Coercive Interventions during Inpatient Psychiatric Care
Patient's preference, prevention and effects

Irina Georgieva

This dissertation is dedicated to all Dutch patients who have been secluded or restrained during their hospitalization

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Coercive Interventions during Inpatient Psychiatric Care

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Dwangmaatregelen tijdens opname in een psychiatrisch ziekenhuis

Voorkeuren van de patiënt, preventie en effecten

Proefschrift

ter verkrijgen van de graad van doctor aan de

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                    Prof.dr. H.J.C. van Marle
                    Prof.dr. A.J.M. Loonen

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CHAPTER 1

General Introduction

Unlike most other medical disciplines, psychiatry is a medical field in which, under certain conditions, patients can be coerced into accepting treatment. Coercion is defined as "any action or threat of actions which compels the patient to behave in a manner inconsistent with his own wishes" (1). This chapter provides a background to contemporary coercive practices by viewing coercion from a number of different perspectives. Current intellectual choices and developments do not exist in a vacuum, but are often the consequence of an age-long process of social, legal and scientific development. A brief exploration of the history of coercive practices is therefore followed by a description of the current legal framework and a short overview of the most recent scientific findings.

1.1 Coercion from a historical perspective

The coercive treatment of psychiatric patients has a long history. Seen from a modern perspective, many of the old approaches to treating mental disorders now seem both inadequate and coercive.

In ancient civilizations it was thought that mental illness was caused by magic, or that people were afflicted by an evil spirit or person that had entered their body. Later on, some 190 years after Christ, insanity was explained as an imbalance of bodily substances. A range of treatments was held to restore the balance: herbs, laxatives, hallucinogens, prayer, moral or emotional suasion, bleeding or shock. The picture[1] at left shows a metal vacuum boot which was used to cure insanity by drawing blood down from the brain.

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[1] Pictures are taken at the museum Het Dolhuys in Haarlem, The Netherlands

With the emergence of the Catholic Church in the middle ages, it was believed that mentally ill people were possessed by supernatural forces or the devil. Formulas and rituals such as that shown at right[1] were used to drive the evil spirits from the body.

Patient chained to the wall (18th century)

In Europe, the first institutions for mentally ill people were opened in the 13th century (2). Their purpose was less to provide treatment than to protect society by locking up the mentally ill. A stay in a mental institution was very stigmatizing; on holidays, people would paid entry fees to observe the patients behind the bars (3). Restless patients were chained to the walls until the late 18th century, when Philippe Pinel, a French psychiatrist, freed them from the chains.

Philippe Pinel (1745-1826) takes the chains from the inmates of the Bicete/ Paris asylum (Charles Muller, 1849)
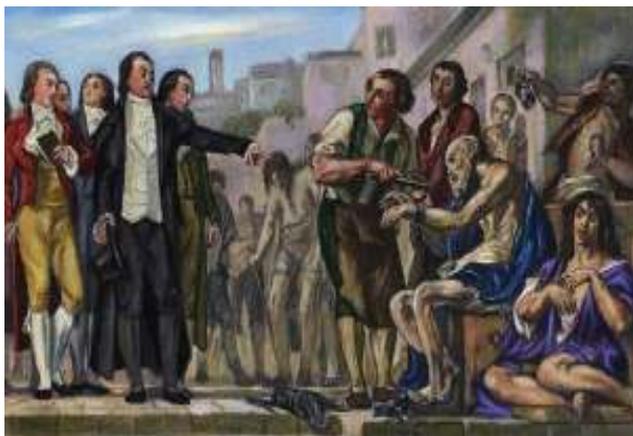
Although Pinel has been widely credited with freeing lunatics from their chains, he continued to threaten his patients with the *camisole* or *gilet de force* (the straightjacket) (4). In his view, such intimidation was justified by the compliance with treatment it produced (5).

Patient wearing constraint jacket and wire mask (19th century)

Pinel was nonetheless the first French using asylums therapeutically and in "giving the patients hope again" (2), lay in gaining patients' confidence. This became a leading philosophy in a new psychological approach known as moral treatment. In the same period, psychiatry began to constitute a distinct discipline in western medicine; in 1808 the term *Psychiaterie* was coined it (2).

In the late 19th century, new theories emerged to explain mental illness. According to Freud, the psyche – or mind – could be sick due to conditions such as childhood trauma, or mental disorders were the product of internal conflicts between unconscious drives and the conscious view of reality (6). Patients were treated through verbal therapy or psychoanalysis.

In this period, clinicians used various ways to restrain patients. Thermal therapy was used to calm aggressive patients, who spent the whole day in a warm bath with a sailcloth cover that prevented them from getting away. Controversial therapies were used, such as an electric bath for healing depression, or, in the 20th century, psychosurgical interventions such as frontal lobotomy (leucotomy), which treated psychosis by cutting the connections to and from the prefrontal cortex. The first experiments with leucotomy were done in 1949 by António Egas Moniz from Lisbon, who won a Nobel Prize for his treatment of psychosis. Approximately 50,000 patients underwent it. However, most patients suffered serious complications such as paralysis, personality changes, or total loss of intellect; sometimes the outcome was fatal.

Another therapy with many-side effects was electroshock therapy (ECT), which was introduced in the 30 years of the last century. Initially, too high a voltage and no anaesthesia were used (7). Since then, though ECT has gained a bad reputation with the lay public, it is used with good effect as an option for treating severe depression or bipolar disorder (8).

A new form of psychiatric treatment arose around 1950 with the accidental discovery of the first psychopharmacologic treatment: the ability to use medication to correct imbalances of neurotransmitters in the brain. The use of sedation eventually made it possible to use immobilising drugs (rapid tranquilizers or involuntary medication) to control the behaviour of agitated patients.

As this short summary shows, for a long period of time, psychiatry lacked effective treatments for severe mental disorders, and many of them had a devastating impact upon the psyche of its patients. Luckily, mental illnesses are no longer viewed as a weird and unnatural phenomenon to be feared and avoided. We have come to realize that scientific and human action can combat the problems of the mind. But while our growing acquaintance with mental disturbances has led to changes in public attitudes, coercive treatments are still needed and accepted in modern psychiatry when patients are dangerous toward

themselves or others. This makes the problem of restraint and seclusion the oldest in institutional psychiatry. In psychiatric services and institutions worldwide today, the question of how coercion can be prevented, or used only when strictly necessary, is still a challenging one.

1.1.1 Historic efforts to prevent coercion

Psychiatric history in America and Europe has produced very few initiatives towards abolishing the policy of restraining agitated patients. In 1821 the "nonrestraint system" was initiated by Edward Parker Charlesworth at the Lincoln Asylum, followed by Ellis at Hanwell (2). In the second half of the 19th century, a no-restraint movement was initiated by Connolly and Hill in England (9), which led to controversy and ongoing discussions in several European countries (10). However, as the complete elimination of such freedom-restricting coercive interventions has never been convincingly reported in any country or period, the debate on the use of compulsion in services for people with mental health needs is far from finished. Although the effects of interventions such as seclusion and restraint have rarely been studied (11), and although severe and even fatal side effects have repeatedly been described (12-15), authors of recent publications from several countries agree that it would not currently be possible to abolish such measures completely (16-18). We can nonetheless improve coercive practices not only by studying their effects and adjusting them according to scientific evidence, but also by trying to prevent or minimize their use, by replacing them with less intrusive treatment options, and by considering patients' preferences.

1.2 Coercion from a legal perspective

In Europe, coercive interventions are regulated by specific legal provisions that vary from one country to another. While EU research comparing legislation on involuntary admission and the treatment of involuntary in-patients showed considerable differences (19), most modern public health legislation on mental

disorders is premised on three core assumptions: 1) that some – but not all – people with mental disorders are not competent to make autonomous decisions about their treatment; 2) that mental disorders may place people at greater risk of self-neglect or of harming themselves or others; and 3) that coercion to redress incompetence or reduce risk is justified.

These three crucial assumptions were held by a small policy elite of legislators and judges on the basis of their perceptions of public concern (20). But coercion can be used only if two important conditions are met: those stated by the United Nation's General Assembly resolution 46/119 of 17 December 1991 (21). First, "every patient shall have the right to be treated in the least restrictive environment and with the least restrictive or intrusive treatment appropriate to the patient's health needs and the need to protect the physical safety of others." Second, "physical restraint or involuntary seclusion of a patient shall not be employed except in accordance with the officially approved procedures of the mental health facility and only when it is the only means available to prevent immediate or imminent harm to the patient or others. It shall not be prolonged beyond the period which is strictly necessary for this purpose. All instances of physical restraint or involuntary seclusion, the reasons for them and their nature and extent shall be recorded in the patient's medical record. A patient who is restrained or secluded shall be kept under humane conditions and be under the care and close and regular supervision of qualified members of the staff. A personal representative, if any and if relevant, shall be given prompt notice of any physical restraint or involuntary seclusion of the patient." This resolution is supported by the European Convention on Human Rights, which also states that "No one shall be subjected to torture or to inhuman or degrading treatment or punishment" [1].

