starts with the "incident", which in our study was compulsory admission. The core characteristic of the PRISMA method is to identify causes and factors underlying the incident. There are four distinctive types of factors: acts or events (red), conditions and circumstances (orange), failing protective barriers, i.e. factors that should provide some kind of protection, whereas in a given situation they did not (blue), and finally recovery or protective factors, i.e. factors that slowed the process preceding the incident (green). Each cause or factor may have another underlying cause or factor. In this way, a "tree of causes" was drawn for each of the included patients.

Techniques to enhance reliability

As stated above, the case-record form was finalized after a consensus meeting between three researchers. The rough material obtained from all included patient records was independently assessed and summarized in the PRISMA tree of causes by two researchers (MJ, PB). Factors independently identified by these two researchers in the same case were deemed to be crucial to the health-care process that preceded that patient's compulsory admission. By consensus, the supervising research group decided on data saturation and synthesized the commonest patterns and characteristics of the PRISMA factors we identified on the basis of all trees of causes.

Results

Crucial factors identified by critical incident analysis

In accordance with the PRISMA method, all the factors identified - independently by both researchers involved - in the health-care processes preceding the compulsory admissions (N=22) were allocated to four categories. First, we identified acts and events. Aggression and unauthorized reduction or cessation of medication were relevant in most patients.

Some patients showed self-neglect leading to serious medical conditions such as severe weight loss or infections. Further important factors were transfers to other health-care teams and life events such as the death of a close family member.

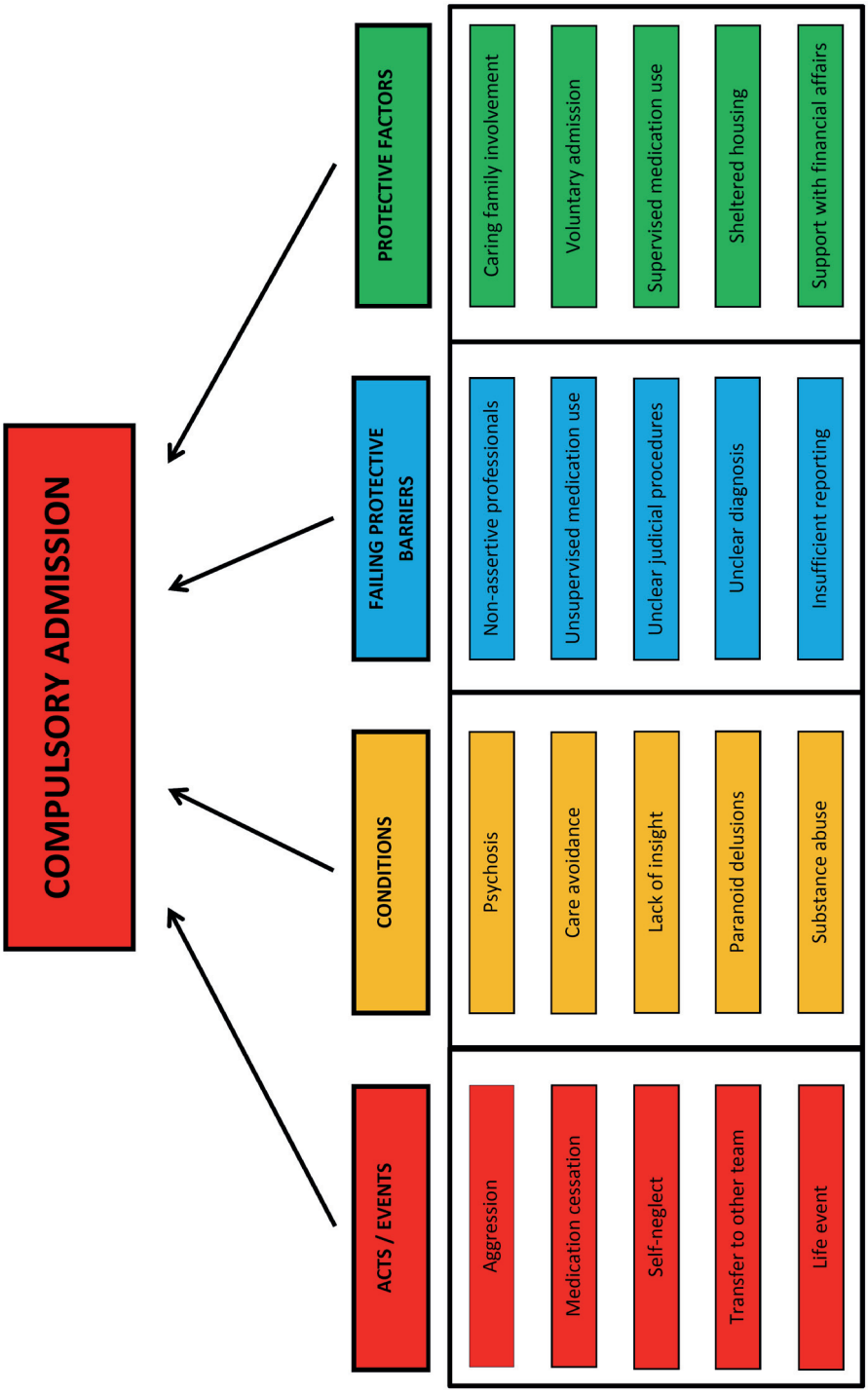
Second, we identified the patients' conditions. Psychosis and care avoidance of mental health care characterized nearly all the patients, and was often accompanied by lack of insight into the psychiatric condition. Other relevant conditions in this category were paranoid thinking or delusions, substance abuse, medication side-effects, manic symptoms, suicidality, family history of psychiatric disorders, imperative hallucinations, polypharmacy, and intellectual disability.

Third, the failing protective barriers were as follows: health-care professionals did not respond assertively enough to signs or poor service engagement on the part of the patient, and did not supervise medication administration sufficiently. For example, in the event of missed appointments and other signs of care avoidance, professionals made phone calls rather than home visits. If a patient did not answer a phone call immediately, the professional tended to wait a day or more rather than travelling to the patient's home and knocking on the door. Similarly, rather than proactively seeking contact, they merely responded to signals from involved family members. Other relevant factors in this category were slow or unclear judicial procedures, unclear diagnosis, insufficient reporting by health-care professionals in the patients' records, and a limited social-support system.

Fourth, we identified protective factors that were used to reduce the risk of compulsory admission: the involvement of family members, inviting them to participate in the treatment process, voluntary admissions as a preventive strategy, strict supervision of medication administration by nurses and / or family members, sheltered housing, support with financial affairs and debt prevention, and increasing the frequency and duration of mental health-care contacts.

These crucial factors of the four PRISMA categories are summarized in Figure 2 (p.68). We also present an anonymized example of a tree of causes according to the PRISMA factors identified in the data (see Supplement, p. 73). This should be read by starting at the top and asking "Why?" on each arrow pointing downwards towards the next factor.

Figure 2: Crucial factors in four PRISMA categories



Additional findings

To identify patterns in subgroups, we divided patients on the basis of several characteristics. The distribution of PRISMA factors showed no differences with regard to the following patients: those with substance abuse versus those without, those with an emergency compulsory admission versus those with a court-ordered compulsory admission, those with a previous compulsory admission versus those without, those living alone versus those not living alone, those with a crisis plan and those without, and those using oral antipsychotics versus depot antipsychotics. Under the Dutch judicial system, compulsory admission is permissible only in people whose psychiatric condition endangers themselves or others. On the basis of eight predefined dangerousness criteria, psychiatrists examining patients at compulsory admission must therefore indicate applicable danger criteria on a default form, also indicating which is the most important. We found that patients who represented the greatest danger to others were more likely to show paranoid thinking (N=6) and substance abuse (N=4) than those who represented the greatest danger to themselves (N=2 and N=2, respectively). However, they were less likely to lack sufficient supervision of medication administration (N=1 vs. N=6).

Anonymized case example

Patient A, a 47-year old female diagnosed with paranoid schizophrenia, became psychotic after unauthorized cessation of her antipsychotics. She became increasingly avoidant towards health-care professionals. They tried to contact her by phone for several days. Then, they tried to visit her at home. However, she had gone missing, and seemed to be travelling around aimlessly by train. When she was finally examined by the psychiatric crisis service, she was paranoid, psychotic, and aggressive. A request to the mayor for emergency compulsory admission was granted.

Discussion

Summary of the findings

We found a common pattern of events preceding a compulsory admission. These include patients being psychotic and verbally or physically aggressive, stopping taking medication due to lack of insight, and avoiding contact with mental health-care professionals. These

professionals might conceivably have been more alert and assertive with regard to the signs shown by these patients, and by patients' tendency to avoid care. They could also have been more alert to patients' family members.

Limitations

A disadvantage of our approach to analysing the patient records is that it lacked the patients' own perspective, which is not generally reported. It also omitted the perspective of caring family members. But the advantage of our approach is that it avoided selection bias – which, if we had chosen to interview patients, would probably have been present, as we would have been dependent on patients' consent to participate in the study. Another limitation is that the health-care professionals' perspective was studied in a specific context, i.e. the Dutch FACT context. Due to differences in cultural and practice norms, this perspective and how professionals report their observations and interpretations might be different in another context. We also focused primarily on finding the crucial factors preceding the compulsory admissions; the origins of these factors were not our scope. Establishing these origins may be the objective of another study. If so, it would require interviews with professionals and patients immediately after the admission.

As we analysed only compulsory admissions, leaving out voluntary admissions, we do not know whether the crucial factors identified in this study are unique to compulsory admissions, or whether some or all of them are also crucial to voluntary admissions. Yet, as we argued above in the background paragraph, we focused on compulsory admissions, because compulsory admissions have a strong effect on psychiatric patients and their relatives, because they are contrary to human rights and to the principles of shared decision-making and recovery-focused care, and because the overall numbers of compulsory admissions are rising. Some of these arguments might also be applicable to voluntary admissions, but clearly to a smaller extent.

One remarkable finding was that few patients were or on long-acting injectable antipsychotics or were assertively offered them. It could be argued that while a professional might not immediately detect a patient's unreported cessation of oral medication, none would fail to detect a patient's cessation of depot medication. In addition, there were few reports that other support agencies or primary care were involved. In principle, they could

have played a role in supporting patients and protecting them against compulsory admission.

A final consideration is that a PRISMA factor was not included in the final synthesis unless it had been independently identified by both researchers in the individual PRISMA analyses. This meant that not all the PRISMA factors that were present were actually included in the final synthesis. However, because we were looking for crucial factors on the basis of a qualitative analytical method, our approach has the advantage of showing most relevant factors rather than all factors.

Clinical implications

To our knowledge, this is the first study to provide qualitative data on the mental health-care process preceding compulsory admission. Unlike the factors regarding the health-care professionals, the factors regarding patient-related risk factors for compulsory admission were very much what one might expect. The question is thus why health-care professionals, who supposedly know well which risk factors are important for compulsory admissions, do not always act assertively enough on signs of relapse and care avoidance. Although the "A" in the abbreviation "FACT" stands for "assertive," it seemed difficult for the teams that participated in this study actually to be assertive, at least with the patients included in this study. Professionals in the FACT teams have to divide their time between a smaller number of unstable patients who are difficult to engage ("true" ACT)[21] and a larger number of relatively stable patients with severe mental illness who need lower-intensity, recovery-oriented care. In the former group of patients, professionals must be highly prepared to take an assertive position and to take over responsibility. In the latter group of patients, who are in the process of personal recovery and developing their own responsibility, this would be counter-therapeutic. The disadvantage of this flexible model may be that it is more difficult to be truly assertive when necessary. Additionally, most professionals in these FACT teams are working part-time, leading to differences in staffing during the week. Especially on Fridays, relatively few professionals share the work of the whole team. While the most urgent problems are taken care of, less urgent matters have to wait until the following week.

This may represent a more widespread problem: mental health-care professionals elsewhere may also find it difficult to apply assertive interventions creatively to patients

with severe mental illness who show signs of relapse and care avoidance. But due to our focus on patients with a compulsory admission, we do not know whether the professionals were assertive towards other patients with similar characteristics, and may thus have prevented compulsory admissions.

It may be that psychiatric patients' early signs of deterioration are not specific enough, and are masked too easily by the "noise" of daily practice. As a metaphor, these patient signals can be compared to yellow traffic lights at dangerous crossroads. Health-care workers' sensitivity and patients' sense of mastery may both be improved by the use of advance statements such as crisis plans, which focus on early signs and base preventive interventions upon them. This in turn might lead to timely recognition of these yellow traffic lights - and also to appropriate interventions.[22]

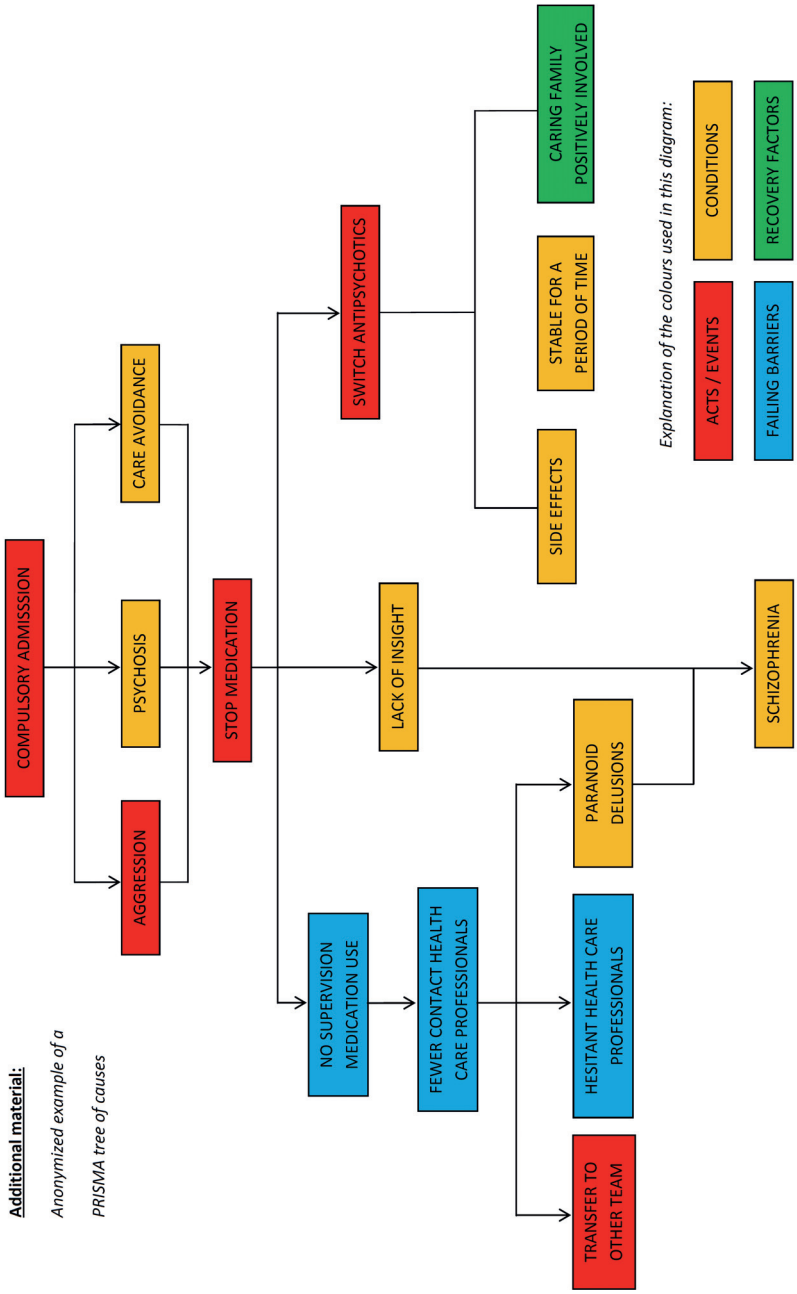
Conclusion

The health-care process preceding compulsory admission is complex, influenced as it is by acts, events, conditions and circumstances, failing barriers, and protective factors. Crucial patient factors in our study included psychosis, aggression, lack of insight, unauthorized reduction or cessation of medication, and care avoidance. Neither are health-care professionals as assertive as they could be in managing early signs of relapse and care avoidance.

Supplement

Additional material:

Anonymized example of a PRISMA tree of causes



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CHAPTER 4

An intensive multimodal group programme for patients with psychotic disorders at risk of rehospitalization: a controlled intervention study

Mark H. de Jong
André I. Wierdsma
Arthur R. Van Gool
Cornelis L. Mulder

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Abstract

Background: On the basis of earlier experiences in Germany and England, we developed an intensive multimodal group programme (FACT Plus) for psychotic-spectrum patients. By combining it with regular Flexible Assertive Community Treatment (FACT) (care as usual), we intended to reduce psychiatric rehospitalizations and mental healthcare costs.

Methods: We included adult patients (>18 years) with a psychotic spectrum disorder who had had at least one psychiatric admission in the 2 years before inclusion. FACT Plus was delivered weekly for 9 months. The intervention group was recruited in northern Rotterdam (The Netherlands), and the control group was recruited in southern Rotterdam. The primary outcome measure was length of stay (LOS) and the secondary outcome measures were mental healthcare costs and compulsory admissions.