Unfortunately, the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT) found that, in clinical practice, the application of these legal recommendations and regulations were subject to discrepancies: "no country is free of dysfunction or

erroneous practices in any closed psychiatric institution" (22). In my view, there are at least five reasons for this: 1) insufficient scientific evidence is available for determining the least restrictive and the most effective intervention for dealing with aggression or self-harm (11); 2) non-evidence-based cultural norms, prejudices and traditions in psychiatric practices make it difficult to achieve change; 3) coercive measures are sometimes used excessively to compensate for staff shortages, or due to lack of appropriate training and non-coercive mindset/attitude; 4) due to a lack of systematic control, coercive practices are not monitored and registered correctly (19); or 5) local regulations in the use of restraint and seclusion are insufficient or inadequate.

In some countries, changes in legal regulations – such as the "one-hour rule" introduced in the USA (23-24) – have led to a sharp drop in the duration of seclusion and restraint. Not all changes have been successful, however: those to the Finnish Mental Act were not enough to reduce the use of seclusion and restraint or change the prevailing treatment cultures connected with these measures (25).

The Netherlands' Mental Health Act ranks five coercive interventions equally for the management of acute danger: seclusion, involuntary medication, isolation, mechanical restraint and forced feeding – with some exceptions, these are the five commonest coercive interventions across Europe, Australia, New Zeeland, Canada and USA. Although mechanical restraint is now almost unknown in the UK, and although seclusion is banned in Italy, both remain common practice in

Net beds in a German forensic psychiatric hospital, 1967

much of Europe. In Austria and Luxembourg, net beds are commonly used, and in Iceland and the UK, time-out or one-to-one nursing are often practised (26). Although the Netherlands' Mental Health Act does not explicitly mention physical restraint, the technique is often used in Dutch psychiatric hospitals during the administration of involuntary intramuscular medication.

In an era of evidence-based practice, we may be surprised by the great variations in the type, frequency and duration of coercive interventions within and between European countries (see Figure 1) – a lack of harmonization explained not only by differences in legal frameworks and procedures (26-28) and in traditions and ward culture (29), but, as stated above, mainly by the lack of scientific evidence on the least harmful and most effective coercive intervention (11).

This lack automatically led us to the research question posed in **Chapter 4**, on the most effective and least restrictive form of coercive intervention for responding to violent behaviour. As such situations require an individualised approach whereby the most effective and least damaging intervention can be determined for the person in question, the answer is essential for clinicians. The principle of proportionality dictates that coercion is a last resort, and as the Council of Europe recommends (30-32), should also be proportionate to the degree of threat being faced. Similarity, the principle of subsidiarity requires that the intervention is justifiable only when there are no other, less coercive, interventions to deal with the imminent threat (33).

Figure 1. Percentage of inpatients exposed to coercive measures per country as reported by Steinert _et al_. (34)., assuming that all coercive measures have been applied individually, because the rates of combined measures have not been reported.
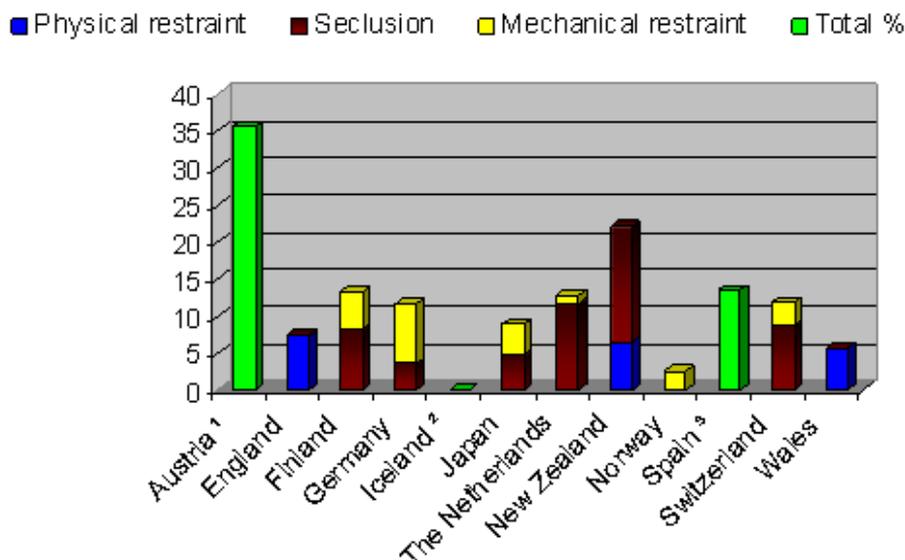
[1] Although mechanical restraint, seclusion & net beds are used in Austria, the exact rates are unknown;
[2] Mechanical restraint and seclusion are not used; the main technique is 1: 1 nursing;
[3] Although mechanical restraint & physical restraint are used in Spain, the exact rates are unknown

Although professionals within and between countries have not found consensus on the least harmful and the most effective coercive measure, the preferred method of dealing with emergencies in most European countries is involuntary medication (35). But unlike their colleagues in these countries, Dutch psychiatric professionals use involuntary medication in only 22% of the situations that require coercion; instead, as Figure 2 shows, seclusion is their preferred method of containment (59%) (36).

The Dutch preference for seclusion is not supported by scientific evidence or legal regulations; under the Netherlands' Mental Health Act, seclusion and involuntary medication are ranked equally for the management of acute violence. The less frequent use of involuntary medication is due to a non-

evidence-based cultural norm that intramuscular administration of medication is a more serious violation of the integrity of an individual's body than being locked up in a seclusion room. This prejudice is probably partly the product of the Dutch legislation, which greatly restricts involuntary medication in non-violent inpatients who refuse treatment even if they have been admitted involuntarily. However, as previous research showed that seclusion and involuntary medication are preferred by equal numbers of Dutch patients (37-38), this cultural norm is not necessarily shared by the patients who suffer its consequences.

This discrepancy between clinical practice, legal regulations and patients' preferences suggests that – as in the most other countries – coercive practices in the Netherlands are strongly influenced by institutional culture and traditions. To minimize the influence of non-evidence-based traditions and culture, **Chapter 3** examines Dutch patients' preferences with regard to coercive methods and the extent to which their choices were determined by previous experience and by demographic, clinical and intervention-setting variables. **Chapter 5** also determines whether it would be possible to replace seclusion with involuntary medication, and whether this would reduce the number and duration of coercive episodes.

Figure 2. Use of coercive measures (Source: Dutch Mental Health Care Inspectorate, (36))
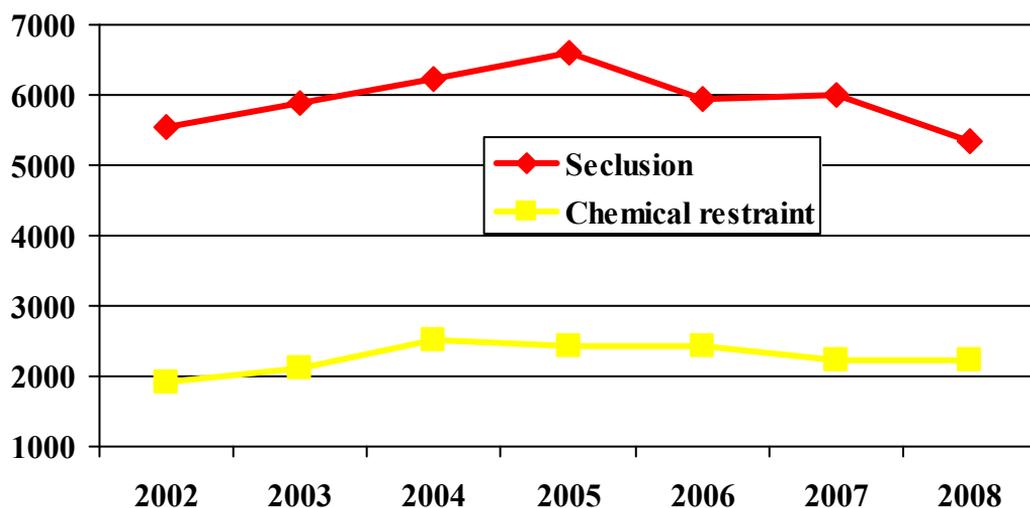
1.3 Coercion from a scientific perspective

Not only is there insufficient scientific evidence on the effects on various outcome parameters of coercive measures, the findings to date have been inconsistent (39). Although patients, family, and staff all have different attitudes and perceptions of coercive measures, patients report very negative feelings, whether they have been restrained or secluded themselves, or have seen it happening to others (40): "Being restrained was the most horrible experience I have had in my life… being restrained and not being able to defend yourself, and then those injections, medication that makes you feel tired, that you want to sleep, but at the same time you are restrained in such a way that you can't fall asleep… that's horrible" (41).