Results: We included 52 patients in the intervention group and 61 patients in the control group. During the 12-month observation period, the mean LOS per patient was 15.2 (intervention group) and 34.6 (control group). This represents a difference of 19.4 days (56.1%). This result was statistically significant (B = −.859, SE = .497, p = .042) in a regression model correcting for baseline differences between the groups. Mean total mental healthcare costs per patient were €21,098 in the intervention group) versus €25,054 in the control group, a difference of about €4,000 per patient (16%). In addition, there were zero compulsory admissions in the intervention group and nine in the control group.

Conclusions: After the addition of FACT Plus to regular FACT, psychiatric LOS was substantially lower in the intervention group than in the control group. This result was accompanied by a limited reduction in mental healthcare costs.

Background

The success of community-based treatment as a means of preventing the admission of patients with severe mental illness[1,2] remains disappointing. The shortcomings of this approach are demonstrated by the number of patients with a history of frequent voluntary or involuntary psychiatric hospitalization.[3-5] Although assertive community treatment (ACT)[6] has been found to have some positive effect for patients with severe mental illness with regard to hospitalization, social outcome, and retention in care, these effects are slight and the quality of evidence is moderate at best.[7]

Early this century, a variant of ACT called Flexible Assertive Community Treatment (FACT) was developed in The Netherlands. While FACT provides routine community mental health services when possible, it offers intensive ACT when necessary.[8,9] But whatever the exact treatment programme, a group of patients with severe mental illness remains, many of whom are frequently admitted to psychiatric hospital.[3,5] To reduce readmissions in this subgroup of severe mental illness patients, we therefore sought an intervention that could be implemented in addition to FACT.

In Germany, positive results were shown by an intervention known as the Munich Psychosis Information Project,[10] which used an intensive multimodal group programme. Its interventions included psycho-education focusing on the importance of antipsychotic drug adherence and family treatment. Rehospitalizations during 12-month follow-up were approximately 50% lower in the intervention group than in the control group. Completer analysis showed this result to be significant, whereas the result of intention-to-treat-analysis did not reach significance. This important difference between completer analysis and intention-to-treat-analysis may be due to biases, e.g. selective drop out, so this result should be interpreted with caution. A post hoc study with a seven year follow-up found that, overall, hospitalization rates, adherence, and course of illness were still better in the intervention group than in the control group.[11]

This German programme was also adopted and implemented in England as the Maintaining Adherence Programme, where, in a pre-post design, it significantly reduced in-patient bed days by 42% in the intention-to-treat analysis and by 51% reduction in the completer analysis.[12] The same study also showed a significant cost reduction and very high patient and staff satisfaction. However, neither of these two studies provided definitive answers.

Methods

Aim

Unaware of any other group-format interventions associated with reduced admissions in patients with severe mental illness at risk of rehospitalization, we aimed to replicate the German and English findings and decided to develop a Dutch adaptation of these programmes, which we implemented in Dutch FACT teams. We hypothesized that combining this intensive multimodal group programme with regular FACT in a group of patients at risk of rehospitalization would reduce voluntary and involuntary hospitalizations, and also overall mental healthcare costs, more than FACT as usual.

Intervention

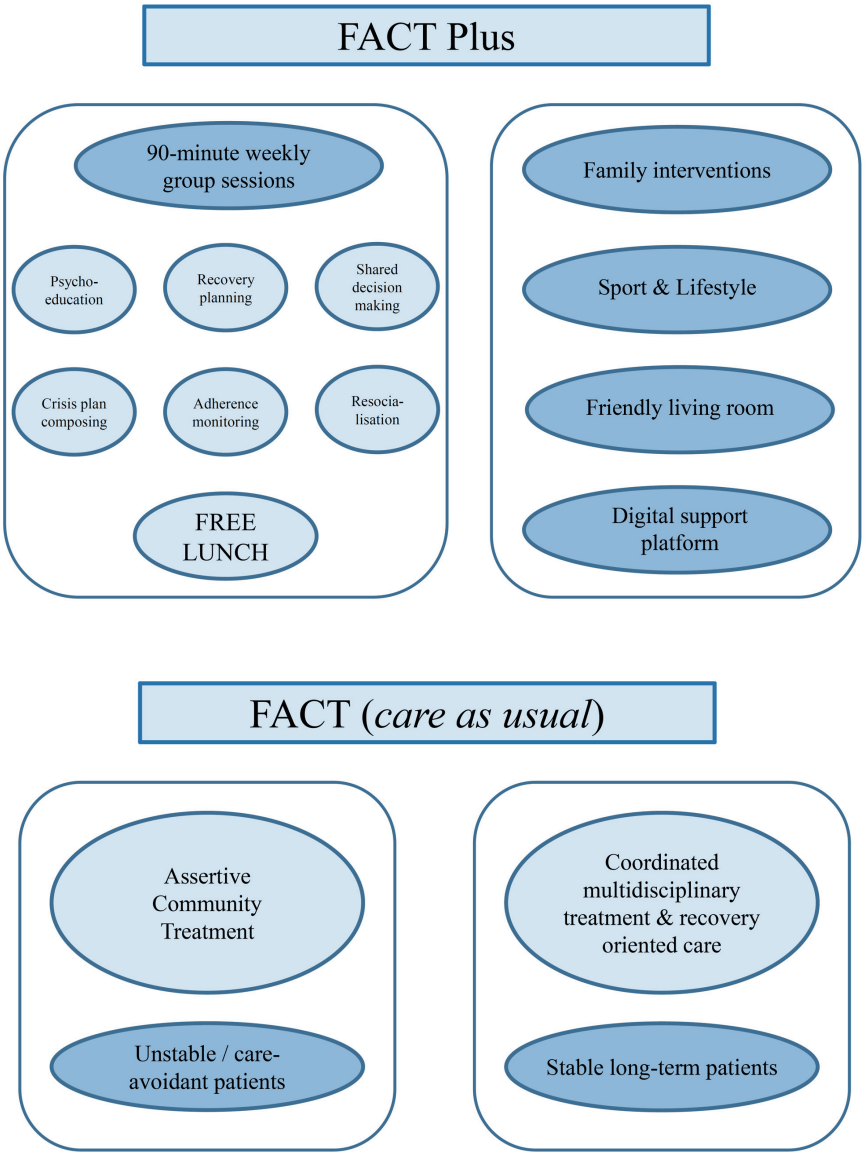
Our intensive multimodal group programme, which we called FACT Plus, added several interventions and activities to FACT. It consisted of weekly 90-min group sessions for as much as 9 months, plus two-weekly follow-up sessions for the next 3 months. The programme involved psychoeducation, recovery planning, shared decision making, composing a crisis plan, drug-therapy adherence monitoring, resocialization activities, family interventions, and sport and lifestyle interventions. To monitor the status and to promote the progress of the programme, we used a digital support platform that sent automatic text messages to remind participants of the sessions and also supported the process for the participants, their family members, and the professionals.

FACT Plus was carried out in a friendly living-room like atmosphere that was designed to denote accessibility and hospitality. Importantly, a free lunch was offered after every morning session and before every afternoon session. Participants and professionals did the shopping for lunch together, and also prepared the food. In this way, lunch was itself an intervention, as it was intended to support resocialization and to educate the participants about healthy food and costconscious shopping. Along with the programme, regular FACT care as usual was continued (see also Figure 1, p. 81).

Care as usual

Care as usual consisted of FACT teams providing assertive community treatment for unstable and care-avoiding patients, and coordinated, multidisciplinary treatment and

Figure 1: Core points of FACT Plus and FACT



recovery-oriented care for stable long-term patients.[8,9] Per team, the mean number of patients is 200, all of whom are treated for severe mental illness, mainly schizophrenia and other psychotic disorders. To promote comparable quality of care in all FACT teams, teams are regularly audited on the basis of well-described standards and criteria.

Design

This pilot study had a quasi-experimental controlled study design. Participants received the FACT Plus programme in combination with FACT. The control patients received regular FACT only (i.e. care as usual). On the basis of the intention-to-treat principle, all patients who entered the study were included in the outcome analyses, including those who dropped out of the intervention early. According to this design, we conducted a prospective intervention study with an intervention group and a control group. The observation period for both groups was 12 months. While the observation period for the participants started at inclusion, a fixed observation period was chosen for the controls after all eligible patients had been identified (1 April 2016 – 31 March 2017).

Outcome measures

The primary outcome measure was psychiatric hospitalization, which was expressed as the length of stay (LOS) in days. Secondary outcome measures were the number of hospitalizations, the mental healthcare costs, and the number of compulsory admissions. Mental healthcare costs consisted of actual costs for outpatient care, including the expended staff time for the group sessions in the intervention group, inpatient care, and additional costs for the programme, such as lunches and materials in the intervention group. Basic demographic, clinical and outcome data was collected for both groups.

Setting

Participants and controls were recruited from the FACT teams at the Parnassia Psychiatric Institute, a mental health organization in The Netherlands' greater Rotterdam area. FACT Plus was delivered to patients living in northern Rotterdam, whereas patients in the control group were selected in southern Rotterdam. While the organization, procedures, staff, and patients of the FACT teams in both parts of the city were very comparable, they were clearly

separated geographically by the river Maas. Professionals involved in the intervention programme did not work in the control-group teams and vice versa.

One psychiatric hospital on either side of the river Maas was available for all patients included in the study. While patients in the intervention group were admitted to the hospital in northern Rotterdam, some patients in the control group were allocated to the northern hospital and some to the southern hospital. The two hospitals used identical admission and discharge criteria, which were documented in a service-delivery agreement covering all psychiatric hospitals within the region. The annual mean length of stay in the research period was comparable between the two hospitals.

Participants

Adult patients (> 18 years) in the regular treatment of a FACT team were eligible for the study if they had been admitted to a psychiatric hospital at least once in the two years before inclusion. This admission criterion was applied in order to select patients at the highest risk of rehospitalization and those who accounted for the highest mental healthcare costs. We included only patients with a diagnosis, according to the DSM-IV,[13] in the psychotic spectrum (schizophrenia, schizoaffective disorder, psychotic disorder not otherwise specified (NOS), and delusional disorder). Patients with severe learning disabilities, severe conduct disorders, and severe language barriers were excluded. We included 52 patients in the intervention group and 61 patients in the control group.

Table 1 (p. 84) summarizes the baseline characteristics of the two groups. While, overall, participants and controls had identical characteristics, more participants in the intervention group had schizophrenia (71.2% versus 50.8%, respectively), whereas more participants in the control group had psychotic disorder NOS (34.4% versus 17.3%). And while more patients in the intervention group used depot medication, a slightly higher number of patients in the control group used no antipsychotic medication.

Table 1: Demographic and clinical characteristics of participants and controls

Variable	Participants N (%)	Controls N (%)
N	52	61
Age (mean, yrs)	37.5	42.7
Male gender	33 (63.5)	40 (65.6)
Classification (DSM-IV)		
Schizophrenia	37 (71.2)	31 (50.8)
Schizoaffective disorder	6 (11.5)	8 (13.1)
Psychotic disorder NOS	9 (17.3)	21 (34.4)
Delusional disorder	0 (0.0)	1 (1.6)
Antipsychotics		
No	1 (1.9)	8 (13.1)
Oral	30 (57.7)	34 (55.7)
Clozapine	7 (13.5)	11 (18.0)
Depot	21 (40.4)	19 (31.1)
Diagnosis of addiction (except nicotine)	30 (57.7)	30 (49.2)

Ethical issues and data processing

Our study was approved by the Medical Ethics Committee at Leiden University Medical Centre. All participants in the intervention group signed the informed consent form prior to inclusion. However, as the control patients were not subjected to any assessment or study intervention, the medical ethics committee waived their obligation of informed consent. All patient-related data concerning participants and control group were also carefully anonymized, each patient's data coded with a research number. The hospitalization data and mental healthcare costs of each group were collected from the electronic patient registration system of the Parnassia Psychiatric Institute. Information on whether participants or controls had been hospitalized in other mental health inpatient care facilities was gathered by the first author (MJ), who scrutinized all patient files.

Statistical analysis

Descriptive statistics were used to explore the demographic and clinical differences between the intervention and control groups. In view of the hypothesis that the intervention would lead to reduced LOS, statistical tests were one-sided, with the statistical significance level set at 5%. Due to the small sample size, correction for multiple testing was waived. To evaluate the treatment effect, generalized linear models were constructed in which we corrected for possible baseline differences between the groups. To investigate the difference in LOS, we used the negative binomial distribution with loglink, which concerns count data with a high number of zeroes. The gamma distribution was then applied to evaluate differences in right-skewed, positive and continuous data on mental healthcare costs. All statistical analyses were conducted using SPSS software (IBM SPSS version 24.0).

Results

Primary outcome

During the 12-month observation period in the intervention group, the mean LOS was 15.2 days per patient versus 34.6 days in the control group – a difference of 19.4 days (56.1%) in LOS between the two groups. After correction for potential differences between the groups in terms of age, gender, diagnosis, antipsychotics and drug abuse, the final model showed a statistically significant difference in LOS (B = -.859, SE = .497, p = .042). Table 2 (below) summarizes the outcomes and sensitivity analyses.

Table 2: Hospitalization days and total mental healthcare costs (summary of outcomes and sensitivity analyses)

Outcome	Intervention group	Control group	Group parameter
Hospitalization days (Mean and SD)	15.2 (32.2)	34.6 (76.4)	
- Adjusted (estimated mean and SE)*	14.7 (5.4)	34.6 (11.7)	-.859 (p=.042)
- Excluding baseline hospitalized patients	14.7 (5.4)	25.5 (8.5)	-.554 (p=.13)
- Excluding outlier	13.6 (4.8)	25.1 (8.7)	-.614 (p=.10)
Total mental healthcare costs € (Mean and SD)	21,098 (18,659)	25,054 (39,196)	
- Adjusted (estimated mean and SE)*	21,501 (3,262)	26,152 (3,820)	-.196 (p=.172)
- Excluding baseline hospitalized patients	22,895 (3,317)	18,070 (2,675)	.237 (p=.125)
- Excluding outlier	20,249 (2,890)	20,778 (2,989)	-.026 (p=.448)

* Model includes casemix factors (medication formulation, psychosis, drug abuse, gender and age grand mean centered); Wald-test, one-sided P-values

Secondary outcomes

The number of hospitalizations did not differ between the two groups (39 in the intervention group versus 38 in the control group). During 12-month follow-up, the mean total mental healthcare costs per patient were €21,098 in the intervention group (including the costs of FACT Plus) versus €25,054 in the control group, a difference of about €4,000 per patient (16%). In a regression analysis this difference in costs was not statistically significant (B = -.196, SE = .207, p = .172). In the model we used identical corrections for potential differences between the intervention and control groups, as we did for the primary outcome. The additional costs for the FACT Plus programme for lunches and materials added €135 on average to the total per patient, which is a very small proportion of the mean total costs of €21,098 per patient in the intervention group.

During follow-up, there were no compulsory admissions in the intervention group versus nine in the control group. These numbers were too small for further statistical analysis.

Sensitivity analyses

Despite fulfilling all the inclusion criteria, five patients in the control group turned out on the first day of the chosen observation to have been hospitalized. During the follow-up period, another patient in the control group was hospitalized for more than 300 days (outlier). After exclusion of the patients who were in hospital at the start of the observation period, sensitivity analyses regarding the number of hospitalization days showed that the difference in LOS between the two groups was somewhat smaller (B = −.554, SE = .492, p = .13). Otherwise, when we excluded the outlier, again the difference in LOS (B = −.614, SE = .489, p = .10) changed only slightly.

With regard to costs, the exclusion of the patients hospitalized at baseline, the model showed a difference in costs in favour of the control group (B = .237, SE = .206, p = .125). Otherwise, when we excluded the outlier, there was a small difference in costs in favour of the intervention group (B = -.026, SE = .197, p = .448).

Discussion

Main results

Our results showed that mean length of stay (LOS) 56.1% lower for patients who had participated in the FACT Plus intensive multimodal group programme than it was for patients in the control group. After the 12-month observation period, we observed a limited saving of about €4,000 per patient with regard to the total mental healthcare costs in the intervention group compared to the control group. The outcomes may be the product of various factors within an assertive and integrated approach, especially a welcoming environment, psychoeducation, the promotion of adherence, the involvement of families, and the strong fellow-feeling between the patients themselves.

As the number of admissions did not differ significantly between the two groups, we might state that while similar numbers of patients from the two groups were hospitalized during the observation period, the LOS in the intervention group was considerably shorter. A possible explanation is that patients in the intervention group were in more frequent touch with their healthcare workers and could more quickly be discharged back to the FACT Plus programme. Once back in FACT Plus, they could then be monitored more closely. It is also possible that this closer contact resulted in fewer – zero versus nine – compulsory admissions, a subcategory of admissions which indicates high illness severity and low treatment adherence.[14,15]

Comparison of our study with the studies in Germany and England[10,12] reveals similarities and differences regarding the programmes themselves and their study designs. First, the content of each programme was very similar, focusing on psychoeducation on the psychiatric condition, and also on adherence and preventing rehospitalization. Second, while the English programme was provided to individual patients, our programme and the German programme were provided in groups. Third, while the German programme lasted for 4 to 5 months, the English one was extended to 18 months, and ours lasted for between nine and 12 months. The study designs also differed: while we chose a quasi-experimental non-randomized controlled study, the German study used block randomization to allocate patients to the intervention group or control group, and the English study used a pre-post design. Despite these differences, however, the three studies had comparable results.