As people with serious mental illness are a highly vulnerable group with high prevalences of trauma victimization (51 to 98 percent) and posttraumatic stress disorder (PTSD) (up to 43 percent) (42-43), we need to remember that they can not only be hypersensitive to threat, which may evoke disproportionate emotional responses in threatening situations, but also they are at serious risk of the additional traumatic or iatrogenic experiences that might occur as a result of coercive treatment. Questions of whether or not to restrain, seclude or medicate patients against their will can thus present staff with serious ethical dilemmas – to seek their own and their patients' protection, all while attempting to minimize any negative consequences of coercive measures. And such consequences can be substantial.

While the reasons for restraint/ seclusion and what precipitates its use also vary, professionals claim that coercion is needed to prevent or to deal with violent or unruly behaviour. This is however subject to discussion, since two English studies (44-45) found that such violence is less the product of an individual's pathology than a consequence of nurses' aversive stimulation of patients in relation to rules on the ward. This explains why, even after adjustment for patients' individual psychopathology, Husum and colleagues (29) found a substantial between-ward variance in the use of coercive measures.

Nowadays the therapeutic short and long-term effects of coercive measures have not been researched extensively and the findings are also seriously questioned: there is too little evidence to determine whether seclusion and restraint are safe or effective interventions for the short-term management of disturbed/violent behaviour in adult psychiatric inpatient settings (46). While some authors called coercive measures "treatment failures" (47), other argued the role of restraint in prevention – of imminent harm to self or others, of substantial damage to the physical environment, and of serious disruption to treatment programmes. Restraint can also reduce the negative effects of too many stimuli on patients, and may be valuable when used in response to service-user requests (16).

Within recent years, there has been widespread and increasing interest in initiatives to reduce coercive measures – not only in the USA and Australia, but also in several European countries including the Netherlands, Germany, the UK, Finland and Switzerland (26). Most of these initiatives were set in motion when data on the use of coercive measures was monitored, making it possible to signal overuse of coercive interventions and to compare practices across countries. For example, as Figure 3 shows, it became clear in 2006 that the Dutch psychiatric services secluded inpatients significantly longer than their counterparts in other countries. In 2003, the mean duration of seclusion in the Netherlands was reported to be 294 hours. However, the reliability of these data, which had been reported by the Dutch Mental Health Care Inspectorate (IGZ), was questionable. More reliable data collected in 2008 (48) showed that the mean duration of seclusion (103.2 hours) was still higher than in all other countries. Therefore the Dutch Ministry of Health has financed various initiatives since 2006 (such as the initiative described in this thesis) to reduce seclusion and to test the efficacy of interventions intended to do so.

Figure 3. Mean duration of a seclusion episode per country as reported by Steinert
_et al._ (34)

Mean duration of seclusion in hours

Finland 22,8 — Germany 6,6 — Japan 98 — The Netherlands 294 — New Zealand 14 — Norway 3 — Switzerland 41,6
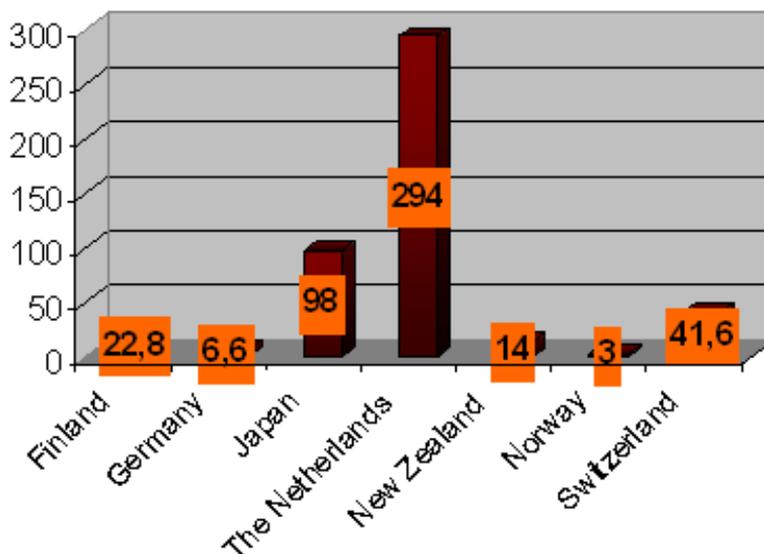
1.4 Coercion from my clinical experience

From 2003 to 2006, I worked as a sociotherapist at different psychiatric hospitals in Rotterdam and its surroundings. This was the first time I had been confronted with seclusion and restraint – memories which are difficult to forget.

Patient I

He was 26 years old. During the last year of his university studies, his thinking became disorganized and confused; he was losing contact with reality, and tended to isolate himself from others. It became clear that he was suffering from schizophrenia, just like his chronically ill mother. He was therefore committed to a long-stay psychiatric unit, where I met him for the first time. He had no history of violent incidents.

One day he refused to change his dirty t-shirt before leaving for creative therapy. However, the young nursing trainee was so determined and insistent that he started waving his hands about to show his disagreement. He didn't touch her, but she felt threatened and pressed the alarm. Nurses came running from all sides of the building. They grabbed his feet and arms and took him screaming and struggling to the seclusion room without asking for an explanation of the situation.

In this example the containment measure was used for control, as a rather authoritarian approach to gaining the patient's compliance – which was contradictory to one of the main objectives of psychiatric rehabilitation, which is to establish and sustain a patient's individual identity. Clearly, the belief that "fear [is] the most effectual principle to reduce the insane to orderly conduct" (49) is still familiar to some modern practitioners.

According to the European Council (30), the Dutch Mental Health Act, and international guidelines for best practices, coercive interventions should be used only in the most extreme circumstances – when patients pose imminent risk of harm to themselves and others. But what are the reasons (risk factors) for seclusion and restraint in clinical practice? This is the research question we studied in **Chapter 2**.

Patient II

She was in her thirties and had been diagnosed with borderline personality disorder. She had been committed several times, and regularly secluded and restrained. After one of her many decompensations she was admitted to the acute psychiatric ward. That day she was very upset because her family didn't come to visit her and, due to a staff shortage, the nursing staff refused to walk with her outside. We were sitting in the garden surrounded by a high fence, when she suddenly took her glass and threw it on the ground to express her frustration. Seeing this, a male nurse standing nearby pressed the alarm. She was taken screaming and struggling to the seclusion room.

If seclusion is so traumatizing for patients with a personality disorder, how can it be prevented? This research question was examined in **Chapter 6**.

Research questions

Overall, this thesis comprises five studies, which investigate the following research questions in turn:

1) What are the risk factors for seclusion and restraint at clinical admission (Chapter 2)?

2) What are patients' experiences and preferences with/for seclusion and involuntary medication (Chapter 3)?

3) What are the effects of different coercive interventions on subjective distress, on reducing patients' aggression and uncooperativeness, on improving psychological functioning and insight into the illness (Chapter 4)?

4) Can the use of seclusion and restraint be reduced by replacing it with involuntary medication (Chapter 5)?

5) Can the use of seclusion and restraint be reduced through a special intensive care unit (Chapter 6)?

The last chapter of this thesis summarises the findings of these studies, examines their limitations, and makes recommendations for clinical practice and future research.

References

1.   Peter R. Breggin. Coercion of Voluntary Patients in an Open Hospital. In: Edward R, editor. Psychiatry and Ethics. New York: Promethus; 1982.

2.   Edward Shorter. A history of psychiatry: from the era of the asylum to the age of Prozac: John Wiley and Sons; 1997.

3.   Porter R. Madmen: A Social History of Madhouses, Mad-Doctors & Lunatics: Tempus; 2006.

4.   Paterson B. Restraint, seclusion and compulsory medication. Still valid after all

these year? . In: Barker P., editor. Mental Health Ethics: The Human Context. London: Routledge. 2010.

5.   Michel Foucault. Psychiatric Power: Lectures at the collège de France 1973-1974: Basingstoke Palgrave Macmillan; 2006.

6.   Fromm E, Funk, R. The Revision of Psychoanalysis: Westview Pr 1992.

7.   Alverno L. The origins of electroconvulsive therapy. Wis Med J. 1990 Feb;89(2):54-6.

8.   Sienaert P. What we have learned about electroconvulsive therapy and its relevance for the practising psychiatrist. Canadian journal of psychiatry. 2011 Jan;56(1):5-12.

9.   Jones K. Robert Gardiner Hill and the non-restraint movement. Canadian journal of psychiatry. 1984 Mar;29(2):121-4.

10.   Colaizzi J. Seclusion & restraint: a historical perspective. J Psychosoc Nurs Ment Health Serv. 2005 Feb;43(2):31-7.

11.   Sailas E, Fenton M. Seclusion and restraint for people with serious mental illnesses. Cochrane Database Syst Rev. 2000(2):CD001163.

12.   Hem E, Steen O, Opjordsmoen S. Thrombosis associated with physical restraints. Acta psychiatrica Scandinavica. 2001 Jan;103(1):73-5; discussion 5-6.

13.   Mohr WK, Petti TA, Mohr BD. Adverse effects associated with physical restraint. Canadian journal of psychiatry. 2003 Jun;48(5):330-7.

14.   Laursen SB, Jensen TN, Bolwig T, Olsen NV. Deep venous thrombosis and pulmonary embolism following physical restraint. Acta psychiatrica Scandinavica. 2005 Apr;111(4):324-7; discussion 7.

15.   Hartford Courant. Deadly restraint. 1998.

16.   Fisher WA. Restraint and seclusion: a review of the literature. Am J Psychiatry. 1994 Nov;151(11):1584-91.

17.   Needham I, Abderhalden C, Dassen T, Haug HJ, Fischer JE. Coercive procedures and facilities in Swiss psychiatry. Swiss Med Wkly. 2002 May 18;132(19-20):253-8.

18.   Salib E, Ahmed AG, Cope M. Practice of seclusion: a five-year retrospective review in north Cheshire. Med Sci Law. 1998 Oct;38(4):321-7.

19.   Salize HJ, Dressing H. Epidemiology of involuntary placement of mentally ill people across the European Union. Br J Psychiatry. 2004 Feb;184:163-8.

20.   Pescosolido BA, Monahan J, Link BG, Stueve A, Kikuzawa S. The public's view of the competence, dangerousness, and need for legal coercion of persons with mental health problems. Am J Public Health. 1999 Sep;89(9):1339-45.

21.   Office of the United Nations High Commissioner for Human Rights. Principles for the protection of persons with mental illness and the improvement of mental health care. Geneva1991.

22.   Niveau G. Preventing human rights abuses in psychiatric establishments: the work of the CPT. Eur Psychiatry. 2004 May;19(3):146-54.

23.   Currier GW, Farley-Toombs C. Datapoints: use of restraint before and after implementation of the new HCFA rules. Psychiatr Serv. 2002 Feb;53(2):138.

24.   LeBel J, Huckshorn KA, Caldwell B. Restraint use in residential programs: why are best practices ignored? Child welfare.89(2):169-87.

25.   Keski-Valkama A, Sailas E, Eronen M, Koivisto AM, Lonnqvist J, Kaltiala-Heino R. A 15-year national follow-up: legislation is not enough to reduce the use of seclusion and restraint. Social psychiatry and psychiatric epidemiology. 2007 Sep;42(9):747-52.

26.   Steinert T, Lepping P, Bernhardsgrutter R, Conca A, Hatling T, Janssen W, et al. Incidence of seclusion and restraint in psychiatric hospitals: a literature review and survey of international trends. Social psychiatry and psychiatric epidemiology. 2009 Sep 2.

27.   Steinert T, Lepping P. Legal provisions and practice in the management of violent patients. a case vignette study in 16 European countries. Eur Psychiatry. 2009 Mar;24(2):135-41.

28.   Salize J, Dresing H, Peitz M. Compulsory admission and involuntary treatment of mentally ill patients – legislation and practice in EU-member states. Mannheim2002.

29.   Husum TL, Bjorngaard JH, Finset A, Ruud T. A cross-sectional prospective study of seclusion, restraint and involuntary medication in acute psychiatric wards: patient, staff and ward characteristics. BMC health services research. 2010;10:89.

30.   Kingdon D, Jones R, Lonnqvist J. Protecting the human rights of people with mental disorder: new recommendations emerging from the Council of Europe. Br J Psychiatry. 2004 Oct;185:277-9.

31.   Steering Committee on Bioethics of the Council of Europe. WHITE PAPER on the protection of the human rights and dignity of people suffering from mental disorder, especially those placed as involuntary patients in a psychiatric establishment: Council of Europe2005.

32.   Liegeois A, Eneman M. Ethics of deliberation, consent and coercion in psychiatry. Journal of medical ethics. 2008 Feb;34(2):73-6.

33.   O'Brien AJ, Golding CG. Coercion in mental healthcare: the principle of least coercive care. J Psychiatr Ment Health Nurs. 2003 Apr;10(2):167-73.

34.   Steinert T, Lepping P, Bernhardsgrutter R, Conca A, Hatling T, Janssen W, et al. Incidence of seclusion and restraint in psychiatric hospitals: a literature review and survey of international trends. Social psychiatry and psychiatric epidemiology. 2010 Sep;45(9):889-97.

35.   Raboch J, Kalisova L, Nawka A, Kitzlerova E, Onchev G, Karastergiou A, et al. Use of coercive measures during involuntary hospitalization: findings from ten European countries. Psychiatr Serv. 2010 Oct;61(10):1012-7.

36.   Dutch Mental Health Inspectorate. Report: prevention of seclusion by psychiatric patients requires improvement of patient-oriented care. Den Haag2008.

37.   Veltkamp E, Nijman H, Stolker JJ, Frigge K, Dries P, Bowers L. Patients' preferences for seclusion or forced medication in acute psychiatric emergency in the Netherlands. Psychiatr Serv. 2008 Feb;59(2):209-11.

38.   Georgieva I, Mulder CL, Wierdsma A. Patients' Preference and Experiences of Forced Medication and Seclusion. The Psychiatric quarterly. 2011 Apr 24.

39.   Bower FL, McCullough CS, Timmons ME. A synthesis of what we know about the use of physical restraints and seclusion with patients in psychiatric and acute care settings: 2003 update. The online journal of knowledge synthesis for nursing. 2003 Apr 22;10:1.

40.   Mayers P, Keet N, Winkler G, Flisher AJ. Mental health service users' perceptions and experiences of sedation, seclusion and restraint. Int J Soc Psychiatry. 2010 Jan;56(1):60-73.

41.   Sibitz I, Scheutz A, Lakeman R, Schrank B, Schaffer M, Amering M. Impact of coercive measures on life stories: qualitative study. Br J Psychiatry. 2011 Sep;199:239-44.

42.   Cusack KJ, Frueh BC, Brady KT. Trauma history screening in a community mental health center. Psychiatr Serv. 2004 Feb;55(2):157-62.

43.   Grubaugh AL, Zinzow HM, Paul L, Egede LE, Frueh BC. Trauma exposure and posttraumatic stress disorder in adults with severe mental illness: a critical review. Clin Psychol Rev. 2011 Aug;31(6):883-99.

44.   Whittington R, Wykes T. Aversive stimulation by staff and violence by psychiatric patients. Br J Clin Psychol. 1996 Feb;35 (Pt 1):11-20.

45.   Papadopoulos C, Bowers L, Quirk A, Khanom H. Events preceding changes in conflict and containment rates on acute psychiatric wards. Psychiatr Serv. 2012 Jan 1;63(1):40-7.

46.   Nelstrop L, Chandler-Oatts J, Bingley W, Bleetman T, Corr F, Cronin-Davis J, et al. A systematic review of the safety and effectiveness of restraint and seclusion as interventions for the short-term management of violence in adult psychiatric inpatient settings and emergency departments. Worldviews on evidence-based nursing / Sigma Theta Tau International, Honor Society of Nursing. 2006;3(1):8-18.