Strengths and limitations

This study included patients who were difficult to engage in treatment and care, and who would probably have been even more difficult to include in research studies. It was designed with a minimum of exclusion criteria, and was carried out in the context of routine daily FACT. At the design stage we considered the advantages and disadvantages of randomization, and particularly wished to avoid selection bias, which would have arisen if any of the most seriously ill patients had not been included because they refused to sign the informed consent form. For this reason, we accepted the disadvantage of non-randomized allocation to the intervention group and control group. Despite this, the number of patients enrolled in this pilot study remained rather small and a larger sample size would be required for more definitive answers.

In the sensitivity analyses – which left out 1.) control patients who had were already been admitted at the start of the observation period and 2.) the control group patient had been in hospital for more than 300 days during the observation period – the outcomes with regard to LOS were only moderately attenuated, but did not change essentially. However, the outcomes with regard to costs were considerably attenuated in the sensitivity analyses.

The intervention consisted of a nine-month multimodal group programme with one weekly session. However, as with the preceding German and English studies, its design did not allow us to establish which elements of the intervention were responsible for the effects we observed. Overall, ours is the third study after its German and English forerunners to test this intensive multimodal group programme. With regard to the reduction in LOS – roughly 50% in all three studies – and in mental healthcare costs, its results are strikingly similar.

Conclusions

After this intensive multimodal group programme (FACT Plus), patients with psychotic disorders who risked rehospitalization spent 19.4 fewer days (56.1%) in psychiatric hospitalization than patients in care as usual (FACT). This promising result was accompanied by a limited reduction in mental healthcare costs. These findings indicate that FACT Plus, a Dutch adaptation of comparable programmes in Germany and England, may make meaningful improvements to FACT – and possibly to other community mental health teams – for patients with a psychotic disorder who risk rehospitalization. More generally, these

findings also indicate that combining an intensified treatment programme with regular mental healthcare in the community may be a valuable add-on for the most vulnerable psychiatric patients risking rehospitalization.

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CHAPTER 5

How dangerousness evolves after court-ordered compulsory psychiatric admission: explorative prospective observational cohort study

Mark H. de Jong
André I. Wierdsma
Antonius W.B. van Baars
Arthur R. Van Gool
Cornelis L. Mulder

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Abstract

Background: Compulsory admission is commonly regarded as necessary and justified for patients whose psychiatric condition represents a severe danger to themselves and others. However, while studies on compulsory admissions have reported on various clinical and social outcomes, little research has focused specifically on dangerousness, which in many countries is the core reason for compulsory admission.

Aims: To study changes in dangerousness over time in adult psychiatric patients admitted by compulsory court order, and to relate these changes to these patients' demographic and clinical characteristics.

Method: In this explorative prospective observational cohort study of adult psychiatric patients admitted by compulsory court order, demographic and clinical data were collected at baseline. At baseline and at 6- and 12-month follow-up, dangerousness was assessed using the Dangerousness Inventory, an instrument based on the eight types of dangerousness towards self or others specified in Dutch legislation on compulsory admissions. We used descriptive statistics and logistic regression to analyse the data.

Results: We included 174 participants with a court-ordered compulsory admission. At baseline, the most common dangerousness criterion was inability to cope in society. Any type of severe or very severe dangerousness decreased from 86.2% at baseline to 36.2% at 6 months and to 28.7% at 12 months. Being homeless at baseline was the only variable which was significantly associated with persistently high levels of dangerousness.

Conclusions: Dangerousness decreased in about two-thirds of the patients after court-ordered compulsory admission. It persisted, however, in a substantial minority (approximately one-third).

Background

Although compulsory admissions are commonly seen as necessary and justified for patients whose psychiatric condition is a severe danger to themselves and others, they also represent a serious breach of personal autonomy.[1] Judicial procedures and reported numbers of compulsory admissions differ considerably between countries:[2] although the core criterion for compulsory emergency admission in the USA and many European countries is mental illness resulting in danger to self or others, further criteria vary.[3,4] While certain countries apply two criteria – both need for treatment and dangerousness – three European states apply one criterion for compulsory admission: the need for treatment caused by a mental illness.[4]

Studies of compulsory admission and its follow-up after discharge have reported on the following: clinical and social outcomes and the motivation for treatment,[5,6] perceived coercion,[7,8] patients' views on whether the admission was right,[9] and family perspective.[10] However, there has been very little research on the core reason for compulsory admission, which is dangerousness to self and others. In a study published in 1988, the associations between clinically assessed criteria of dangerousness (danger to self, danger to others and grave disability) and diagnosis and psychopathology at admission were studied.[11] Dangerousness was associated with major mental disorder and with the severity of most symptom types. Danger to self had the fewest associations with indicators of mental disorders.[11] Despite studies in the field of forensic psychiatry, we found no studies in general psychiatry that investigated dangerousness in the context of court-ordered compulsory admission. To date, it is thus an open question in general psychiatry whether and to what extent compulsory admission contributes to reducing dangerousness to self and others. Neither is it known whether subgroups of patients can be identified whose levels of dangerousness to themselves and others are persistently high despite compulsory admission. Conceivably, dangerousness is greater and more persistent in patients whose symptoms are more severe at the start of compulsory admission, whose illness insight is poorer, and whose treatment engagement is poor.[12] Other factors – such as gender, age, symptom severity, diagnosis, substance misuse, illness insight and compliance with treatment – may also be relevant to predicting the level and persistence of dangerousness.

As care may be improved by identifying these subgroups of patients and then devoting extra attention to them, we wished to study the development of dangerousness to self and others over a 12-month period in adult psychiatric patients who had been admitted compulsorily to a general psychiatric hospital. We also wished to identify any associations between the development of dangerousness and these patients' baseline demographic and clinical characteristics.

Methods

Study design and setting

This 12 month explorative prospective observational cohort study involved adult psychiatric patients who had been admitted compulsorily to a psychiatric hospital in Rotterdam Rijnmond, an urban area in The Netherlands with 1.2 million inhabitants. Patients in The Netherlands can be compulsorily admitted if they have a mental disorder resulting in danger to self and others, if there is no alternative way of averting the danger, and if they do not actively consent to the admission. Under The Netherlands' Exceptional Admissions to Psychiatric Hospitals Act (Dutch abbreviation: BOPZ) there are two main procedures for compulsory psychiatric admission, one in which emergency compulsory admission is sanctioned by the local mayor, and one in which court-ordered admission is sanctioned by a judge. If a patient is acutely dangerous to himself or others, the emergency procedure is applied, which requires admission within 24 hours. The hospital stay of a patient under an emergency procedure can be extended by a court-ordered admission. A court-ordered admission can also be applied when a patient is not in need of acute admission but represents a danger to himself or others. Assessment by an independent psychiatrist is mandatory for both types of compulsory admission. After examining the patient, the independent psychiatrist completes a specific mental health act form, describing the diagnosis and the dangerousness criteria applicable, including the most important dangerousness criterion. After examination by an independent psychiatrist, a judge decides whether the court-ordered admission is justified.

This study focused on patients whose admission had been ordered by a court, whether or not they had had a previous emergency compulsory admission. Over a period of 18 months, patients were recruited from the psychiatric services in Rotterdam Rijnmond, which consist

of three general psychiatric hospitals, and the psychiatric department of a university medical centre. The follow-up period was 12 months. Assessments took place at baseline, after 6 months and after 12 months.

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving patients were approved by the medical ethics committee at Erasmus University Medical Centre with approval number MEC-2004077.

Participants

Adult patients (>18 years old) became eligible as soon as a clinician had requested a court-ordered admission. Written informed consent was obtained from all patients. To ensure that hospital stay durations at baseline were comparable, informed consent, study inclusion and baseline assessment were scheduled no more than 4 weeks after the clinician had started the procedure for a court-ordered admission. Exclusion criteria were organic psychiatric disease (e.g. Alzheimer's disease) and rejection by the court of the index request for compulsory admission.

Baseline assessment

After informed consent had been given, we collected the following information from the electronic patient files: demographic characteristics (age, ethnicity, marital status, education level, homelessness) and psychiatric history (previous voluntary and/or compulsory admissions). We also collected the most important dangerousness criterion stated by the independent psychiatrist. All participants were interviewed using the Composite International Diagnostic Interview[13] for the assessment of mental disorders according to the DSM-IV.[14] Psychiatric symptom severity was assessed using the Brief Psychiatric Rating Scale;[15] insight was assessed using the Birchwood self-report Insight Scale[16] and the Schedule of Assessment of Insight-Expanded version (staffrated);[17] and compliance and service engagement were assessed using the Service Engagement Scale.[18]

Dangerousness Inventory

As a tool to assess severity of dangerousness to self and others in general psychiatric patients, we developed a Dangerousness Inventory (DI). Danger to self was assessed on the basis of four items derived from the legal text in the Dutch BOPZ act: the risk that

- the individual will die by suicide or inflict severe self-harm;
- the individual will fail to cope in society;
- the individual will seriously neglect himself or herself;
- through his or her behaviour, the individual will elicit the aggression of others.

Danger to others was also assessed on the basis of four items derived from the legal text: the risk that

- the individual will commit murder or seriously harm others;
- the individual will be a burden on the mental health of others;
- the individual will neglect those for whose care he or she is responsible;
- the individual will endanger the overall safety of people and goods.

Each item was rated on a five-point scale ranging from no danger (score = 0) through slight danger (score = 1), moderate danger (score = 2) and, severe danger (score = 3), to very severe danger (score = 4). To explain the meaning of the different ratings and to train the assessors, we used concise descriptions of the respective scores per item as well as case vignettes.

The DI and the other instruments were rated by independent interviewers (medical and psychological students who had received training in scoring the instruments) on the basis not only of patient interviews and observation, but also of interviewing admission ward psychiatrists to obtain information on the type and severity of dangerousness. Interrater reliability of the DI was checked in a subsample of 45 patients. The kappa values of most items were in the 0.61 to 0.80 range, indicating substantial interrater agreement.

Statistical analysis

At baseline, descriptive statistics were used to describe patients' characteristics and the type and severity of dangerousness. As a cut-off score for dangerousness, we used severe to very severe danger (DI score ≥3). At baseline, 6 months and 12 months, we calculated the proportion of all participants with DI scores ≥3. This was done for all eight DI items combined, for the four DI items of danger to self combined, and for the four DI items of danger to others combined. This enabled us to describe the evolution of dangerousness in terms of the proportion of patients who were persistently dangerous. To indicate severity of danger, we also calculated the number of DI items ≥3 (indicating high or very high level of dangerousness) at baseline per individual participant.

Additionally, we identified a danger-to-self subgroup and danger-to-others subgroup. These were based on dangerousness at baseline and also on the most important type of danger indicated in the request for court-ordered admission by the independent consulting psychiatrist. All further analyses were performed for these subgroups separately. To calculate the associations between patients' baseline characteristics and change in dangerousness, we performed explorative logistic regression analysis. We chose the 6 months follow-up time point for the main logistic regression analysis, because the initial court ordered admission was sanctioned for a period of 6 months. We also performed additional analyses for the 12 months follow-up time point. Variable selection was based on a stepwise procedure suggested by Hosmer & Lemeshow, with P = 0.20 and 0.05 levels of entry and removal.[19] Model fit for the resulting model was assessed using the receiver-operating characteristics curve and Hosmer-Lemeshow chi-squared analysis. To evaluate differences in outcomes related to the choice of cut-off values, sensitivity analyses were performed. In this exploratory approach, no adjustments for multiple testing were made. The data were analysed using the SPSS 24.0 statistical package.

Results

Participants

We included 174 of the patients who had initially been eligible. The numbers and reasons for exclusion are shown in Figure 1 (below).

Figure 1: Flow-chart of the participant selection process

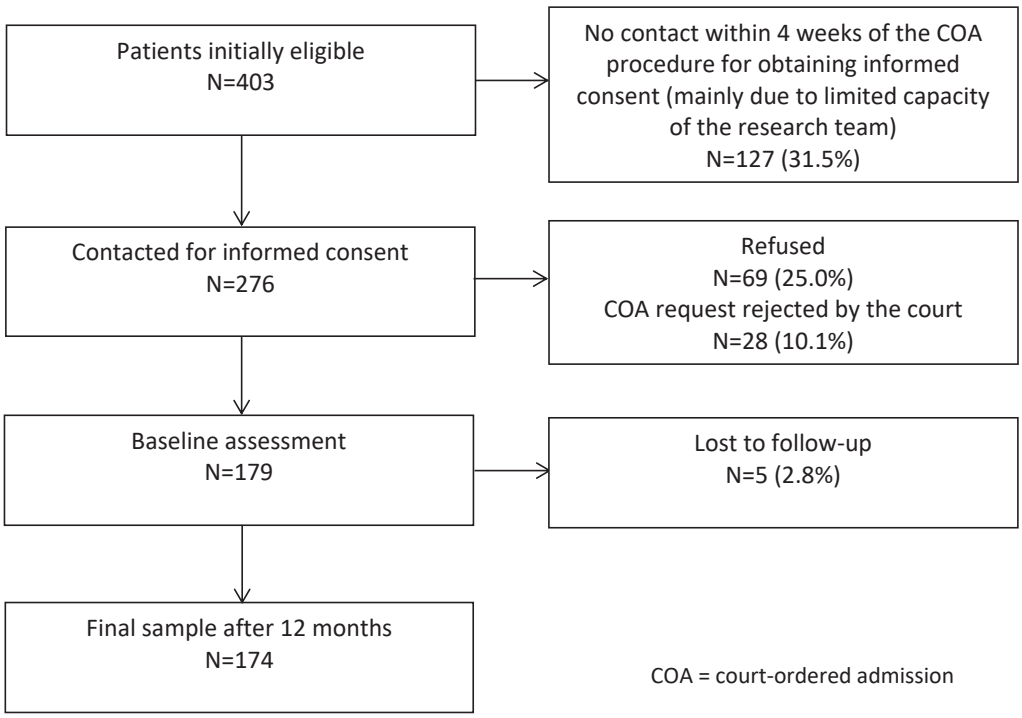


Table 1: Baseline characteristics of patients admitted by court order (N=174)

	N (%)	MEAN (SD)
Age (years)		35.1 (14.0)
Gender (male)	117 (67.2)	
Ethnicity		
Dutch	72 (41.4)	
Surinamese / Antillean	36 (20.7)	
Turkish / Moroccan	30 (17.2)	
Other	36 (20.7)	
Marital status		
Single	126 (72.4)	
Married	18 (10.3)	
Divorced / widowed	30 (17.2)	
Low educational level	88 (50.6)	
Homeless	22 (12.6)	
Diagnosis		
Schizophrenia	118 (67.8)	
Other psychotic disorder	19 (10.9)	
Affective disorder	33 (19.0)	
Co-morbid substance misuse (except	66 (37.9)	
Untreated psychosis > 1 year	31 (17.8)	
Previously admitted compulsorily	87 (50.0)	
BPRS[a]		58.0 (12.2)
BIS[b]		4.9 (3.8)
SAI-E[c]		12.0 (6.2)

a. BPRS = Brief Psychiatric Rating Scale
b. BIS = Birchwood Insight Scale
c. SAI-E = Schedule of Assessment of Insight - Expanded version

Baseline demographic and clinical characteristics are summarized in Table 1 (p. 101). There were high proportions of the following patients: single males, patients diagnosed with schizophrenia, those with an earlier compulsory admission, those with severe symptoms and those with limited illness insight. All are typical of patients admitted by court order.

Dangerousness at baseline

Table 2 (below) shows the numbers and proportions (%) of all participants with a score ≥3 per DI item at baseline. Inability to cope in society was by far the most common dangerousness criterion. The proportions of serious self-neglect, eliciting aggression from others, murder or serious harm to others, and being a burden on the mental health of others were all considerably lower, lying in the 20–30% range.

Table 2: Dangerousness criteria[a] at baseline (N and % of all participants)

CRITERION	**(VERY) SEVERE DANGER[b]**	
Danger to self	N	%
1. Suicide / severe self-harm	16	9.2
2. Inability to cope in society	99	56.9
3. Serious self-neglect	52	29.9
4. Eliciting the aggression by others	50	28.7
Danger to others	N	*%*
5. Murder or serious harm	45	25.9
6. Being a burden on the mental health of others	38	21.8
7. Neglecting dependent others	10	5.7
8. Endangering overall safety	24	13.8

a. Patients can be dangerous in more than one way at the same time
b. DI score ≥3

At baseline assessment, the number of DI items scored ≥3 per participant ranged from zero to six. The largest proportion of participants (73.5%) showed one to three DI items ≥3. It is notable that 13.8% of the participants scored no DI items ≥3, which means that, according to the DI, they showed neither severe nor very severe danger at baseline. This can be explained by the fact that the baseline assessment was carried out as soon as possible after the court-ordered admission. When the baseline assessment took place, participants had thus been in hospital for a short while.

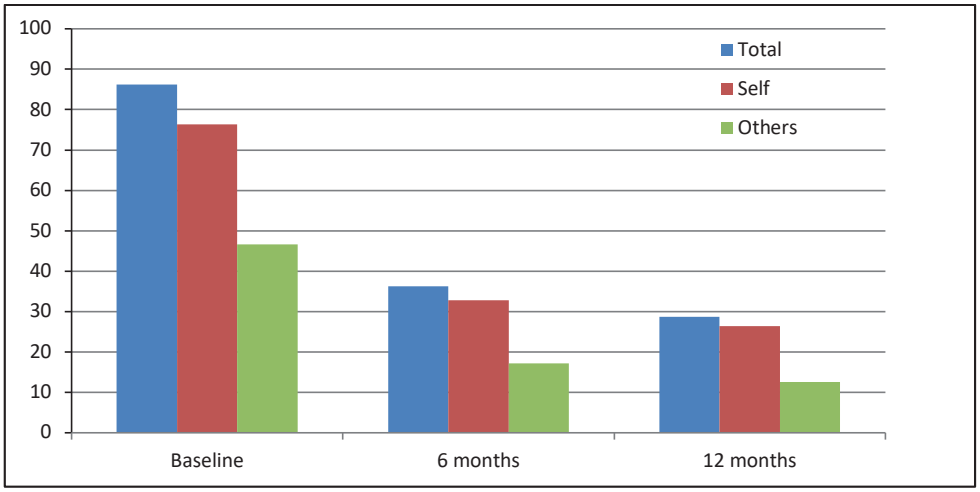
Evolution of dangerousness

At baseline, 86.2% of the participants showed dangerousness (defined as ≥1 DI item ≥3). Separate examinations of the scores for the DI items for danger to self and danger to others showed that the proportion of scores ≥3 for any item of danger to self was 76.4%, while the proportion of scores ≥3 for any item of danger to others was 46.6%. At 6 months follow-up, these proportions had fallen to 36.2% (all items), 32.8% (danger to self) and 17.2% (danger to others). At 12 months follow-up, the proportions were again slightly lower (Figure 2, p. 104). In other words, whereas dangerousness (≥1 DI item ≥3) disappeared from a majority of the participants within 6 months of admission, it persisted in a substantial minority (28.7%) even after 12 months. There was also a smaller minority of 19 participants (10.9%) in whom dangerousness was absent (no score ≥3 at all) at 6 months but in whom it recurred at 12 months.

Predictive factors associated with the evolution of dangerousness

In the danger-to-self subgroup, the persistence of danger to self (DI ≥ 3) at 6 months follow-up was associated with age, being homeless, previous compulsory admission, and high dangerousness at baseline (univariate predictors). Being homeless was the only predictor that showed significance in the multivariate analysis (B = 1.368, SE = 0.615, P = 0.026). In the danger-to-others subgroup, persistence of danger to others (DI ≥ 3) at 6 months follow-up was associated with ethnicity and being homeless (univariate predictors). In the multivariate analysis, however, ethnicity was not statistically significant, unlike being homeless (B = 2.466, SE = 1.272, P = 0.053).

Figure 2: Evolution of dangerousness (≥1 DI item ≥3), total, danger to self, and danger to others (% of all participants)



In the additional analyses at 12 months follow-up, being homeless at baseline did not remain a statistically significant predictor for persistence of danger (DI ≥ 3) in either the danger-to-self subgroup or the danger-to-others subgroup. This was no surprise, because the group with persistent dangerousness at 12 months follow-up was smaller than that at 6 months follow-up and partly consisted of different patients.

These results were not affected in sensitivity analyses by a different cut-off score (DI ≥ 2) or by a slightly different allocation to the respective subgroups.

Discussion

Main outcome

This explorative prospective observational study explored the evolution of dangerousness after court-ordered compulsory admission. At baseline, the most common dangerousness criterion was inability to cope in society. During the 12-month observation period, levels of dangerousness levels decreased considerably in a majority of participants. In our view, this is a meaningful and clinically relevant observation. However, it also important to note that dangerousness persisted in a substantial minority of patients. In both the danger-to-self and

the danger-to-others subgroups, persistent dangerousness at 6 months follow-up was associated with homelessness at baseline (before compulsory admission).

Strengths and limitations

This is the first study in general psychiatry to examine the evolution of dangerousness after compulsory admission of psychiatric patients. As it was a prospective study that included patients with a minimum of exclusion criteria, its results reflect the outcomes of a patient group that is representative of a psychiatric hospital population in a Dutch urban setting.

The first limitation is that the observational nature of the study makes it impossible to draw conclusions with regard to the causal relationships among compulsory admission, the evolution of dangerousness and patient characteristics. Second, we had no information on the duration of the hospital stay. Thus, we were not able to calculate the association between persistence of dangerousness and length of stay. We might nonetheless expect duration to be longer in patients in whom high levels of dangerousness persisted. Third, we included 174 (43%) of 403 originally eligible patients. As we did not have data for the patients who refused to participate or who were lost to contact, the findings of this study might be subject to some selection bias. Finally, the DI used in the present study had not yet been validated and, as the DI is based on Dutch legislation, its generalisability to other countries is unknown. Most countries, however, do apply danger to self and others as dangerousness criteria, as is the case in The Netherlands.

Future studies on dangerousness of compulsorily admitted patients should try to optimise the participation rate of eligible patients, e.g. by offering an incentive for participation. It would also be interesting to assess a wider set of clinical variables in order to obtain more detailed knowledge of factors associated with persistence or decrease of dangerousness. Our exploratory analysis suggests that patients' characteristics and psychopathology are not strong predictors of dangerousness. However, several clinical characteristics were not assessed, including impulsivity, urgency, self-control and conscientiousness, which could be addressed in future studies.

Moreover, future studies could validate the DI against other scales, such as the MacArthur Violence Risk Assessment,[20] by assessing specific types of danger in relation to clinical and demographic variables. Similar studies in other parts of the world are needed to improve the generalisability of our findings.

Clinical implications

By providing insight into the evolution of dangerousness in psychiatric patients who have been admitted compulsorily, this study demonstrates that these hospital admissions are associated with a decrease in dangerous behaviour of these patients. This result may be interpreted as providing some support for the statement above that autonomy should ultimately be breached in patients whose psychiatric condition is a severe danger to themselves and others. A subgroup of patients – those who are homeless – may deserve extra clinical attention and more research on how to reduce their seemingly persistent high level of dangerousness.

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CHAPTER 6

Risk factors for repeated emergency compulsory psychiatric admissions

Mark H. de Jong
André I. Wierdsma
Jeroen Zoeteman
Christine A. van Boeijen
Arthur R. Van Gool
Cornelis L. Mulder

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Abstract

Background: Characteristics of patients with repeated compulsory psychiatric admissions are largely unknown.

Aims: To investigate the frequency and risk factors for repeated emergency compulsory psychiatric admission (ECPA); and risk factors for time to readmission; and to identify targets for interventions to reduce repeated ECPA.

Method: Data was collected from a large database of electronic patient files (EPF) held by three psychiatric emergency services (PES) in various regions of The Netherlands. Analyses were based on the data on adult patients (aged 18 – 75 years) with a first PES contact in 2010 – 2015. The EPF registered the patients' demographic and clinical characteristics, as well as process information and type of intervention. Using descriptive statistics and regression analysis, we studied the associations between baseline patient factors and repeated ECPA and time to readmission, within a two year follow-up period.

Results: We included 6,059 patients with one or more ECPAs: 15.6% had had two or more ECPAs. A majority of second ECPAs had occurred within six months of the first (66.1%). About 30% of all ECPAs were repeated ECPAs. Two baseline factors were associated with a higher frequency of a second ECPA: history in mental healthcare and lower level of self-care. Three were associated with a lower frequency: ethnicity (other than Dutch), higher age, and suicidality. Lower GAF scores and housing problems at baseline were associated with shorter time to compulsory readmission and persistent psychiatric problems with longer time.

Conclusions: 15.6% of patients with an ECPA had two or more ECPAs. In addition, two thirds of the second ECPAs had occurred within six months of the first. Like earlier studies, the risk factors we identified suggest that interventions to reduce the risk of repeated compulsory psychiatric admission should seek to improve self-care, general daily functioning, and homelessness.

Introduction

Compulsory psychiatric admissions are very stressful events in the lives of patients and their caregivers.[1] A recent systematic review states that the greatest risks of such admissions are associated with previous involuntary hospitalization and a diagnosis of a psychotic disorder, and to a lesser extent with being male, single, and unemployed; receiving welfare benefits, and having diagnosis of bipolar disorder.[2] The unfortunate fact that many patients undergo repeated compulsory admissions, is indicative of a need to develop targeted interventions.

Most of the little research that has been done on revolving-door patients has focused on *voluntary* admissions.[3-7] It found four predictors of frequent readmissions: a history of previous psychiatric admissions, a diagnosis in the psychotic spectrum, being unemployed, and living in a residential accommodation. But few studies have investigated the prevalence of repeated *compulsory* psychiatric admissions and their risk factors. During five-year follow-up, a Dutch study found that the frequency of such admissions was 37%.[8] Compulsory readmission was associated with higher care-consumption five years before inclusion, a history of compulsory psychiatric admissions, younger age, and living alone. During seven-year follow-up, a retrospective Taiwanese study among patients with schizophrenia found a frequency of repeated compulsory psychiatric admissions of 5.5%, and that the risk of compulsory readmission was higher in patients with a prior compulsory admission than in those whose prior admission had been voluntary (adjusted hazard ratio=1.31).[9] Finally, a prospective study in Switzerland with 24 months follow-up found a frequency of repeated compulsory psychiatric admissions of 36%, and that two factors were associated with such admissions: previous compulsory admission – especially when it had been due to endangerment of others – and a diagnosis in the psychosis spectrum.[10]

One important reason for performing these studies is to identify risk factors that may be modifiable targets for interventions intended to reduce repeated compulsory psychiatric admissions. Two of the studies referred to above, identified two such risk factors in two different countries: living alone and endangerment of others. As it might therefore be possible to relate these findings to regional variations, it is important to investigate whether they can be replicated in another country.

Purpose of the study

In our study we therefore focused on identifying targets for interventions intended to reduce repeated emergency compulsory psychiatric admissions (ECPA). Our specific aims were to investigate the following: the frequency of repeated ECPAs; the associations between clinical, demographic, and process factors and the risk of repeated ECPA; and the associations between these same factors and the time to compulsory readmission.

Methods

Setting

Our research included patients of the psychiatric emergency services (PES) in three Dutch cities: Amsterdam, Apeldoorn, and Rotterdam. Whereas Amsterdam and Rotterdam are large cities with extensive suburbs, Apeldoorn is relatively small and has rural surroundings. All three PES are part of an integrated mental healthcare institution in their particular geographic areas. Patients are usually referred by general practitioners, police, or physicians in the general hospital.

The three PES involved in the study assessed the patients wherever they were: at home, in the emergency room at the general hospital, at the police station, in an office of the mental health service or sometimes in an emergency room specially intended for psychiatric crisis care. The crisis assessments were made by a psychiatrist (or a psychiatry resident) and a nurse. After the assessment, the patients were transferred for admission – voluntary or compulsory – or outpatient follow-up or they received no after care. To promote the standardization and uniform registration of all psychiatric crises, they used a concise web-based electronic patient file (EPF) specially designed for acute psychiatric care. Our study is based on the data from these EPFs.

Data and materials

EPF data were available from the inception of the database in 2008 up to the end of 2017. Initial inspection of the data showed that the vast majority of second ECPAs had occurred within two years of the index ECPA. To create corresponding baseline positions and follow-up periods for all patients included in the analysis, we chose to include unique patients who had had no emergency contact in the first two years of the database (2008 and 2009) and

could be followed for two years. We therefore based all our analyses on data on patients whose first PES contact had taken place between 2010 and the end of 2015.

Completing EPFs was part of the daily routine at the three PES. Entries included the patients' demographic and clinical characteristics, such as gender, age, living situation, homelessness, diagnostic category, substance misuse, Global Assessment of Functioning score,[11] and the Severity of Psychiatric Illness scale (SPI).[12] The latter is an instrument for exploring the patient's problems in terms of 1. problem severity, 2. psychiatric complications and comorbidity, and 3. complications in the treatment process. Each item is scored on a four-point scale, ranging from no risk or symptoms, through slight and moderate symptoms to high risk or severe symptoms. Figure 1 (below) shows the items of the SPI.

Figure 1: Items of the Severity of Psychiatric Illness scale (SPI)

Item no	***Severity of the problems***
1	Suicide potential
2	Danger to others
3	Severity of psychiatric symptoms
4	Level of self care
	Psychiatric complications and comorbidity
5	Substance abuse
6	Medical complications
7	Family problems
8	Vocational problems
	Complications in the treatment process
9	Housing problems
10	Motivation for treatment
11	Medication compliance
12	Illness insight
13	Family involvement
14	Symptom persistence

The EPF is also used to register basic process information, including the time at which the contact with the patient took place, the referrer, and the type of intervention, i.e. voluntary or compulsory admission, or no admission. To ensure acceptable accuracy with regard to preventing double registrations of the same patient, all patient data are carefully anonymized and a unique EPF identification number was attributed.

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Under Dutch legislation on healthcare in general and medical research with human subjects in particular, patient file research does not require informed consent. Our study was approved by an accredited Medical Research Ethics Committee (MREC), which classified it as lying outside the scope of The Netherlands' Medical Research Involving Human Subjects Act (Dutch abbreviation WMO), and which confirmed that, if the patient data was anonymized, no informed consent would be required.

Judicial aspects of compulsory psychiatric admissions

In The Netherlands, emergency compulsory psychiatric admissions (ECPA) are intended for crises and acutely dangerous situations that require immediate admission (i.e. within 24 hours). This procedure requires a mandatory psychiatric assessment by a psychiatrist. According to the legal requirements of an ECPA, a psychiatrist completes the standardized mental health act form (applicable during the research period) to report on psychiatric status and diagnosis, dangerousness, absence of consent for treatment and admission, and absence of any less radical – i.e. non-compulsory – intervention to avert the present danger. After completion of the mandatory procedure, the detention is sanctioned by the mayor. Within five working days, a judge reviews the mayor's decision in a court session in the psychiatric clinic.

Statistical analysis

Descriptive statistics were used to summarize the demographic, clinical, and contextual characteristics of all patients who had had either a single ECPA or two or more ECPAs. Multiple logistic regression analysis was used to identify variables associated with repeated ECPA, and Cox regression analysis to explore variations in the time to compulsory

readmission. As well as patient characteristics and process factors, each SPI item was separately entered into the model. Following Hosmer & Lemeshow, variable selection was based on a stepwise procedure with p<.20 as entry level and p>.05 as removal level.[13] Odds-ratio estimates and their corresponding 95% confidence intervals were calculated for explanatory variables in the final models. All statistical analyses were performed using SPSS version 25.

Results

Patients

From 2010 through 2015, the three PES assessed a total of 27,186 patients (aged 18 – 75 years), 6,059 of whom (22.3%) had had one or more ECPAs. Table 1 (p. 116) summarizes the patient characteristics of patients who had had one ECPA and of those who had had two or more ECPAs.

Frequency of ECPAs

In the group of 6,059 patients who had been admitted compulsorily between 2010 and the end of 2015, 945 patients (15.6%) had had two or more ECPAs within two years of the index ECPA. These 945 patients counted for nearly 30% of the total number of ECPAs during the observation period, 12.3% of them having had two ECPAs (accounting for 20.5% of the total number of ECPAs); 2.4% having had three ECPAs (6.1% of the total); and 0.8% having had four ECPAs (2.9% of the total). Two-thirds of all second ECPAs (66.1%) had occurred within six months of the first.

The small but interesting subgroup of patients who had had ≥4 ECPAs during the observation period (N=53) – who, unsurprisingly, represented the largest proportion of readmissions within six months (81.1%) – had several specific characteristics, representing the largest proportion of patients with a baseline history in psychiatry (34.0%), with a severe score on the SPI-item suicidality (32.1%), with a personality disorder (7.5%), with alcohol or drugs misuse (71.8%), and of those who were homeless (15.1%).

Table 1: Baseline characteristics of all patients with one ECPA and with two or more ECPAs (first ECPA 2010-2015)

	1 ECPA	≥ 2 ECPAs	Total
N	5,114	945	6,059
Gender (% male)	61.0	62.0	61.1
Age (median, IR[a])	40 (23)	37 (23)	39 (23)
Ethnicity (% born Dutch)[b]	76.0	79.7	76.6
Living with family (%)[c]	36.1	38.8	36.6
Homeless (%)	6.5	6.5	6.5
History in mental healthcare (%)	29.2	32.5	29.7
Psychotic disorder (primary diagnosis %)	60.5	61.4	60.7
Personality disorder (primary diagnosis %)	2.1	3.5	2.3
Any alcohol or drugs misuse (%)[d]	62.6	65.5	63.0
SPI[e] sum (mean, SD)	25.6 (5.6)	25.8 (5.3)	25.7 (5.6)
GAF[f] score (mean, SD)	30.4 (9.2)	30.2 (9.0)	30.4 (9.2)

[a] IR = interquartile range [b] N=4,755 [c] N=4,652 [d] N=4,190 [e] SPI = Severity of Psychiatric Illness; [f] GAF = Global Assessment of Functioning

Factors associated with compulsory readmission

The following baseline factors were associated with a higher frequency of repeated ECPAs: history in mental healthcare (Odds ratio (OR)=1.23, 95% confidence interval (CI)=1.05-1.44); and lower level of self-care (OR=1.21, 95% CI=1.03-1.42). Baseline factors associated with a lower frequency of repeated ECPAs were ethnicity (other than Dutch) (OR=.71, 95% CI=.59-.85); higher age (OR=.98, 95% CI=.97-.99); and suicidality (OR=.76, 95% CI=.65-.90).

Regional variations

Analysis of the details of the three PES regions showed that history in mental healthcare was an important factor in the risk of compulsory readmission, but to a slightly lesser extent in the rural area than in urban areas. While ethnicity was relevant specifically in Amsterdam, age was of particular importance in Rotterdam, and level of self-care in Apeldoorn. A sub-

analysis showed that, independently of patient and process characteristics, PES region was associated with the risk of repeated ECPA. Details are available on request.