47.	Whittington R., Baskind E., Paterson B. Coercive measures in the management of imminent violence: Restraint, Seclusion and Enhanced Observation. In: Richter D., Whittington R., editors. Violence in Psychiatry; Causes Consequences and Control. New York: Springhouse; 2006.

48.	Janssen W ea. Separaties in psychiatrische ziekenhuizen 2002-2008: Nederland internationaal vergeleken. MGV. 2009;64(457 – 469).

49.	Daniel Hack Tuke. Chapters in the History of the Insane in the British Isles. London: Kegan Paul 1882.

CHAPTER 2

Early detection of risk factors for seclusion and restraint: a prospective study [2]

ABSTRACT

Aim: To examine the predictive power of static and dynamic risk factors assessed at admission to an acute psychiatric ward and to develop a prediction model evaluating the risk of seclusion and restraint.

Methods: Over 20 months, data on demographic and clinical characteristics, psychosocial functioning, level of insight, uncooperativeness and use of coercive measures were collected prospectively on 520 patients at admission. Logistic regression analysis was used to develop a prediction model. The magnitude of the predictive power of this model was estimated using receiver-operating characteristic analysis.

Results: The prediction model contained one static predictor (involuntary commitment) and two dynamic predictors (psychological impairment and uncooperativeness), with a high predictive power (ROC AUC=0.83). The final risk model classified 72% of the patients correctly, with a higher sensitivity rate (80%) than specificity rate (71%).

Conclusions: Early assessment of patients' psychological impairment and uncooperativeness can help clinicians to recognize patients at risk for coercive measures and approach them on time with preventive and less restrictive interventions. While this simple, highly predictive model accurately predicts the risk of seclusion or restraint, further validation studies are needed before it can be adopted into routine clinical practise.

2.1 Introduction

Seclusion and chemical or physical restraint are coercive methods for managing acute, violent behaviour by psychiatric patients. These methods are controversial, and although their harm or benefit to treatment are still unproven (1), they often have traumatic consequences for patients and staff (2-3). Their use should therefore be avoided as much as possible. Lepping and colleagues (4) found that the success of avoiding coercive measures depends largely on nurses' ability to predict which patients are likely to engage in conflict behaviours. An active risk assessment is recommended as one of the core interventions for elimination of coercive practices (5-7), but there is a lack of assessment tools developed to determine specifically the risk for seclusion and restraint. Previous studies (8-9) assessed the risk of coercive incidents with a tool developed to predict mainly violent incidents (i.e. Brøset Violence Checklist; (10)). This is a logical choice based on the assumption that coercive incidents are used in the most extreme circumstances only when patients pose imminent risk of harm to themselves and others, as recommended by the European Council (11), the Dutch Mental Health Act and international guidelines for best practices. However, there is enough evidence showing that coercive interventions are sometimes prompted by other reasons than violent behaviour and violent incidents are not always followed by coercive interventions. Besides violence, other internal risk factors (i.e. those inherent to the patient) were repeatedly associated with coercive incidents, including the severity of psychiatric symptoms (12-14), patient's agitation or disorientation (15-18), younger age (19-26), and involuntary admission status (19, 21, 25, 27). Furthermore, many researchers have concluded that the reasons for seclusion were often more related to interactional factors (i.e. staff/patient relations such us refusal of medication) (28-29) or external factors (i.e. environmental factors such as staffing levels, locked wards, type of shift when admission occurred or lack of single-bed rooms) (21, 23, 29-33) than to internal risk factors.

Therefore, we assessed the predictive power of a broader spectrum of risk

factors than violence alone, aiming to develop an empirically and clinically relevant prediction model for indentifying patients at risk for seclusion and restraint at admission. We think that such a model may help clinicians to detect patients at risk in an early stadium and approach them with preventive intervention for reducing the use of coercive measures.

2.2 Methods

2.2.1 Hospital characteristics and data collection

This study was conducted on an acute ward in Mental Health Centre West North Brabant in The Netherlands that provides care to people in a catchment area of around 276,000 citizens. This psychiatric facility admits patients above 18 years of age. Only patients experiencing their first hospitalization at this ward were included, resulting in 520 individual patients.

From November 2007 until August 2009, data on socio-demographic and clinical variables were collected prospectively from patients' records: they included the internal factors gender, age, ethnicity, admission state, and the external factor time of admission. By interviewing patients, we also assessed past coercive experiences, education level, marital status, and living and employment status. On the ward, the psychiatrist made a clinical diagnosis and assessed overall mental functioning (GAF score). After training in the respective instruments (see below), nurses rated at admission patients' uncooperativeness with treatment, insight into the illness, as well as different aspects of the patients' psychological and social functioning. Data on the use of restrictive measures were extracted from the hospital database.

The local Medical Ethical Committee approved the research and waived the requirements for informed consent, as the research involved no risks to the patients, and as data were collected as part of a policy-control procedure.

2.2.2 Instruments

Kennedy Axis V was used to assess 1) psychological impairment, 2) social skills, 3) violence, 4) activities of daily living (ADL) and occupational skills, 5) substance abuse, 6) medical impairment, and 7) ancillary impairment (34). These seven subscales capture the clinician's impression of the individual's overall level of functioning, rated from 10 to 100. A higher score reflects better functioning. We added an eighth subscale evaluating patient's motivation for treatment. The psychometric characteristics of the Dutch version of the Kennedy Axis V were found to be satisfactory (35).

To determine patients' lack of judgment and insight at admission, we used item G12 of the Positive and Negative Syndrome Scale (PANSS), defined as: "impaired awareness or understanding of one's own psychiatric condition and life situation''. As far as recent research has stressed the importance of negative interactions between staff and patients as source of arising conflicts (36-37), non-therapeutic relationships (38) and provoking patients' active refusal to comply (39), we determined the quality of the staff-patient interaction by assessing patient's uncooperativeness using item G8 from the same scale. Uncooperative attitude is defined in the scale as "active refusal to comply with the will of significant others (including the interviewer, hospital staff, or family), which may be associated with distrust, defensiveness, stubbornness, negativism, rejection of authority, hostility, or belligerence". Both items are rated in a range of 7 degrees from 1 (absent) to 7 (extreme) (40).

2.2.3 Definitions of seclusion and restraint

For the purposes of the study and in line with routine practice, seclusion was defined as the placement of a patient in a locked room from which free exit is denied for a fixed period of time.

Chemical restraint refers to the administration of a rapid tranquilizer without the consent of the patient and with or without physical restraint.

Physical or mechanical restraint was defined as any physical means or mechanical device, which limited temporally the patient's movement, physical activity, or normal access to his or her body.

2.2.4 Statistical procedures

First we used logistic regression models to calculate the bivariate associations (odds ratios) between 1) the dichotomous outcome (seclusion/restraint yes or no) as a dependent variable, and 2) all 23 patient-related variables as independent variables. In addition, a multiple logistic regression was performed in a forward stepwise manner. To identify the best prediction model at statistical level $p=.05$, all independent variables were included.

To evaluate the predictive power of the selected prediction model, we computed the Receiver-Operating Characteristic curve (ROC), a statistical method expressing the true accuracy of a prediction model or test. ROC is a plot of the hit rate (or sensitivity) as a function of the test's false alarm rate (1-specificity). There is always a trade-off between sensitivity and specificity; the former cannot be improved without worsening the latter (and vice versa). The area subtended by the ROC is a good overall index of the model's accuracy. The area under the curve (AUC) represents general predictive power, with 0.5 equalling non-prediction, 1.0 equalling perfect positive prediction, and 0.0 equalling perfect negative prediction. We used the ROC to determine the cut-off point for the highest sensitivity and specificity rates. All calculations were performed using SPSS version 16.0.

2.3 Results

2.3.1 Patient characteristics (Table 1)

The mean age of all patients was 40 years (SD=13), distributed almost equally over the four age groups. The majority of the patients were male. Seventeen percent of the patients were of non-Dutch origin. Forty-four percent of them had two or more

diagnoses, with a higher prevalence of mood disorders, followed by addictive disorders (alcohol or drugs), psychotic disorders, personality disorders and posttraumatic stress disorder. According to the clinical judgment of the ward psychiatrist, the mean GAF score at admission for all patients was 41 (SD=13).

Half the patients were admitted during the evening shift. The mean hospitalization period was 13 days, with a minimum stay of one day and a maximum stay of 125 days (SD=16).

2.3.2 Use of coercive measures

Seventy-four patients (14%) underwent one or more coercive measure during their hospitalization. In over half of the cases, the measure was applied on the same day, directly after admission (58%). Forty-six patients (62%) were secluded only, 13 (18%) were involuntary medicated, 12 (16%) were both secluded and medicated, and three patients (4%) were secluded and mechanically restrained.