Factors associated with time to readmission

The Cox regression model showed that lower GAF scores and housing problems were associated with shorter time to compulsory readmission (Hazard ratio (HR)=1.01, 95% CI=1.00-1.02 and HR=1.17, 95% CI=1.02-1.34 respectively). It also showed that persistent psychiatric problems were associated with a longer time to compulsory readmission (HR=.85, 95% CI=.73-1.00).

Discussion

Main results

In this investigation of the frequency and risk factors for repeated emergency compulsory psychiatric admission (ECPA), we found that 15.6% of patients had had two or more ECPAs. Approximately 30% of all ECPAs were repeated ECPAs. The literature reports considerable variations in the frequencies of repeated compulsory psychiatric admission: 5.5% in seven years (Taiwan);[9] 36% in two years (Switzerland);[10] and 37% in five years (The Netherlands).[8] Our own finding of 15.6% over two years takes account of the different lengths of follow-up, and expresses an average.

We also found that two-thirds of second ECPAs (66.1%) occurred within six months of the first. This is similar, first to the findings of Lay et al., who reported a peak of compulsory readmissions shortly after discharge;[10] and also to the findings of van der Post et al., who reported a higher risk of readmission in the first year after discharge than in the subsequent follow-up years.[8] However, in the first year of follow-up, the study by Lin et al. showed relatively low rates of compulsory readmissions.[9]

As well as three static, unmodifiable baseline risk factors for a repeated ECPA – history in mental healthcare, age, and ethnicity – we found one relevant factor that could potentially be modified by interventions: level of self-care. With regard to the time to readmission lower GAF scores and housing problems were also potentially modifiable risk factors.

Our findings with regard to history of mental healthcare and age are similar to those in the other studies, in which younger age and an existing history in psychiatry were consistently

identified as important risk factors for repeated ECPA.[8-10] Our findings with regard to various factors – level of self-care, housing problems, and lower GAF scores – also indicate that patients with severe mental illnesses[14,15] who show lower level of functioning are particularly susceptible to repeated compulsory psychiatric admissions. This, too, is in accordance with the literature on revolving-door patients.[3-7]

Our finding with regard to ethnicity requires some deliberation. Although one would expect ethnicity other than that of the majority group to be associated with a higher risk of repeated ECPA,[16] it was clear from the regional differences that ethnicity was important mainly in Amsterdam. This association almost certainly lies in the millions of foreign tourists who visited this city in the period in question. Due to various psychiatric crises, some of them required the services of the PES and were compulsorily admitted. Once they had returned to their own country, the chance of a repeated ECPA *in Amsterdam* was close to zero. The effect of these large numbers of short-term foreign visitors probably exceeded any differences in the proportions of Amsterdam's native Dutch residents and its other long-term residents.

Strengths and limitations

To our knowledge, this study is one of the few to have investigated risk factors for repeated compulsory psychiatric admissions. The database, on which our study was based, had various strengths in its own right. First, it contained a large number of patients and individual PES contacts, and reflected routine daily practice. Second, the EPF was standardized, included a structured assessment scale, and was concise and easy to use. A further strength of the study was the absence of inclusion and exclusion criteria, which provided an advantage with regard to representativeness and generalizability.

There are also some limitations. There were relatively large proportions of missing data on a few database items, such as ethnicity, living situation, and substance misuse. A further limitation lay in an effect of our explorative approach, whose findings did not identify causal factors and relationships, but associations, thus merely suggesting the direction of further research. Also, the clinical data with regard to the compulsory hospital stay and other follow-up treatment after assessment by the PES was not accessible for this study. For example, we were unable to incorporate data on psychotherapeutic and psychopharma-

cological interventions and determine their relationship with repeated ECPA. Finally, the Odds and Hazard ratios were generally relatively small.

Clinical implications

The importance of preventive measures is shown by the large numbers of patients with an ECPA – and particularly of those with repeated ECPAs – that were found in this study and in earlier studies. On the basis both of earlier findings and of the possible risk factors we identified, interventions to reduce the risk of repeated compulsory psychiatric admissions should focus on improving self-care, general daily functioning, and housing problems. To reduce the risk of repeated ECPAs, future studies might then investigate the effects of interventions that specifically target these factors. Examples of these interventions could be found in integrated outpatient treatment programmes, such as flexible assertive community therapy (FACT),[17] which not only focuses on psychopathology but also pays attention to patients' daily functioning, activities, social network, and housing.

Finally, two thirds of the second ECPAs in our study occurred within six months – a very short period. This finding suggests that regardless of their demographic and clinical characteristics, any patient with a recent or very recent ECPA deserves intensive follow-up, and that this should focus on reducing the risk of repeated compulsory psychiatric admission.

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CHAPTER 7

Summary and general discussion

7.1 Introduction

The research in this thesis focusses on prevention and reduction of compulsory psychiatric admissions as well as on dangerousness. In view of the rising numbers of compulsory psychiatric admissions in many countries[1] and the growing attention to human rights and recovery focused care, coercion in psychiatry is increasingly under attention and debated.[2] Also, the objectives of the recently introduced law on mental health in the Netherlands (the Compulsory Mental Health Care Act, in Dutch "Wet verplichte GGZ") emphasize the importance of the topic. Fortunately, the body of research on coercion in psychiatry is growing. Nevertheless, many unanswered questions remain. The results of the studies presented in this thesis attempt to contribute to the currently available evidence and especially, to find ways to adapt and improve daily clinical practice in community-based mental healthcare, in order to prevent and reduce compulsory psychiatric admissions and dangerousness. The research questions involved were as follows:

- can, according to current literature, compulsory psychiatric admissions be prevented or reduced by specific interventions? (chapter 2)
- which factors, related to both the patients and the mental health-care professionals are crucial in the mental healthcare process preceding compulsory psychiatric admission? (chapter 3)
- what are the differences in number of rehospitalization days, mental healthcare costs, and compulsory admissions, between patients who participated in a specific intervention programme called FACT Plus compared to a control group? (chapter 4)
- how does dangerousness evolve after patients get compulsorily admitted? (chapter 5)
- what is the frequency and what are risk factors for repeated emergency compulsory psychiatric admission (ECPA) and for time to readmission in The Netherlands, and what could be targets for interventions to reduce repeated ECPA? (chapter 6)

These research questions were studied and answered in five projects, involving several research methods, such as literature review and meta-analysis, qualitative research, observational and intervention studies. In this chapter we will present a summary of the research presented in this thesis, discuss the findings, strengths and limitations, as well as its clinical implications, and finally present directions for future research.

7.2 Summary of the chapters

General Introduction

Chapter 1 is a general introduction to the research themes of the thesis. In the first paragraph we presented an overview of the general topic of compulsory psychiatric admissions. The topic was discussed in six subparagraphs, presenting issues with regard to universal human rights, ethical, epidemiological, clinical, and judicial aspects of coercion in psychiatry in general and compulsory psychiatric admissions in particular. In the second paragraph we focussed on voluntary psychiatric admissions, stating that planned and voluntary stay in the psychiatric hospital is by far preferable over unplanned compulsory admissions. This is especially the case in our times, when deinstitutionalization and focus on community based mental health care have led to growing numbers of patients with severe mental illness in the community.[3,4] In the third paragraph we described the group of patients with severe mental illness (SMI)[5] as they constitute the group of patients who have the highest risk of being compulsorily admitted. The last paragraph presented the general purpose of the thesis and a preview of the research chapters, including their research questions.

Interventions to reduce compulsory psychiatric admissions

Chapter 2 presented a review and meta-analysis of Randomized Controlled Trials (RCTs) studying the effects of interventions to reduce compulsory psychiatric admissions.[6] The article was written according to the PRISMA statement for reporting systematic reviews and meta-analyses of studies in health-care interventions.[7] Compulsory psychiatric admissions have a strong impact on patients and the numbers are rising in several countries. Therefore, reduction of compulsory admissions is urgently needed. The objective of the meta-analysis was to establish which interventions effectively reduce compulsory admissions in adult psychiatric patients in outpatient settings. We used a systematic computerized literature search in eight commonly used databases. Each database was searched until April 30, 2015. An RCT was eligible for inclusion in the review and meta-analysis, if it studied any kind of intervention designed to reduce compulsory admission rates as a primary or secondary outcome measure. We limited our target group to adult psychiatric patients (age range, 18-

65 years) in outpatient settings. The eligibility of potential inclusions was independently assessed by two authors.

Whereas in general meta-analyses focus on a single intervention and study several outcomes of that intervention, this meta-analysis studied several interventions with regard to a single outcome, which was compulsory psychiatric admission. We divided the included RCTs in four subgroups based on the type of intervention studied, in order to present a logically coherent set of results. The subgroups were as follows: RCTs on advance statements, on community treatment orders, on interventions to enhance compliance, and on integrated treatment. Two of us independently extracted relevant data from the included papers. We used the Cochrane Collaboration's tool for assessing the risk of bias.[8]

For the sake of clarity and clinical relevance, and based on the availability of data in the RCTs, the relative risk (RR) was calculated for the number of *patients* with one or more compulsory admissions rather than the total number of *admissions* or length of stay.

Our meta-analyses included 13 RCTs comprising 2970 psychiatric patients.[9-21] The sole positive finding in meta-analyses of the four intervention subgroups came from the meta-analysis of the RCTs on advance statements. It showed that use of advance statements could reduce the risk of compulsory psychiatric admission (RR=0.77; 95% CI=0.60-0.98; I^2=2.2%) (n=1102). In contrast, the RCTs on community treatment orders (RR=0.95; 95% CI=0.81-1.10; I^2=0.0%) (n=742), compliance enhancement (RR=0.52; 95% CI=0.11-2.37; I^2=5.7%) (n=250), and integrated treatment (RR=0.71; 95% CI=0.49-1.02; I^2=49.0%) (n=876) showed no statistically significant risk reduction in compulsory admissions.

In the discussion of the article we declared our disappointment that there were only 13 RCTs in which compulsory admission was an outcome measure. This clearly demonstrates the need for more research in this field. The conclusion, however, was positive and clear: the meta-analysis of the four RCTs on the use of advance statements for psychiatric patients showed a 23% (CI=2-40%) reduction of the number of patients who got compulsorily admitted.

Crucial factors preceding compulsory psychiatric admissions

Chapter 3 started with the observation that there is little *qualitative* research on the mental health-care process preceding compulsory psychiatric admission.[22] The objective of the study involved was to identify crucial factors in this process. We included adult psychiatric patients of several Flexible Assertive Community Treatment teams (FACT teams) of two mental health institutions in the greater Rotterdam area in The Netherlands. We deployed a retrospective, qualitative approach. The study was a multiple case study, based on the patient files as kept by these FACT teams. All included patients were SMI-patients, mainly with diagnoses of schizophrenia and other psychotic disorders. We analyzed the files of 22 patients with a compulsory psychiatric admission in a predefined inclusion period. After the first step of data collection from the patient files the raw data was analyzed according to the Prevention and Recovery System for Monitoring and Analysis (PRISMA) method,[23] assessing acts, events, conditions, and circumstances, failing protective barriers and protective recovery factors. The PRISMA method has been developed for critical incident analysis in health-care. We considered all compulsory psychiatric admissions at hand as individual "incidents" and analyzed them as such. Finally, we synthesized the findings of all individual 22 PRISMA analyses into a set of common qualitative findings.

These findings showed that the most important factors in the health-care process preceding compulsory psychiatric admission with regard to patients were: having a psychotic disorder, aggression, lack of insight, care avoidance, and unauthorized reduction or cessation of medication. With regard to professionals: they were not as assertive as they could have been in managing early signs of relapse and care avoidance of these particular patients, and they could also have been more alert to patients' family members. In the discussion we pointed out that patient file research largely lacks the patients' own perspective, as well as the perspective of their family members. We concluded that among the other findings the most crucial factors related to the compulsory psychiatric admissions in these particular cases were patients' lack of insight and cessation of medication, and health-care professionals' lack of assertiveness.

An intensive multimodal group programme for FACT-patients

Chapter 4 was based on the evaluation of a pilot project with the KR8 programme (KR8 is a Dutch acronym meaning power or strength), an intensive multimodal group programme.[24]

In the paper the programme was named FACT Plus for reasons of international comprehensibility. This programme was developed on the basis of earlier experiences in Germany and England,[25-27] and was intended for psychotic-spectrum patients. The aim of the project was to reduce psychiatric rehospitalizations and mental health-care costs. The programme was combined with regular Flexible Assertive Community Treatment (FACT) (care as usual). Adult patients who had a psychotic spectrum disorder and had had at least one psychiatric admission in the 2 years before inclusion were eligible for inclusion. The FACT Plus programme was delivered weekly for approximately 9 months. We included an intervention group in northern Rotterdam (The Netherlands) and a control group in southern Rotterdam. Patients, staff, and procedures of the FACT teams in both parts of the city were very comparable, with a clear geographical separation by the river Maas. Thus, patients nor professionals could be involved in both the intervention group and the control group. The primary outcome measure was length of stay (LOS) and the secondary outcome measures were mental health-care costs and compulsory admissions.

We included 52 patients in the intervention group and 61 patients in the control group. During the 12-month observation period, the mean LOS per patient was 15.2 days (intervention group) and 34.6 days (control group). This represents a difference of 19.4 days (56.1%). This result was statistically significant (B=−0.859, SE=0.497, p=0.042) in a regression model correcting for baseline differences between the groups. Mean total mental health-care costs per patient were €21,098 in the intervention group versus €25,054 in the control group, a difference of about €4,000 per patient (16%). Intriguingly, there were zero compulsory admissions in the intervention group and nine in the control group. In the discussion we stated that our findings resembled those of the studies in Germany and England, in spite of some differences in the respective programmes and study designs.

We concluded that after the addition of FACT Plus to regular FACT, psychiatric LOS was substantially lower in the intervention group than in the control group. This result was accompanied by a limited reduction in mental health-care costs

Evolution of dangerousness after compulsory psychiatric admission

Chapter 5 focused on dangerousness, which is the core reason for compulsory psychiatric admission in many countries.[28-30] Compulsory psychiatric admission is commonly regarded as necessary and justified for patients whose psychiatric condition represents a severe

danger to themselves and others.[31] However, while studies on compulsory admissions have reported on various clinical and social outcomes, very little research has focused specifically on dangerousness itself. Therefore, we studied the evolution of dangerousness over time in adult psychiatric patients admitted by compulsory court order, and correlated these changes to the patients' demographic and clinical characteristics. In order to do so, we used an explorative prospective observational cohort study. Adult psychiatric patients were eligible if admitted by compulsory court order in Rotterdam and surrounding region. We collected baseline demographic and clinical data regarding the included patients. At baseline, 6, and 12 months follow-up, dangerousness was assessed using the Dangerousness Inventory (DI). The DI is an instrument based on eight types of dangerousness towards self or others, as specified in Dutch legislation – before 2020 – on compulsory admissions.

We included 174 participants with a court-ordered compulsory psychiatric admission. At baseline, the most common dangerousness criterion was inability to cope in society, also known as social breakdown.[32,33] Any type of severe and very severe dangerousness decreased from 86.2% of all patients at baseline to 36.2% at 6 months and 28.7% at 12 months. Being homeless at baseline was the only variable which was associated with persistently high levels of dangerousness. In the discussion we emphasized that we presented a clinically relevant observation with regard to both decreasing and persisting dangerousness. An important limitation of the study was the lack data on the duration of the hospital stay of the included patients. So, we were not able to determine associations between length of stay and persistence of dangerousness. We concluded that dangerousness decreased in about two-thirds of the patients after court-ordered compulsory admission. It persisted, however, in a substantial minority (approximately one-third).

Risk factors for repeated emergency compulsory psychiatric admissions

Chapter 6 focused on repeated compulsory psychiatric admissions.[34] Unfortunately, many patients experience repeated compulsory admissions, which is indicative of a need to develop targeted interventions. Some research has been done regarding revolving door patients focusing mainly on voluntary admissions.[35-39] However, only few studies investigated the prevalence of and risk factors for repeated compulsory psychiatric admission.[40-42]

The aim of our study was to investigate the frequency and risk factors for repeated emergency compulsory psychiatric admission (ECPA) and for time to readmission in The Netherlands, and to identify targets for interventions to reduce repeated ECPA. We used data from a large database of electronic patient files (EPF) of three psychiatric emergency services in different regions. Analyses were executed based on data of adult patients (aged 18 – 75 years) with a first PES contact in the period 2010 – 2015. In the EPF demographic and clinical characteristics of the patients, as well as process information and type of intervention were registered. We performed descriptive statistics, and regression analysis to study the associations of patient characteristics and process factors with repeated ECPA and time to readmission within two-year follow-up.

We included 6,059 patients with one or more ECPAs. 15.6% had two or more ECPAs. The majority of second ECPAs occurred within six months after the first (66.1%). About 30% of all ECPAs were repeated ECPAs. Baseline factors associated with a *higher frequency* of a second ECPA were history in mental health care and lower level of self-care and factors associated with a *lower frequency* were ethnicity (other than Dutch), higher age, and suicidality. Lower GAF scores and housing problems at baseline were associated with *shorter time* to compulsory readmission and persistent psychiatric problems with *longer* time.

We concluded that 15.6% of patients had two or more ECPAs. In addition, the majority of the second ECPAs – two thirds – occurred within a very short period of six months after the first ECPA. Based on the risk factors as identified in our study and in line with earlier findings, interventions to reduce the risk of repeated compulsory psychiatric admission should be targeted at improving self-care, general daily functioning, and homelessness.

7.3 General discussion

In this section we present a discussion of the findings of the five research projects, in which we also take the most recent literature into account. The first four subparagraphs have been arranged according to the four intervention groups as studied in our systematic review and meta-analysis: advance statements, community treatment orders, treatment adherence, and integrated treatment. In addition, we will discuss the concept of dangerousness and repeated emergency compulsory psychiatric admissions.

Advance statements and crisis plans

First and most importantly, it is possible to reduce the risk of compulsory psychiatric admission by use of instruments such as advance statements and crisis plans. The point estimate of risk reduction calculated in the meta-analysis of four RCTs was 23% (RR=0.73, CI=0.60-0.98).[6] It is important to put this finding in context with the most recent literature, especially papers published after April 2015 (our review and meta-analysis included literature published until April 2015). In April 2019 a "rapid evidence synthesis" was published, including literature published until July 2018.[43] This review, explicitly referring to our study, applied study selection criteria similar to those in our study, with a slightly wider scope. The findings of this recent review were by and large comparable with ours: "crisis planning and self-management with a relapse prevention element are most promising for preventing compulsory admissions."[43] The conclusion of this review also repeated our statement that there is – still – a lack of evidence in this research field and emphasizes the need for more research on intervention to reduce compulsory psychiatric admissions.

In addition, in our FACT Plus study, which was a controlled study without randomization, the patients in the intervention group had no compulsory admissions during follow-up compared to nine compulsory admissions in the control group.[24] The making of a crisis plan was an important part of the FACT Plus programme. Although the numbers in this study were small, and the intervention programme included various other interventions than the making of a crisis plan, this finding is in line with the results of our meta-analysis.

The findings of our meta-analysis, the rapid evidence synthesis, and the FACT Plus study on reduction of compulsory admission, point in the same direction: advance treatment planning and crisis plans are likely to be effective in reducing the risk of compulsory psychiatric admission.

An international debate on community treatment orders

Second, our meta-analysis with regard to community treatment orders (CTO) did not show an effect on compulsory psychiatric admissions, although this included only three RCTs.[13-15] This result had a low statistical heterogeneity and a small confidence interval, and was consistent with the Cochrane review and meta-analysis on the topic, which stated that it would take 142 CTOs to prevent one compulsory admission.[44,45] Authors involved in the RCTs on the topic proposed to abandon the use of CTOs from clinical practice.[46] However,

there was a lively scientific debate on the topic – especially with regard to the OCTET trial.[15] The debate was fueled by on the one hand personal experiences of clinicians who felt that the results were counterintuitive and that CTOs were certainly effective, at least in individual cases, and on the other hand by others who did not doubt the conclusions of the trial.

Arguments in opposition to the methods and results of the OCTET trial were for example:

- the professionals involved in the study were opposed to CTOs and kept patients away from the study, who most needed the CTO[47]
- the participants were not those who might have benefited from a CTO[48-51]
- there was a non-consent bias[52]
- there were too many protocol violations, refusals and crossovers[51,53,54]
- "we know patients in whom a CTO does work"[55]
- the control condition was by far not a voluntary condition, but contained a substantial proportion of patients on compulsory community treatment[48,50,54,56]

In response to this, the authors involved in the OCTET trail replied that:

- the inclusion was "real world", meaning that study and daily practice were very similar[57]
- the participants were representative to the target group of CTOs[58]
- there was no evidence of biased recruitment[59]
- a sensitivity analysis excluding the protocol violations did not show different results[58]
- N=1 experience does not count as serious scientific evidence[57]

A Cochrane review – maybe to be considered as the independent referee in this discussion – was also critical towards the OCTET trial stating that:[44]

- professionals held back eligible patients from the study, of whom potentially patients who were "particularly suitable" for the study
- the intervention was applied to 25% of the participants in the control group, and 22% of the participants in the intervention group did not actually receive the intervention

- the “section 17 leave” in the control group was very similar to the CTO in de intervention group
- 20% of patients refused or were deemed ineligible, of whom some may have been the most ill, and “therefore the ones most likely to benefit from CTOs”

To conclude, the evidence derived from the OCTET trial is in our view clearly insufficient to state that CTOs are ineffective in reducing compulsory psychiatric admissions and to consequently abandon the use of CTOs. In addition, absence of evidence is not the same as evidence of absence. The exceptionally vivid debate in the literature does also show the complexity of ethically defendable and scientifically sound research on compulsory interventions in psychiatry. Remarkably, the new 2020 Dutch legislation allows extensive community based compulsory mental healthcare, such as forced medication, checks of the patients’ houses, and even restrictions in every day freedom. Although non-effectiveness of CTOs in reduction of compulsory psychiatric admissions has not been proven, there is no clear evidence supporting this new legislation either.

The importance of treatment adherence

Two RCTs on interventions intended to improve treatment adherence did not show a reduction of compulsory psychiatric admissions. The number of compulsory admissions during follow-up in these two studies were small, and both studies were not specifically powered to assess effects on compulsory admissions. According to the findings in our qualitative study (chapter 3), treatment adherence in general and (antipsychotic) medication adherence in particular played a role in the whole spectrum of factors involved in the process leading to compulsory psychiatric admission.[22] Also in the FACT Plus project adherence was one of the main topics discussed in the psychoeducation programme.[24] When we combine these findings, we may state that treatment adherence therapy or compliance enhancement in any form is probably not an effective intervention *in itself* with regard to reduction of compulsory psychiatric admission. However, when combined with a set of other ingredients, among which a crisis plan is presumably an important one, it might provide a valuable effect with regard to reduction of compulsory psychiatric admissions.

Integrated treatment programmes

Another finding in the systematic review and meta-analysis was that the RCTs of integrated treatment showed a reduction of compulsory admission by 29% (RR=0.71, 95% CI=0.49-1.02).[6] Interestingly, although the interventions in this subgroup of RCTs were rather heterogeneous, varying from crisis resolution teams to first-episode psychosis teams, the common characteristic was that a newly developed entire treatment programme was studied. In addition to these RCTs there was only one new RCT published *after* April 2015 that met the inclusion criteria of our systematic review and meta-analysis.[60] This publication presents the final results of the study, of which we included a 12-months interim analysis[21] in our meta-analysis. This RCT studied an integrated intervention programme consisting of various elements, of which psycho-education, crisis-planning, and intensified monitoring were the most important ones. Its final results showed a substantial lower rate of compulsory psychiatric readmissions in the intervention group (28%) compared to treatment as usual (43%), after 24 months follow-up. In a binomial regression model the relative risk for the intervention effect was 0.6; 95% CI=0.3-0.9.

Our study on FACT Plus[24] is also an example of an integrated treatment programme. The study was not an RCT, so we could not add it to the meta-analysis. We added several potentially valuable elements to an existing treatment programme (FACT)[61] and carefully monitored its implementation and execution. We found a substantial reduction in length of stay in a psychiatric hospital in the intervention group as compared to the intervention group. Moreover, no compulsory psychiatric admissions occurred in the intervention group in contrast to the control group – although admittedly the numbers were small and it was a secondary outcome measure. In our qualitative study[22] we found that lack of assertiveness of mental healthcare professionals was one of the factors that were crucial in the process resulting in compulsory psychiatric admissions. We might hypothesize that improvement of model fidelity of the programme involved – the Dutch FACT model – in which assertiveness by professionals is essential,[61] would help to reduce the risk of compulsory psychiatric admissions for the patients treated in the programme. There is no RCT derived evidence with regard to reduction of compulsory admissions through FACT as integrated treatment. However, in a prospective real life study of implementation of three FACT teams admissions and LOS were significantly reduced.[62] Finally, when we take a broader look at evidence on Assertive Community Treatment (ACT), from which the Dutch FACT model has been derived,

there is a recent German non-randomized intervention study with a pre-post design. It reported a reduction of compulsory psychiatric admissions after introduction of ACT in an integrated care programme for patients with severe psychotic disorders: the rate of compulsory admissions was 33.9% before introduction of ACT and dropped to 9.4% afterwards.[63] Another study based on the National Case Register of Denmark states that ACT "undoubtedly reduces hospitalization including some involuntary admissions."[64]

So, we may state that integrated and well-structured treatment programmes, consisting of well-established elements and interventions, such as ACT and FACT, are potentially effective in reduction of compulsory psychiatric admissions and promising for future research on the topic.

Dangerousness

Dangerousness is an important topic related to compulsory psychiatric admissions, as it is a core reason for compulsory admission in many countries.[29,30] While studies on compulsory admissions have reported on various clinical and social outcomes of compulsory psychiatric admissions, very little research has focused specifically on dangerousness itself. There is only one relatively old set of studies reporting on dangerousness,[65-67] in which the associations between clinically assessed criteria of dangerousness (danger to self, danger to others and grave disability) and diagnosis and psychopathology at admission were studied. Dangerousness was associated with major mental disorder and with the severity of most symptom types. Danger to self had the fewest association with indicators of mental disorders. In chapter 5 of this thesis[28] we stated that "despite studies in the field of forensic psychiatry, we found no studies in general psychiatry that investigated dangerousness in the context of court-ordered compulsory admissions. To date, it is thus an open question in general psychiatry to what extent compulsory admissions contribute to reducing dangerousness to self and others."

Whereas the previous paragraphs focussed on prevention and reduction of compulsory psychiatric admissions, this paragraph takes a step further, searching for answers to the question how dangerousness evolves when a patient gets compulsorily admitted. Our study on dangerousness offered a clear indication that – at least in an urban Dutch context – dangerousness decreased in the majority of the patients who were compulsorily admitted by court order. It is not possible to conclude with certainty that there is a causal relationship

between the admission and the decrease of dangerousness, however, this seems likely from a clinical point of view. An RCT would be interesting to further study the relationship between compulsory admission and change of dangerousness. However, it is very difficult to think of a study with RTC design with compulsory admission as primary intervention and a control group without coercion. In addition, the other side of the coin of the finding that dangerousness decreased in the majority of the patients, was that it persisted in a substantial minority. Homelessness, in fact a sign of inability to cope in society and social breakdown,[33] was a factor that indicated a higher risk of persistence of dangerousness.

Repeated emergency compulsory psychiatric admissions

Chapter 6 again emphasizes the urgency of reduction of compulsory psychiatric admissions.[34] According to a recent systematic review, factors associated with the greatest risk of compulsory psychiatric admission are previous involuntary hospitalization and the diagnosis of a psychotic disorder, and to a lesser degree male gender, being single, being unemployed, receiving welfare benefits, and a diagnosis of bipolar disorder.[68] In line with these findings and also with existing (limited) literature on the topic of *repeated* compulsory admissions,[40-42] we found that a substantial proportion of patients (15.6%) experienced two or more emergency compulsory psychiatric admissions (ECPA). In addition, the majority of these repeated admissions occurred within six months. Both static and potentially modifiable patient factors, as found in this study to be associated with a higher risk of repeated admissions, indicate that patients with lower levels of functioning (mostly patients with severe mental illnesses)[5,69] are particularly vulnerable for being subjected to repeated compulsory psychiatric admissions. The finding in chapter 5 that homelessness was associated with persistently high levels of dangerousness[28] also implies a higher risk of readmission and is as such in line with these findings of chapter 6.[34] Besides, readmission was not studied in the project described in chapter 5.

The short time to readmission in the majority of the patients with a repeated compulsory admission implies that regardless of demographic and clinical characteristics, any patient with a recent ECPA deserves intensive and assertive follow-up, in line with the findings of the qualitative patient file study in chapter 3.[22]

7.4 Clinical implications

Crisis plans

The studies in this thesis addressed several aspects of compulsory psychiatric admissions. When we try to combine the findings of the chapters 2, 3 and 6 of this thesis,[6,22,34] we may state that the best way to prevent a compulsory admission is to draw up a crisis plan. In daily clinical practice, the process of assembling a crisis plan should – of course – be done in close cooperation with the patient, their family and friends, and preferably shortly after the crisis and the compulsory admission occurred. Carefully evaluating, analyzing of and learning from what happened during the period prior to the patient's crisis and during the crisis itself seems important: analogously to what we did in the qualitative study described in chapter 3.[22] However, some patients enter mental health care with a compulsory psychiatric admission, without any history of prior psychiatric treatment, implicating that there will always remain a number of unavoidable compulsory psychiatric admissions.

In addition, in line with the findings of chapter 3, it seems important that professionals are assertive to motivate each other, the patients, their families and other people involved, especially in case of signs of non-adherence or drop-out from treatment. Then, with the input of the evaluation and analysis of the prior crisis, a crisis plan should be assembled, ideally containing:

1. a clear description of early, intermediate, and late signs of psychiatric deterioration
2. how to act upon these signs by the patient, their family and the professionals
3. advance statements with regard to future treatment during crisis and especially during psychiatric admission

It is important that the patients have the opportunity to make statements with regard to future treatment when they are stable and have sufficient insight. This process will improve the patients' mastery of their treatment and their lives. In addition, the hypothesis that the process of preparing and assembling a crisis plan in itself might have a positive effect on the risk of being compulsorily admitted – let alone having a crisis plan and eventually using it[70] – implies the importance of offering it to any patient at risk. In a short correspondence following the publication of the meta-analysis we had the opportunity to elaborate on this:[71] "In the RCT on advance statements by Ruchlewska et al,[12] 64% of the patients in the

intervention group completed a crisis plan, and plans were consulted by only a third of the patients who actually experienced a crisis.[70] If implementation of advance statements could be significantly improved – of course, this means a real challenge for clinicians – the outcome with regard to compulsory admissions might become better." Shortly, defining the crisis, talking about it, anticipating to potential following crisis, thinking of options to act, and not the least involvement of family together form a powerful intervention.

The question remains how these elements could be sustainably implemented in daily – busy – practice in which the issues of the day can absorb all available time and means and in which computerized patient files fail to provide the mental health-care professional with an adequate overview of the treatment process.[72]

Compulsory community treatment and the new Dutch mental health law

First, referring to the scientific discussion on CTOs mentioned above, it was worth noting that in the meta-analysis community treatment orders (CTOs) did not show effectiveness with regard to compulsory psychiatric admissions. In The Netherlands the new Compulsory Mental Health Care Act, in Dutch "Wet Verplichte GGZ" is partly based on the assumption that compulsory outpatient care can prevent compulsory admissions. Dutch mental health legislation regarding CTOs differs to some extent from the mental health laws of the countries where the RCTs on CTOs were carried out (United Kingdom and United States). For instance, in the RCT conducted in New York City there was no "pick-up order procedure for non-compliant subjects"[14] and in the North Carolina study a court decision was needed to compulsorily recall the patient to the hospital or to the community mental health care facility in case of nonadherence.[13] Nevertheless, we can be critical about the new Dutch mental health law (2020) based so strongly on compulsory outpatient treatment,[73,74] especially knowing that actual outpatient compulsory treatment (such as forced medication administration at home) was not subject of study in the only three available RCTs on CTOs.[13-15]

Second, do we expect different study results, if our studies would have been carried out in the era of the new Dutch mental health law? The most important changes in compulsory mental health legislation include the possibility of actual outpatient compulsory treatment, whereas our studies focused on various aspects of compulsory psychiatric admissions. So, we would not expect different results in any of our four clinical studies (chapters 3, 4, 5 and

6),[22,24,28,34] as the requirements for compulsory psychiatric admissions – emergency or regular procedure – did not essentially change.

Integrated treatment programmes

Finally, the findings of our study on FACT Plus (chapter 4)[24] and of the meta-analysis of studies on integrated treatment programmes (chapter 2)[6] suggested that intensified attention to patients could make a meaningful difference in the lives of SMI-patients, with regard to psychiatric admissions in general and compulsory psychiatric admissions in particular. This intensified attention might be reached when a well-designed integrated treatment programme is systematically executed. Also, the findings with regard to homelessness, lower levels of functioning (lower GAF scores), self-care and housing problems in the chapters 5 and 6, as associated with persistent dangerousness and higher risk of compulsory readmission,[28,34] emphasize the importance of integrated treatment programmes. These programmes should not only focus on psychopathology but also pay attention to patients' daily functioning, activities, social network, and housing. In this respect, integration also means close collaboration of mental health services with for example municipal social services and housing corporations. This collaboration is promoted in the newest quality criteria for Flexible ACT teams in The Netherlands.[75]

7.5 Strengths and limitations

Prevention of compulsory admissions is important and has high clinical and societal relevance. It was, however, striking and disappointing that the available research on this topic and related ones is relatively scarce. There were only 13 RCTs (up to April 30th 2015) in which compulsory admission was an outcome measure. The studies in this thesis, with several different methodological approaches, form a relevant addition, even though we did not include a new RCT.