2.3.3 Bivariate associations between risk factors and use of coercive measures (Table 1)

The following internal factors were significantly associated with higher risk for seclusion and restraint: male gender, younger age, involuntary commitment, previous experience with coercive measures, psychotic disorder, lack of judgment and insight, and a GAF score below 35, indicating major impairment in functioning. Besides that, the likelihood of being coerced was marginally but significantly associated with impaired functioning according to all Kennedy subscales, except for the 'medical impairment' subscale. The interactional and external factors uncooperativeness and admission during the night shift also showed to be significantly associated with seclusion and restraint.

Table 1. Factors associated with the use of coercive measures in hospitalized patients (n=520). Unadjusted odds ratios with 95% confidence interval of patients without coercive experience (coding: 0) versus coerced patients (coding: 1).

Variable	Total[1] N= 520 (%)	Patients without coercive experience N=446 (86%) N (%) / Mean (SD)	Patients with coercive experience N=74 (14%) N (%) / Mean (SD)	Unadjusted odds ratio (95% CI)
Gender	518			
Male	273 (53%)	223 (82%)	50 (18%)	**2.2 (1.3 -3.7)****
Female	245 (47%)	222 (91%)	23 (9%)	1.0 (reference)
Average age	516			
16-30[2]	138 (26%)	109 (79%)	29 (21%)	**2.6 (1.3 - 5.4)****
31-40	107 (21%)	91 (85%)	16 (15%)	1.7 (0.8 - 3.8)
41-50	145 (28%)	128 (88%)	17 (12%)	1.3 (0.6 – 2.8)
>50	130 (25%)	118 (91%)	12 (9%)	1.0 (reference)
Marital status	501			
Unmarried	381 (76%)	323 (85%)	58 (15%)	0.7 (0.4 – 1.4)
Married	120 (24%)	106 (88%)	14 (12%)	1.0 (reference)
Living status	504			
Living alone	264 (52%)	227 (86%)	37 (14%)	0.9 (0.5 – 1.5)
Living together	240 (48%)	203 (85%)	37 (15%)	1.0 (reference)
Employment status	468			
Employed	59 (13%)	52 (88%)	7 (12%)	0.8 (0.4 – 2)
Unemployed	409 (87%)	352 (86%)	57 (14%)	1.0 (reference)
Education	446			
Low	227 (51%)	196 (86%)	31 (14%)	1.9 (.6 – 5.5)
Middle	168 (38%)	141(84%)	27 (16%)	2.3 (.7 -6.8)
High	51 (11%)	47(92%)	4 (8%)	1.0 (reference)
Ethnicity	507			
1st & 2nd generation immigrants	88 (17%)	70 (79%)	18 (21%)	1.7 (0.9 – 3)
Dutch origin	419 (83%)	365 (87%)	54(13%)	1.0 (reference)

Table 1a. Continued

Variable	Total[1] N= 520 (%)	Patients without coercive experience N=446 (86%) N (%) / Mean (SD)	Patients with coercive experience N=74 (14%) N (%) / Mean (SD)	Unadjusted odds ratio (95% CI)
Legal status	504			
Involuntary	128 (25%)	79 (62%)	49 (38%)	**9.9 (5.7 – 17.5)***
Voluntary	376 (75%)	354 (94%)	22 (6%)	1.0 (reference)
Coercive experience during previous hospitalizations	464			
With	61(13%)	70 (77%)	21 (23%)	**2.4 (1.4 – 4.4)**
Without	403 (87%)	332 (89%)	41 (11%)	1.0 (reference)
Age of illness onset	431	31 (14)	28 (12)	0.9 (0.9 – 1)
Diagnosed patients	507			
Psychotic disorder	103 (20%)	75 (73%)	28 (27%)	**2.9 (1.7 – 5)***
Mood disorder	152 (29%)	132 (87%)	20 (13%)	0.8 (0.5 – 1.5)
Personality disorder	99 (19%)	89 (90%)	10 (10%)	0.6 (0.3 -1.2)
Addiction	145 (28%)	127 (88%)	18 (12%)	0.8 (0.5 – 1.5)
PTSD[3]	24 (4%)	22 (92%)	2 (8%)	0.5 (0.1 – 2.3)
GAF[4]	479			
<35	128 (27%)	95 (74%)	33 (26%)	**4.5 (1.8 -11)**
35-54	267 (56%)	240 (90%)	27 (10%)	1.5 (0.6 – 3.7)
≥55	84 (17%)	78 (93%)	6 (7%)	1.0 (reference)
Lack of judgment and Insight	511	2.9 (1.4)	4.4 (1.6)	**1.97 (1.6- 2.4)***

Table 1b. Continued

Variable	Total[1] N= 520 (%)	Patients without coercive experience N=446 (86%) N (%) / Mean (SD)	Patients with coercive experience N=74 (14%) N (%) / Mean (SD)	Unadjusted odds ratio (95% CI)
Subscales Kennedy Axis V				
Psychological impairment	516	51 (15)	39 (12)	**0.9(0.9 – 0.95)***
Social skills	517	65 (16)	54 (17)	**0.9 (0.9 - 0.97)***
Violence	516	60 (21)	48 (20)	**0.9 (0.96 - 0.98)***
Activities of daily living or occupational skills	511	62 (19)	54 (19)	**0.9 (0.96 - 0.99)**
Substance abuse	509	70 (24)	62 (26)	**0.9 (0.97 - 0.99)**
Medical impairment	511	77 (16)	75 (16)	0.9 (0.97 – 1)
Ancillary impairment	508	72 (17)	66 (16)	**0.9 (0.96 - 0.9)**
Motivation for treatment	500	69 (20)	45 (22)	**0.9 (0.9 - 0.96)***
Uncooperativeness	517	2.4 (1.3)	4.1 (1.8)	**1.95 (1.7- 2.3)***
Type admission shift	514			
Evening shift: 3.30 pm until 10.30pm	262 (51%)	225 (86%)	37 (14%)	1.4 (0.7 – 2.5)
Night shift: 10.30pm until 7 am	95 (18%)	75 (80%)	20 (20%)	**2.2 (1.1 – 4.4)***
Day shift 7 am until 3.30 pm	157 (30%)	140 (89%)	17 (11%)	1.0 (reference)

$*P<.05$ $**P<.01$ $***P<.001$

[1]Because some of the clinical files were incomplete, the *n* and the percentage of respondents vary across the variables

[2]The association was still significant (p<0.01) when compared with the rest of the patients (1.9 (1.2 - 3.3))

[3]Post-traumatic stress disorder

[4]Global assessment of functioning as assessed by the psychiatrist at the ward

2.3.4 Multivariate associations between risk factors and use of coercive measures

A stepwise forward logistic regression was performed with occurrence of seclusion or restraint (dichotomously yes/no) as dependent variable, and all the characteristics listed in Table 1 as independent variables. The final model consisted of three significant predictors: psychological impairment, involuntary commitment and uncooperativeness associated with occurrence of seclusion or restraint. Table 2 shows the odds ratios and the confidence intervals of the final model with N=499.

Table 2. Results of multivariate logistic regression analysis: significant risk predictors of seclusion and restraint

	OR (95% CI)
Psychological impairment	0.96*** (0.93-0.98)
Involuntary commitment	4.66*** (2.47-8.82)
Uncooperativeness	1.37** (1.12-1.67)

R^2 = .35 (Nagelkerke); * P<.05 **P<.01 ***P<.001

2.3.5 ROC analyses, sensitivity and specificity

As Figure 1 shows, the predictive power of the final prediction model was significant and substantial, with a ROC area under the curve of 0.83 (95%CI: 0.775 – 0.886).