The importance of the findings in the meta-analysis (chapter 2)[6] was acknowledged by the editors of JAMA Psychiatry by publishing an editorial along with our article which stated that our review "raises the intriguing possibility that hospital admissions using compulsory powers can be substantially reduced by actively including patients (..) as partners in planning future treatment and care options."[76] In addition, we were one of the first to

publish clinically relevant findings with regard to the health-care process preceding compulsory psychiatric admission (chapter 3) and with regard to the evolution of dangerousness (chapter 5).[22,28] Furthermore, we were able to study FACT patients in Rotterdam who had the most complicated mental health-problems and were the most difficult to engage (chapter 4).[24] Finally, we added a piece to the puzzle of the issue of repeated emergency compulsory admissions (chapter 6).[34]

With regard to limitations also some remarks must be made. First, there was no clear theoretical framework covering our research as a whole. We used elements from health services research, forensic psychiatry (especially with regard to dangerousness), and epidemiological science. Second, the generalizability of the findings is not fully clear: most patients, who were included in the studies, are SMI-patients in the greater Rotterdam region, a particular region of The Netherlands. The question remains to what extent the findings are relevant for and applicable to other parts of the country, let alone in other countries in the world. The same applies to the definition of compulsory psychiatric admissions, its procedures, and the prevalence of informal coercion. Judicial procedures and definitions are the same in entire The Netherlands, but have been changed in 2020, and are also different in other countries. These differences vary from small to substantial. Moreover, informal coercion might differ within and between countries. When comparing studies on coercion in different countries, these caveats must always be taken into account. However, the findings of the review and meta-analysis have a broader basis in papers originating from a whole range of countries.

7.6 Recommendations for future research

Obviously, the research field of compulsory psychiatric admissions has and will continue to have great importance and relevance, on a national level as well as on an international level. With regard to the Dutch context, future research should focus on the new legislation on compulsory mental health care. One might think of continued studying of the epidemiology and effects of coercive interventions, comparing those under the former and the current legislation, specifically aiming at reduction of coercion. It will also be important to qualitatively study patients' experiences and those of their care-givers, especially when extended modalities of outpatient compulsory psychiatric care are involved. Finally, a

controlled study such as OCTET[15] would be important in The Netherlands to provide a scientific basis rather than a basis of opinions of different stakeholders for the new legislation, which includes forced outpatient treatment.

With regard to the international context, attention should be paid to the surprisingly large differences in compulsory psychiatric admission rates between countries, in particular within the culturally and economically rather homogenous parts of the world such as the European Union.[1] Best practices of countries with low rates could be examples for countries with higher rates. In this respect, it would be best when legislation is evaluated and improved based on the latest and best available scientific knowledge.

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NEDERLANDSE SAMENVATTING

Introductie

Het onderzoek in dit proefschrift gaat over preventie en reductie van psychiatrische dwangopnames en ook over het daarmee samenhangende gevaar. Dwang in de psychiatrie krijgt veel aandacht en er is een voortdurend debat over dit onderwerp. Dit heeft meerdere redenen: in veel landen stijgt het aantal psychiatrische dwangopnames. Verder is er toenemend aandacht voor mensenrechten en voor autonomie-bevorderende en herstelgerichte zorg. Ook de nieuwe wet verplichte GGZ zet in op ambulante in plaats van klinische dwang, maar alleen als het echt niet vrijwillig kan. Gelukkig is er een groeiende hoeveelheid onderzoek naar dwang in de psychiatrie. Toch blijven er nog veel vragen onbeantwoord. De studies in dit proefschrift proberen een bijdrage te leveren aan de thans beschikbare “evidence” in dit onderzoeksveld. In het bijzonder is ons onderzoek bedoeld om bij te dragen aan de doorontwikkeling van de dagelijkse praktijk van ambulante wijkgerichte GGZ, zodat dwangopnames en het daarmee samenhangende gevaar teruggedrongen en voorkomen worden.

De onderzoeksvragen in dit proefschrift waren als volgt:

- Kunnen psychiatrische dwangopnames voorkomen of verminderd worden? Zo ja, met welke interventies? (hoofdstuk 2)
- Welke factoren, zowel aan de kant van patiënten als van hulpverleners, zijn cruciaal in het hulpverleningsproces voorafgaande aan een psychiatrische dwangopname (hoofdstuk 3)
- Wat is het verschil in psychiatrische opnamedagen, dwangopnames en GGZ-kosten tussen patiënten die wel en die niet hebben deelgenomen aan het FACT Plus programma? (hoofdstuk 4)
- Hoe is het beloop van het gevaar bij patiënten nadat ze gedwongen opgenomen worden? (hoofdstuk 5)
- Hoe vaak worden patiënten in Nederland heropgenomen met een acute dwangopname (“herhaalde IBS”) en welke factoren hangen samen met het risico op heropname? (hoofdstuk 6)

Deze onderzoeksvragen zijn bestudeerd en beantwoord in vijf projecten. Daarbij hebben we gebruik gemaakt van verschillende onderzoeksmethoden, zoals literatuurstudie en meta-analyse, kwalitatief onderzoek, observationeel onderzoek en interventieonderzoek.

Algemene inleiding (hoofdstuk 1)

Hoofdstuk 1 is een algemene inleiding op de onderzoeksthema's van dit proefschrift. In de eerste paragraaf presenteren we een overzicht betreffende het onderwerp "psychiatrische dwangopnames." Het onderwerp mensenrechten komt aan de orde, en verder ethische, epidemiologische, klinische en juridische aspecten van dwang in de psychiatrie in het algemeen en psychiatrische dwangopnames in het bijzonder. De tweede paragraaf gaat over vrijwillige psychiatrische opnames. Daarin stellen wij dat een gepland en vrijwillig verblijf in het psychiatrisch ziekenhuis te verkiezen is boven een ongeplande en gedwongen opname. Dit speelt in deze tijd des te meer, omdat na afbouw van de grote opnameafdelingen en gelet op de nadruk op ambulante, wijkgerichte GGZ er een toenemend aantal patiënten met ernstige psychiatrische stoornissen in de maatschappij is. In de derde paragraaf geven we een beschrijving van patiënten met ernstige psychiatrische aandoeningen (EPA). Zij vormen de groep die het hoogste risico heeft om gedwongen opgenomen te worden. De laatste paragraaf bevat de algemene doelstelling van het onderzoek en een vooruitblik op de hoofdstukken met de bijbehorende vraagstellingen.

Interventies om dwangopnames te verminderen (hoofdstuk 2)

Psychiatrische dwangopnames zijn ingrijpend voor patiënten die het moeten ondergaan. Het aantal dwangopnames neemt toe in veel landen. Het verminderen van psychiatrische dwangopnames verdient dus hoge prioriteit. Het doel van deze literatuurstudie en meta-analyse was vast te stellen welke interventies – volgens de beschikbare literatuur – effectief zijn in het verminderen van psychiatrische dwangopnames. We hebben een systematische literatuursearch verricht in acht algemeen bekende databases. De search liep tot 30 april 2015. Elke RCT kon geïncludeerd worden, als daarin een interventie werd onderzocht die gericht was op het verminderen van psychiatrische dwangopnames (primaire of secundaire uitkomstmaat). We hebben ons hierbij gericht op volwassen patiënten en ambulante interventies.

Veel meta-analyses richten zich op een enkele interventie en kijken naar verschillende uitkomsten. Onze meta-analyse deed het andersom: uitgaande van de uitkomst "psychiatrische dwangopnames" keken we naar allerlei verschillende interventies. De RCT's die we includeerden hebben we verdeeld in vier subgroepen, op basis van het type interventie dat onderzocht werd. Op deze manier konden we de resultaten op een logisch samenhangende wijze presenteren. De subgroepen waren als volgt: 1. "advance statements" (zoals crisisplannen), 2. community treatment orders (waarvan de voorwaardelijke machtiging onder de wet BOPZ een voorbeeld is), 3. therapietrouw-bevorderende interventies en 4. geïntegreerde behandeling (wat neerkwam op studies naar complete zorgprogramma's).

Het relatieve risico (RR) voor psychiatrische dwangopname werd berekend op basis van het aantal *patiënten* met één of meerdere dwangopnames, en niet op basis van het totale aantal *opnames* of verblijfsduur. We hebben 13 RCT's geïncludeerd met in totaal 2970 patiënten. De meta-analyse van de RCT's over advance statements was de enige die een positief resultaat opleverde. Het bleek dat het risico op psychiatrische dwangopname met 23% verminderd werd door het gebruik van crisisplannen en andere vormen van zorgplanning gericht op een eventuele toekomstige crisis. De meta-analyses van de andere drie typen interventies leverden geen vermindering van het risico op dwangopname op.

In de discussie van het artikel hebben we onze teleurstelling uitgesproken dat er slechts 13 RCT's bleken te zijn waarin psychiatrische dwangopnames bestudeerd waren. Dit laat de noodzaak van meer onderzoek naar dit onderwerp duidelijk zien.

Cruciale factoren voorafgaande aan psychiatrische dwangopnames (hoofdstuk 3)

Hoofdstuk 3 begint met de vaststelling dat er weinig *kwalitatief* onderzoek bestaat naar het hulpverleningsproces voorafgaande aan psychiatrische dwangopname. Het doel van deze studie was het identificeren van cruciale factoren in dit proces. We includeerden volwassen psychiatrische patiënten van verscheidene Flexible Assertive Community Treatement (FACT) teams bij Yulius en Bavo Europoort (nu Antes binnen de Parnassia Groep). We kozen voor een retrospectieve, kwalitatieve benadering. De studie was een multi-case studie en we maakten gebruik van de elektronische patiëntendossiers (EPD) bij de betreffende FACT-

teams. Alle patiënten waren EPA-patiënten, voornamelijk met de diagnoses schizofrenie en andere psychotische stoornissen. We verrichten een grondige analyse van de EPD's van in totaal 22 patiënten die een dwangopname hadden meegemaakt in een vooraf vastgestelde periode. Allereerst verzamelden we ruwe data uit de EPD's, waarna we deze verder analyseerden volgens de PRISMA-methode. PRISMA staat voor Prevention and Recovery System for Monitoring and Analysis. Deze methode kijkt naar handelingen, gebeurtenissen, omstandigheden, beschermende factoren en falende barrières. De PRISMA-methode is ontwikkeld voor kritische incidentenanalyse in de gezondheidszorg. In ons onderzoek beschouwden we de onderzochte psychiatrische dwangopname als een "incident" en analyseerden deze elk afzonderlijk volgens de PRISMA-methode. Tenslotte voegden we de bevindingen van deze 22 PRISMA-analyses samen tot één set van gemeenschappelijke kwalitatieve resultaten.

We vonden het volgende: de belangrijkste factoren in het hulpverleningsproces voorafgaande aan psychiatrische dwangopnames bij de patiënten waren de aanwezigheid van een psychose, agressie, gebrek aan ziekte-inzicht, zorgmijding en zonder overleg verminderen of stoppen van medicatie. Bij de hulpverleners waren de belangrijkste factoren als volgt: zij waren niet zo assertief als had gekund, met name met betrekking tot vroege signalen van terugval en zorgmijding bij deze patiënten. Verder waren ze niet alert genoeg richting de familie en andere betrokkenen van de patiënten.

In de discussie hebben we erop gewezen dat bij onderzoek in patiëntendossiers grotendeels het perspectief van de patiënten zelf en van hun families ontbreekt, omdat het de hulpverleners zijn die de verslagen in het dossier schrijven.

We concludeerden dat in de onderzochte gevallen gebrek aan ziekte-inzicht en stoppen van medicatie (bij de patiënten) en gebrek aan assertiviteit (bij de hulpverleners) de meest cruciale factoren waren in het hulpverleningsproces voorafgaande aan de psychiatrische dwangopname.

FACT Plus, een intensief groepsprogramma voor FACT-patiënten (hoofdstuk 4)

Hoofdstuk vier beschrijft de evaluatie van een pilotproject met het KR8-programma (spreek uit: *kracht*). Het KR8-programma is een intensief groepsprogramma met een diversiteit aan

interventies. In het internationale artikel gebruikten we de titel “FACT Plus”. Het programma is ontwikkeld op basis van vergelijkbare en eerder onderzochte programma’s in Duitsland en Engeland. Het programma is bedoeld voor patiënten met een stoornis in het psychotische spectrum. Het doel was het terugdringen van psychiatrische heropnames, dwangopnames en GGZ-kosten. Het programma werd gecombineerd met de bestaande FACT-behandeling. Volwassen patiënten met een stoornis in het psychotische spectrum en minimaal één psychiatrische opname in de afgelopen twee jaar konden deelnemen. De patiënten volgden het KR8-programma wekelijks in groepsverband, gedurende ongeveer negen maanden. De totale follow-up was 12 maanden.

Op de noordoever in Rotterdam selecteerden we de interventiegroep en op de zuidoever de controlegroep. De patiënten, het personeel en het reguliere FACT-zorgprogramma waren vergelijkbaar op beide oevers van de stad, maar geografisch duidelijk gescheiden door de rivier de Maas. Op deze manier konden patiënten en personeel bij de interventie- en de controlegroep niet door elkaar lopen. De primaire uitkomstmaat was opnameduur, in het Engels “length of stay” (afgekort LOS). De secundaire uitkomstmaten waren dwangopnames en GGZ-kosten.

We includeerden 52 patiënten in de interventiegroep en 61 patiënten in de controlegroep. Tijdens de observatieperiode van 12 maanden was de gemiddelde opnameduur per patiënt in de interventiegroep 15,2 dagen en in de controlegroep 34,6 dagen. Dat is een verschil van 19,4 dagen (56,1%). Dit was een statistisch significant verschil in het regressiemodel waarin gecorrigeerd werd voor de verschillen op baseline tussen de beiden groepen. De gemiddelde GGZ-kosten per jaar per patiënt waren € 21.098 in de interventiegroep en € 25.054 in de controlegroep, een verschil van ongeveer € 4.000 per patiënt (16%). Verrassend genoeg was er geen enkele dwangopname in de interventiegroep versus negen in de controlegroep.

In de discussie stelden we vast dat onze bevindingen vergelijkbaar waren met die van de studies in Duitsland en Engeland, ondanks de ook aanwezige verschillen met de programma’s en studiedesigns aldaar. We concludeerden dat na toevoeging van het KR8-programma aan FACT-zorg de psychiatrische opnameduur aanzienlijk korter was in de interventiegroep vergeleken met de controlegroep. Daarbij vonden we ook een beperkte afname van de GGZ-kosten.

Beloop van gevaar na psychiatrische dwangopname (hoofdstuk 5)

Hoofdstuk 5 gaat over gevaar, hetgeen in veel landen het belangrijkste criterium voor psychiatrische dwangopname is. Een dwangopname wordt in algemeen als noodzakelijk en gerechtvaardigd beschouwd bij patiënten die door hun psychiatrische aandoening een gevaar vormen voor zichzelf of voor anderen. Bestaand onderzoek naar dwangopnames rapporteert voornamelijk over klinische en sociale uitkomsten. Er is echter heel weinig onderzoek naar gevaar zelf. Daarom hebben we een onderzoek verricht naar het beloop van gevaar bij volwassen psychiatrische patiënten die opgenomen waren met een rechtelijke machtiging (RM). Ook hebben we correlaties onderzocht tussen de veranderingen in gevaar en demografische en klinische kenmerken van deze patiënten. Daarvoor maakten we gebruik van een observationele cohortstudie met een prospectieve en exploratieve opzet. Patiënten konden geïncludeerd worden in de studie, indien ze met een RM werden opgenomen in Rotterdam en omstreken. Op baseline registreerden we van deze patiënten demografische en klinische gegevens. Verder werd op baseline, na 6 en na 12 maanden follow-up het gevaar beoordeeld met behulp van de “Dangerousness Inventory” (DI). De DI is een instrument ontwikkeld op basis van de acht typen gevaarcriteria die de wet Bijzondere Opnemingen in Psychiatrische Ziekenhuizen (BOPZ) – geldig tot en met 2019 – daarvoor kende.

We hebben 174 deelnemers geïncludeerd met een psychiatrische dwangopname via een RM. Op baseline was maatschappelijke teloorgang het meest voorkomende gevaarscriterium. Op baseline had 86,2% van de patiënten nog ernstig tot zeer ernstig gevaar (voor minimaal één van de gevaarscriteria). Dit nam af tot 36,2% na 6 maanden en 28,7% na 12 maanden. Dakloosheid was de enige variabele die geassocieerd was met persisterend ernstig tot zeer ernstig gevaar.

In de discussie benadrukten we de klinische relevantie van onze bevindingen, zowel m.b.t. afnemend gevaar als persisterend gevaar. Een belangrijke beperking van de studie was, dat we geen gegevens hadden over hoe lang de patiënten opgenomen bleven in het psychiatrisch ziekenhuis. We konden dus niets zeggen over het verband tussen opnameduur en beloop van gevaar.

De conclusie was dat gevaar in ongeveer twee derde van de patiënten sterk afneemt, terwijl het persisteert in een substantiële minderheid van één derde van de patiënten.

Risicofactoren voor herhaalde acute psychiatrische dwangopnames (hoofdstuk 6)

In hoofdstuk 6 lag de nadruk op herhaalde psychiatrische dwangopnames. Helaas zijn er veel patiënten die herhaaldelijk gedwongen opgenomen worden. Dus is het belangrijk om interventies te ontwikkelen die dit probleem kunnen verminderen. Er is enig onderzoek gedaan naar zogenaamde draaideurpatiënten, maar dat gaat vooral over *vrijwillige* opnames. Er zijn echter maar een paar onderzoeken naar de frequentie en risicofactoren van herhaalde *dwang*opnames.

Het doel van onze studie was om in Nederland de frequentie en risicofactoren voor herhaalde acute dwangopnames (inbewaringstelling, afgekort "IBS") te onderzoeken, en daarbij ook te kijken naar de tijdsduur tot de herhaalde IBS. Op die manier kunnen mogelijk aanknopingspunten geïdentificeerd worden voor interventies om herhaalde IBS-en te voorkomen.