Figure 1. Receiver-Operating Characteristic curve (ROC) of three risk predictors for seclusion and restraint

Diagonal segments are produced by ties.
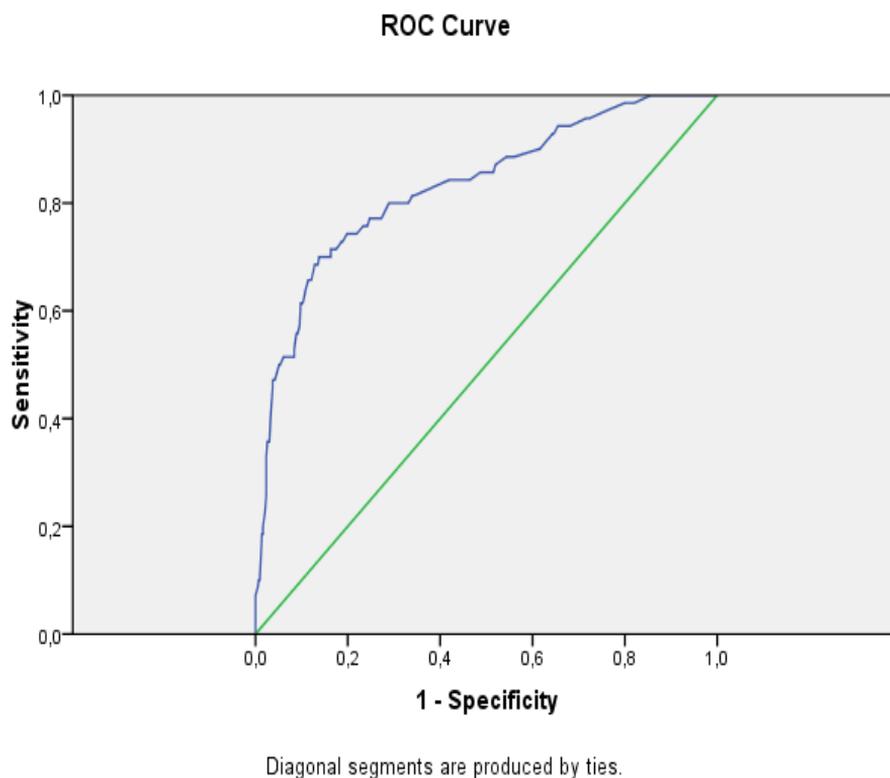
As the main purpose of risk assessment in mental health services should be to 'prevent' rather than just 'predict', we chose a cut-off point with the lowest percentage of false negatives, so we could detect as many patients as possible who were potential candidates for seclusion and restraint. The definitive model predicted 72% of the cases correctly, with a higher sensitivity rate (80%: predicting the patients who were at risk for seclusion or restraint) than specificity rate (71%: patients who did not meet the criteria for seclusion and restraint, who were correctly

indentified as such). At this cut-off point **(0.0910331)**, the false positive rate for the model was 25% and the false negative rate was 3%.

2.4 Discussion

We found that two internal factors (i.e. psychological impairment and involuntary commitment) and one interactional factor (i. e and uncooperativeness) significantly predicted the use of coercive measures on an acute psychiatric ward. The importance of assessing psychological impairment when predicting coercive events, is not only supported by our and by earlier findings (12-13), it is also consistent with the most Mental Health Acts that postulate that the acute danger has to arise from patient's psychopathology in order to be a legally justifiable reason for seclusion or restraint.

It was also not surprising that involuntary commitment proved once again to be a stable internal risk factor, as found earlier (see Introduction): in order to become eligible for involuntary treatment, patients simultaneously have to suffer from a mental disorder, pose a danger to themselves or others that cannot be prevented in an outpatient setting, and refuse admission. Although the first two risk criteria need to be met for secluding or restraining patients, coercive measures are not used with all involuntarily admitted patients, but only with those who refuse to cooperate with staff at admission, as found earlier (41).

Cooperativeness is actually a loaded term in the psychiatric context where it could be seen, again, as simply submission to the power of staff or as a rather authoritative approach to gaining patients' compliance with the rules in the ward. An individualised approach in implementing the ward's rules, might produce less disagreement, and automatically lead to less wards' conflicts: evidence indicates an important relationship between nurse-patient interaction and rule implementation (42), and also between effective rules structure and staff-patient disagreements (43).

As emphasized earlier (37), not all disagreements between staff and patients count as conflict and should be followed by containment measures; instead, such

measures should be used only when a disagreement involves behaviours that may cause harm to others or the patients themselves. If we accept that the main therapeutic goal of psychiatric admission is to reduce symptoms and bizarre behaviours, and to promote social engagement, some of the assertive nonconformity on the part of the patient may be seen as both healthy and a therapeutic advance. This argument suggests that staff should tolerate a level of uncooperativeness that would not lead to serious adverse consequences such as harm to others or the self. While such a tolerant approach is not consistent with a conceptual framework of strong paternalistic policy, it is certainly consistent with a therapeutic environment based on negotiation, open communication, mutual understanding and respect.

Further, we found that violence marginally predicted the risk of seclusion and restraint (see Table 1) and it did not remain a significant predictor when adjusted for the effect of other variables. If we assume that the violence subscale of Kennedy Axis V was sensitive enough to identify aggressive behaviour, our study confirmed earlier findings (15, 18) that, despite legal regulations and recommendations in the international literature (6), less serious reasons than violence can trigger seclusion and restraint. There are evidences showing that in reaction to stress or threat (e.g. conflicts between staff and patients), people showed the tendency to offer solutions before considering all available alternatives (44) and their cognitive processes were restricted (45). If staff feel threatened, they may become less objective when assessing the probability of patients' uncooperativeness to escalate into severe violence. In such situations they may incline toward containing uncooperative patients to secure the safety at the ward, without considering less restrictive alternatives, even if there are no clear signs of violence. Especially when staff feel less confident with their de-escalation and interpersonal/communication skills or by low staffing levels (46), the containment of uncooperative patients may seem the only alternative.

2.4.1 Limitations of the study

Firstly, as our prediction model was constructed on data collected in a single ward, there are questions about the generalizability of our findings. Two recent studies (14, 47) showed that, even after correction for patient characteristics, differences in use of coercive measures were explained by substantial between-ward variance. Hence, our prediction model should be validated (48).

Secondly, we used observational scales to evaluate some of the potential risk factors. Although the nurses were well trained to assess patients' condition on the basis of the same criteria, such scales involve subjective estimates, which can vary according to personal values and individual interpretations of challenging behaviour. Unfortunately, since the majority of the coercive measures were used on the first day of admission, we must presume that these patients were not cooperative enough to fill in self-rating scales. Similarly, because it is the clinical staff who decides when to seclude or restrain patients, their assessment should be taken into account when a method of risk prediction for seclusion and restraint is developed.

Thirdly, we used only the violence subscale of Kennedy Axis V to detect aggressive behaviour. To assess the risk of violence, future research on assessing the risk of seclusion and restraint should use a more specific instrument, such as the Broset Violence Checklist (10).

Finally, we didn't estimate the predictive value of some external/environmental factors such us as staffing levels or type of the ward, which have already been proven to increase significantly the risk for seclusion and restraint (23, 30-33).

2.4.2 Clinical implications

To magnify the clinical relevance of risk assessments tools, they should be used for the purpose of developing interventions (49). This means there should be a strong

predilection for tools that include dynamic, changeable parameters (e.g uncooperativeness and psychological functioning) and less static factors, which cannot be changed with clinical intervention (e.g involuntary commitment). The likelihood of seclusion and restraint may be reduced by clinical interventions focused on improving psychological functioning (for example through medication), and also by improving working alliance.

Stolker and colleagues (22) found that seclusion was significantly delayed in patients with psychotic disorders who used antipsychotics during the first week after admission. Similarly, Goldbloom and colleagues (26) found that an early pharmacological intervention can reduce the incidence of seclusion and restraint among high-risk patients early in their hospitalization. However, previous research also showed that the success of pharmacological treatment depends on how compliant patients are (50): patients who refused medication fared worse than compliant patients, were more assaultive, required more seclusion and restraint, and needed longer hospitalizations (51).

To improve patient compliance, and create and sustain a stable therapeutic relationship during treatment, staff should be well trained in how to negotiate with an agitated patient and how to apply appropriate de-escalation techniques proactively (52), also because less trained mental health workers become easier victims of psychiatric patient assaults (53). They should also be able to estimate whether a patients' uncooperativeness is due to a serious psychological impairment or it concerns assertive nonconformity and weather this uncooperativeness has the potential to escalate into violent behaviour or not. Some studies have already shown how the use of seclusion and restraint can be successfully reduced by training staff in crisis interventions, or in non-violent alternatives to restraint such as de-escalation techniques (7, 54-61). These interventions may become even more successful when they are combined with a structural risk assessment.

As far as this and other studies showed that the most coercive incidents occurred during the first hospitalization days (62-64), a structural risk assessment

should start immediately after admission on an acute inpatient psychiatric unit and continue during the whole hospitalization period on a daily or a weekly basis.