We gebruikten de data van een grote database van elektronische patiëntendossiers (EPD) van drie crisisdiensten van drie regio's in Nederland (Amsterdam, Apeldoorn, Rotterdam). De analyses werden uitgevoerd op basis van de data van volwassen patiënten (tussen 18 en 75 jaar oud) die een eerste crisisdienstcontact hadden in de periode van 2010 t/m 2015. In het EPD werden demografische en klinische kenmerken van de patiënten vastgelegd. Verder werd informatie over het verloop van het crisisdienstcontact en over de interventie vastgelegd. We gebruikten beschrijvende statistiek en regressieanalyse. Het laatste was bedoeld om de associaties te bestuderen tussen enerzijds de patiëntkenmerken en procesfactoren en anderzijds het risico op herhaalde IBS en de tijdsduur tot heropname. De follow-up duur was twee jaar na de eerste IBS.

We includeerden 6.059 patiënten die minimaal één IBS hadden gehad. Van hen had 15,6% twee of meer IBS-en. De meerderheid (66,1%) van de tweede IBS-en vond plaats binnen zes maanden na de eerste. Ongeveer 30% van alle IBS-en was een herhaalde IBS. Baseline factoren die geassocieerd waren met een *hogere* frequentie van herhaalde IBS waren een voorgeschiedenis in de GGZ en slechtere zelfzorg; en met een *lagere* frequentie niet-Nederlandse nationaliteit, hogere leeftijd en suïcidaliteit. Lagere GAF-scores en huisvestingsproblemen waren geassocieerd met een *kortere* tijd tot heropname en persisterende psychiatrische problemen met *langere* tijd.

We concludeerden dat 15,6% van de patiënten twee of meer IBS-en had gehad en verder dat de meerderheid van de tweede IBS-en (twee derde) binnen zes maanden na de eerste plaatsvond. Gebaseerd op onze bevindingen en de bestaande literatuur kunnen we stellen dat interventies die bedoeld zijn om het risico op herhaalde psychiatrische dwangopname te reduceren, gericht moeten worden op het verbeteren van de zelfzorg, het algemeen dagelijks functioneren en op dakloosheid.

Algemene discussie (hoofdstuk 7)

In het discussiehoofdstuk hebben we de bevindingen uit het proefschrift in samenhang met de literatuur, inclusief de meest recente, met elkaar in verband gebracht.

Allereerst hebben we het belang van crisisplannen benadrukt, op basis van de uitkomst van onze meta-analyse en het KR8-onderzoek, waarbij crisisplannen onderdeel waren van het programma. Vervolgens stonden we stil bij het internationale debat over de voorwaardelijke machtiging, waarbij het met name over de Engels OCTET-studie ging. Met ruggensteun van de Cochrane review over dit onderwerp stelden we vast dat het beschikbare onderzoek onvoldoende is om te stellen dat de voorwaardelijke machtiging niet effectief is in het voorkomen van dwangopnames. M.b.t. therapietrouw valt op te merken dat het een belangrijk thema is en interventies gericht op het verbeteren van therapietrouw in combinatie met een goed crisisplan wellicht een waardevol effect kunnen hebben op het verminderen van dwangopnames (ondanks dat er geen bewijs is dat dergelijke interventies, dwangopnames kunnen verminderen). Verder bespraken we de categorie “integrated treatment” waarbij we de hypothese hebben geformuleerd dat verbeteren van de modelgetrouwheid in Nederlandse FACT-teams zou kunnen leiden tot een reductie van dwangopnames. Deze hypothese is gebaseerd op onze eigen bevindingen in FACT-teams in de hoofdstukken 3 en 4 én op basis van de meta-analyse van de subgroep “integrated treatment” in hoofdstuk 2.

Voor de klinische praktijk betekent dit alles in de eerste plaats dat in de ambulante behandeling van EPA-patiënten, vooral van hen die een dwangopname in de voorgeschiedenis hebben, een crisisplan essentieel is. Ten tweede dat intensieve aandacht voor en assertieve benadering van EPA-patiënten in een gestructureerd behandelprogramma, zoals FACT, een wezenlijk verschil kunnen maken, met betrekking tot

psychiatrische opnames in het algemeen en dwangopnames in het bijzonder. Daarbij dient er niet alleen aandacht te zijn voor de psychopathologie bij deze patiënten, maar zeker ook voor dagelijks functioneren, bezigheden, sociaal netwerk en huisvesting van patiënten.

Toekomstig onderzoek moet onverminderd gericht zijn op de epidemiologie en effecten van dwang in Nederland, zeker na het invoeren van de Wet Verplichte GGZ, en de vergelijking daarvan met de situatie onder de oude wetgeving. Het doel moet altijd zijn om dwangopnames te reduceren. Ook is het belangrijk om kwalitatief onderzoek te doen naar de ervaringen van patiënten en hun naasten met ambulante verplichte zorg die nu in Nederland wettelijk mogelijk geworden is. Het allermooist zou zijn om in ons land een gerandomiseerde en gecontroleerde studie uit te voeren, zodat er een wetenschappelijk antwoord komt op de vraag of gedwongen ambulante psychiatrische zorg effectief is.

PORTFOLIO

Title of the project

Reduction of compulsory psychiatric admissions

Departments involved in the project

Yulius

Postbus 1001

3300 BA Dordrecht

Epidemiological and Social Psychiatric Research Institute (ESPRi)

Erasmus MC, Department of Psychiatry

Postbus 2040

3000 CA Rotterdam

Parnassia Group, Antes (formerly known as Bavo Europoort)

Prins Constantijnweg 48

3066 TA Rotterdam

Supervision

Five times a year, 90 minutes per session

Involvement of the promotor and the co-promotors

2014 - 2020

Publications related to the thesis (newest first)

- **De Jong MH**, Wierdsma AI, Zoeteman J, van Boeijen CA, Van Gool AR, Mulder CL. Risk factors for repeated emergency compulsory psychiatric admissions. *BJPsych Open Accepted*
- **De Jong MH**, Wierdsma AI, Van Gool AR, Mulder CL. An intensive multimodal group programme for patients with psychotic disorders at risk of rehospitalization: a controlled intervention study. *BMC Psychiatry* 2019;19:241
- **De Jong MH**, Wierdsma AI, Van Baars AWB, Van Gool AR, Mulder CL. How dangerousness evolves after court-ordered compulsory psychiatric admission: explorative prospective observational cohort study. *BJPsych Open* 2019;5:e32
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17-06-19	Hendrik-Ido-Ambacht, Workshop Jaarsymposium Wetenschappelijke Activiteiten, Yulius: "*Het belang van signaleringsplannen ter preventie van dwangopnames*"
17-06-19	Hendrik-Ido-Ambacht, Plenaire Programma Jaarsymposium Wetenschappelijke Activiteiten, Yulius: "*Wetenschappelijk onderzoek met een mini-budget*"
23-04-19	Alblasserdam, Hofreferaten, Yulius: "*Psychiatrische opnames, dwangopnames en gevaar bij patiënten met ernstige psychiatrische stoornissen*"
06-02-19	Utrecht, Innovatie-symposium GGZ, Healthy Solutions: "*Een intensief multimodaal groepsprogramma (KR8) voor patiënten met psychotische stoornissen: een gecontroleerde interventiestudie*"
18-10-18	Rotterdam, International Conference on Crisis, Coercion and Intensive Treatment in Psychiatry: "*Evolution of dangerousness after court-ordered compulsory psychiatric admissions: an explorative prospective observational cohort study*"
20-09-18	Utrecht, FACT-congres, Resilience+: "*Resultaten van een gecontroleerde interventiestudie naar heropname, kosten en kwaliteit van zorg*"
03-09-18	Rotterdam, Wetenschapslunch Afdeling Psychiatrie, Erasmus MC: "*Dwangopnames bij EPA: preventie, kwalitatieve gegevens en beloop van gevaar*"
19-03-18	Hendrik-Ido-Ambacht, Jaarsymposium Wetenschappelijke Activiteiten, Yulius: "*Beloop van gevaar na dwangopname met een RM*"
08-12-17	Utrecht, Masterclass, Stichting Phrenos: "*Meta-analyse RCT's preventie van dwangopnames: de voorwaardelijke machtiging*"
28-11-17	Warnsveld, onderzoekssymposium EPA / Dwang & Drang: "*Prevention of compulsory admissions: RCT-derived evidence and qualitative research in daily FACT-practice*"
16-11-17	Hendrik-Ido-Ambacht, nascholing vakgroep psychiaters, Yulius: "*Organisatie van zorg: dwang en drang. De casus van de voorwaardelijke machtiging*"
14-09-17	Hamburg, Duitsland, 4th European Congress on Integrated Care and Assertive Outreach, European Assertive Outreach Foundation: "*Prevention of compulsory*

	admissions: RCT-derived evidence and qualitative research in daily FACT-practice"
05-04-17	Maastricht, Voorjaarscongres, NVvP, Symposium: "*Cruciale factoren in het hulpverleningsproces voorafgaande aan psychiatrische dwangopnames*"
27-03-17	Hendrik-Ido-Ambacht, Workshop Jaarsymposium Wetenschappelijke Activiteiten, Yulius: "*Cruciale factoren in het hulpverleningsproces voorafgaande aan psychiatrische dwangopnames*"
27-03-17	Hendrik-Ido-Ambacht, Plenaire programma Jaarsymposium Wetenschappelijke Activiteiten, Yulius: "*Interventies om dwangopnames te voorkomen: een systematische review en meta-analyse*"
26-10-16	Niagara Falls, ON, Canada, International ACT Conference, Ontario ACT Association: "*Reduction of compulsory admissions: meta-analysis and qualitative patient record study*"
14-03-16	Hendrik-Ido-Ambacht, Jaarsymposium Wetenschappelijke Activiteiten, Yulius: "*Reductie van dwangopnames: meta-analyse, kwalitatief dossieronderzoek en Care4Today-praktijkonderzoek*"
08-03-16	Rotterdam, Wetenschappelijk Middagprogramma, Opleiding Psychiatrie, Parnassia Groep (Regio Rijnmond): "*Reductie van dwangopnames: meta-analyse, kwalitatief dossieronderzoek en Care4Today-praktijkonderzoek*"
26-11-15	Rotterdam, ESPRi-symposium, Erasmus MC: "*Reductie van dwangopnames: meta-analyse en praktijkonderzoek*"
25-06-15	Oslo, Noorwegen, 3rd European Congress on Assertive Outreach: "*Prevention Of Compulsory Admissions In (F)ACT Patients: An Impossible Mission?*"
31-03-15	Maastricht, Voorjaarscongres, NVvP. Discussiegroep: "*Preventie van dwangopnames bij EPA-patiënten: een onmogelijke opgave?*"
02-02-15	Rotterdam, Wetenschapslunch Afdeling Psychiatrie, Erasmus MC: "*Can compulsory admissions be prevented? Yellow traffic lights on the road to compulsory admission*"
18-11-14	Alblasserdam, Hofreferaten, Yulius: "*Oranje stoplichten op de weg naar dwangopnames: Zijn dwangopnames te voorkomen? Literatuur-review en dossieronderzoek*"

Courses and training (newest first)

30-12-2019 E-learning Wet verplichte ggz (ID Nummer: 366986) 6 CME points

17-06-2019 Jaarsymposium wetenschappelijke activiteiten Yulius 2019 (ID Nummer: 365036) 4 CME points

23-04-2019 Refereerbijeenkomst Yulius 23 april 2018 (ID Nummer: 357485) 1 CME point

19-03-2019 ESPRi Symposium 19 maart 2019 (ID Nummer: 354718) 3 CME points

13-11-2018 Vakgroepbijeenkomst Medici Yulius: Klaar voor de toekomst? (ID Nummer: 338695) 2 CME points

02-11-2018 CME-toets 'Gedwongen behandeling van mensen met een psychiatrische stoornis in de thuissituatie' (ID Nummer: 334482) 1 CME point

19-10-2018 International Conference on Crisis, Coercion and Intensive Treatment in Psychiatry (CCITP). Theme of the conference: 'Zero-Strategies: From Dream to Reality' (ID Nummer: 326073) 5 CME points

18-10-2018 International Conference on Crisis, Coercion and Intensive Treatment in Psychiatry (CCITP). Theme of the conference: 'Zero-Strategies: From Dream to Reality' (ID Nummer: 326073) 6 CME points

20-09-2018 FACT-congres HARVEST 20 september 2018 "Oogsten uit de proeftuinen van nieuwe pioniers" (ID Nummer: 332185) 5 CME points

19-03-2018 Jaarsymposium wetenschappelijke activiteiten Yulius 2018 (ID Nummer: 317345) 4 CME points

08-12-2017 Phrenos Masterclass Onderzoek 'RCT ja of nee?' (ID Nummer: 306238) 5 CME points

16-11-2017 Vakgroepbijeenkomst Medici Yulius (ID Nummer: 302127) 3 CME points

15-09-2017 4th European Conference on Integrated Care & Assertive Outreach in Mental Disorders (ID Nummer: 290202) 13 CME points

15-06-2017 FACT-congres 15 juni 2017 "In practice what we preach!" (ID Nummer: 288458) 5 CME points

11-05-2017 ESPRi Symposium 11 mei 2017 (ID Nummer: 285983) 3 CME points

06-04-2017 45e NVvP Voorjaarscongres: Veerkracht (ID Nummer: 280355) 6 CME points

05-04-2017 45e NVvP Voorjaarscongres: Veerkracht (ID Nummer: 280355) 6 CME points

27-03-2017 Jaarsymposium wetenschappelijke activiteiten Yulius 2017 (ID Nummer: 282447) 4 CME points

28-10-2016 Ontario ACT Association: International ACT Conference: ACT III - Beyond the standards 19 CME points

14-03-2016 Jaarsymposium wetenschappelijke activiteiten Yulius 2016 (ID Nummer: 245886) 3 CME points

26-06-2015 3rd European Congress on Assertive Outreach. Reaching out together. (ID Nummer: 214362) 12 CME points

01-06-2015 Jaarsymposium wetenschappelijke activiteiten Yulius 2015 (ID Nummer: 218077) 3 CME points

31-03-2015 Nascholing psychiatrie 43e Voorjaarscongres NVvP Psychiatrie op Maat (ID Nummer: 208105) 6 CME points

04-12-2014 ESPRi Symposium 4 december 2014 (ID Nummer: 192655) 3 CME points

21-05-2014 Nascholing psychiatrie Dwangtoepassingen in de psychiatrie (ID Nummer: 179142) 5 CME points

13-03-2014 Masterclass ICH - Good clinical practice (ID Nummer: 154952) 4 CME points

Publications unrelated to the thesis (newest first)

- Brussaard PE, **De Jong MH**. Verbetert een cognitief herstelprogramma negatieve symptomen en functionele uitkomst bij schizofrenie? Referaat. *Tijdschr Psychiatrie* 2015;10:769-70
- **De Jong MH**, Zemel D, Van Gool AR. Clinical aspects of co-morbid schizophrenia and idiopathic Parkinson's disease. *Clin Schizophr Relat Psychoses*. 2014;8:36-40
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- Koster MIME, **De Jong MH**, Derksen MTh, Van Gool AR. Steroïdpsychose bij de behandeling van dreigende vroeggeboorte. *Nederl Tijdschr Geneesk* 2011;155:1046-9
- Van Gool AR, **De Jong MH**, Verhoeven WMA. Toxische plasmaconcentratie van clozapine bij ontstekingsprocessen. *Tijdschr Psychiatrie* 2010;52:791-6
- **De Jong MH**, Van Gool AR, Loonen ALM. De prefrontale cortex als target voor atypische antipsychotica. Referaat. *Tijdschr Psychiatrie* 2010;52:725-6
- **De Jong MH**, Eussen MLJM, Van Gool AR. Antipsychotica en stimulantia: een zinvolle combinatie? *Tijdschr Psychiatrie* 2010;52:57-61

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CURRICULUM VITAE

Mark (Maarten Hendrik) de Jong werd geboren op 29 juni 1978 in Ridderkerk. Hij behaalde zijn VWO-diploma (gymnasium) aan het Wartburg College, locatie Guido de Brès, te Rotterdam in 1996. De studie Geneeskunde volgde hij aan de Erasmus Universiteit te Rotterdam. Hij legde zijn artsexamen af op 23 augustus 2002. Na enkele jaren als assistent-geneeskundige gewerkte te hebben in de gynaecologie en verloskunde (Clara Ziekenhuis Rotterdam en Amphia Ziekenhuis Breda) ging hij in 2006 in de psychiatrie werken bij stichting De Grote Rivieren te Dordrecht. De opleiding tot psychiater volgde hij vanaf 2007 bij deze instelling met dr. G. Faber als A-opleider. Na een keuzejaar ziekenhuispsychiatrie in het Albert Schweitzer Ziekenhuis te Dordrecht rondde hij medio 2011 zijn opleiding tot psychiater af.

Sinds 2011 werkt Mark als psychiater bij Yulius, bij het FACT-team Volgerlanden te Hendrik-Ido-Ambacht. Al tijdens de opleiding tot psychiater raakte hij geïnteresseerd in het klinisch wetenschappelijk onderzoek in de psychiatrie. Na een oriëntatiefase op diverse onderwerpen werd in 2014 onder leiding van prof.dr. Niels Mulder en dr. Arthur Van Gool een begin gemaakt met dit promotieonderzoek. Binnen Yulius is Mark vanaf 2016 leading professional voor de afdeling FACT Volwassenen en Eerste Psychose en vanaf 2020 plaatsvervangend opleider opleiding psychiatrie