2.5 Conclusions

Our model for assessing the risk of seclusion or restraint is simple, accurate and highly predictive, including two dynamic risk factors. We think that besides violent behaviour, psychological impairment and patients' uncooperativeness should be assessed. It may help mental heath professionals to improve their ability to detect patients at risk for seclusion and restraint and to approach them on time with preventive less restrictive interventions. However, before this model is adopted into routine clinical practice, further validation studies are required.

References

1.   Sailas E, Fenton M. Seclusion and restraint for people with serious mental illnesses. Cochrane Database Syst Rev. 2000(2):CD001163.

2.   Moran A, Cocoman A, Scott PA, Matthews A, Staniuliene V, Valimaki M. Restraint and seclusion: a distressing treatment option? J Psychiatr Ment Health Nurs. 2009 Sep;16(7):599-605.

3.   Nelstrop L, Chandler-Oatts J, Bingley W, Bleetman T, Corr F, Cronin-Davis J, et al. A systematic review of the safety and effectiveness of restraint and seclusion as interventions for the short-term management of violence in adult psychiatric inpatient settings and emergency departments. Worldviews on evidence-based nursing / Sigma Theta Tau International, Honor Society of Nursing. 2006;3(1):8-18.

4.   Lepping P, Steinert T, Needham I, Abderhalden C, Flammer E, Schmid P. Ward safety perceived by ward managers in Britain, Germany and Switzerland: identifying factors that improve ability to deal with violence. J Psychiatr Ment Health Nurs. 2009 Sep;16(7):629-35.

5.   Curie CG. SAMHSA's commitment to eliminating the use of seclusion and restraint. Psychiatr Serv. 2005 Sep;56(9):1139-40.

6.   Huckshorn KA. Re-designing state mental health policy to prevent the use of seclusion and restraint. Adm Policy Ment Health. 2006 Jul;33(4):482-91.

7.   D'Orio BM, Purselle D, Stevens D, Garlow SJ. Reduction of episodes of seclusion and restraint in a psychiatric emergency service. Psychiatr Serv. 2004 May;55(5):581-3.

8.   Abderhalden C, Needham I, Dassen T, Halfens R, Haug HJ, Fischer JE. Structured risk assessment and violence in acute psychiatric wards: randomised controlled trial. Br J Psychiatry. 2008 Jul;193(1):44-50.

9.   Needham I, Abderhalden C, Meer R, Dassen T, Haug HJ, Halfens RJ, et al. The effectiveness of two interventions in the management of patient violence in acute mental inpatient settings: report on a pilot study. J Psychiatr Ment Health Nurs. 2004 Oct;11(5):595-601.

10.   Almvik R, Woods P. Predicting inpatient violence using the Broset Violence Checklist (BVC). The international journal of psychiatric nursing research. 1999 Jan;4(3):498-505.

11.   Kingdon D, Jones R, Lonnqvist J. Protecting the human rights of people with mental disorder: new recommendations emerging from the Council of Europe. Br J Psychiatry. 2004 Oct;185:277-9.

12.   Raboch J, Kalisova L, Nawka A, Kitzlerova E, Onchev G, Karastergiou A, et al. Use of coercive measures during involuntary hospitalization: findings from ten European countries. Psychiatr Serv. 2010 Oct;61(10):1012-7.

13.   Steinert T, Gebhardt RP. [Are coercive measures carried out arbitrarily?]. Psychiatrische Praxis. 2000 Sep;27(6):282-5.

14.   Lay B, Nordt C, Rossler W. Variation in use of coercive measures in psychiatric hospitals. Eur Psychiatry. 2011 Feb 4.

15.   Kaltiala-Heino R, Tuohimaki C, Korkeila J, Lehtinen V. Reasons for using seclusion and restraint in psychiatric inpatient care. Int J Law Psychiatry. 2003 Mar-Apr;26(2):139-49.

16.   Brown JS, Tooke SK. On the seclusion of psychiatric patients. Social science & medicine (1982). 1992 Sep;35(5):711-21.

17.   Walsh E, Randell BP. Seclusion and restraint: what we need to know. J Child Adolesc Psychiatr Nurs. 1995 Jan-Mar;8(1):28-40.

18.   Keski-Valkama A, Sailas E, Eronen M, Koivisto AM, Lonnqvist J, Kaltiala-Heino R. The reasons for using restraint and seclusion in psychiatric inpatient care: A nationwide 15-year study. Nord J Psychiatry. 2010 Apr;64(2):136-44.

19.   Marie van der Merwe, Len Bowers, Julia Jones, Eimear Muir-Cochrane, Tziggili M. Seclusion: a literature review. London: City University London, Disability DoMHaL;2009.

20.   Keski-Valkama A, Sailas E, Eronen M, Koivisto AM, Lonnqvist J, Kaltiala-Heino R. Who are the restrained and secluded patients: a 15-year nationwide study. Social psychiatry and psychiatric epidemiology. 2009 Oct 21.

21.   Way BB, Banks SM. Use of seclusion and restraint in public psychiatric hospitals: patient characteristics and facility effects. Hospital & community psychiatry. 1990 Jan;41(1):75-81.

22.   Stolker JJ, Hugenholtz GW, Heerdink ER, Nijman HL, Leufkens HG, Nolen WA. [Seclusion of admitted psychotic patients: later in the case of antipsychotic use and also possibly less often.]. Nederlands tijdschrift voor geneeskunde. 2003 Mar 22;147(12):557-61.

23.   Nitschke-Janssen M, Branik E. [Factors contributing to the use of seclusion and restraint--a retrospective analysis in a Swiss clinic for child and adolescent psychiatry]. Praxis der Kinderpsychologie und Kinderpsychiatrie. 2006;55(4):255-70.

24.   Swett C. Inpatient seclusion: description and causes. The Bulletin of the American Academy of Psychiatry and the Law. 1994;22(3):421-30.

25.   Tunde-Ayinmode M, Little J. Use of seclusion in a psychiatric acute inpatient unit. Australas Psychiatry. 2004 Dec;12(4):347-51.

26.   Goldbloom DL, Mojtabai R, Serby MJ. Weekend prescribing practices and subsequent seclusion and restraint in a psychiatric inpatient setting. Psychiatr Serv. 2010 Feb;61(2):193-5.

27.   Soloff PH, Turner SM. Patterns of seclusion. A prospective study. The Journal of nervous and mental disease. 1981 Jan;169(1):37-44.

28.   Porat S, Bornstein J, Shemesh AA. The use of restraint on patients in Israeli psychiatric hospitals. British journal of nursing (Mark Allen Publishing). 1997 Aug 14-Sep 10;6(15):864-6, 8-73.

29.   Bowers L, Van Der Merwe M, Nijman H, Hamilton B, Noorthorn E, Stewart D, et al. The practice of seclusion and time-out on english acute psychiatric wards: The city-128 study. Archives of psychiatric nursing. Aug;24(4):275-86.

30.   Okin RL. Variation among state hospitals in use of seclusion and restraint. Hospital & community psychiatry. 1985 Jun;36(6):648-52.
31.   Stolker JJ, Nijman HL, Zwanikken PH. Are patients' views on seclusion associated with lack of privacy in the ward? Archives of psychiatric nursing. 2006 Dec;20(6):282-7.
32.   Ramchandani D, Akhtar S, Helfrich J. Seclusion of psychiatric inpatients: a general hospital perspective. Int J Soc Psychiatry. 1981 Winter;27(4):309-15.
33.   Morrison P, Lehane M. The effect of staffing levels on the use of seclusion. J Psychiatr Ment Health Nurs. 1995;2(6):365-6.
34.   Kennedy JA. Mastering the Kennedy Axis V: A New Psychiatric Assessment of Patient Functioning. Washington, D.C: American Psychiatric Publishing, Inc,; 2003.
35.   A.D van der Stelt. The validity and reliability of the Kennedy Axis V. Rotterdam: Erasmus MC, Psychiatry Do;2007.
36.   Duxbury J, Whittington R. Causes and management of patient aggression and violence: staff and patient perspectives. J Adv Nurs. 2005 Jun;50(5):469-78.
37.   Bowers L. On conflict, containment and the relationship between them. Nursing inquiry. 2006 Sep;13(3):172-80.
38.   Duxbury J. An evaluation of staff and patient views of and strategies employed to manage inpatient aggression and violence on one mental health unit: a pluralistic design. J Psychiatr Ment Health Nurs. 2002 Jun;9(3):325-37.
39.   Nolan KA, Shope CB, Citrome L, Volavka J. Staff and patient views of the reasons for aggressive incidents: a prospective, incident-based study. The Psychiatric quarterly. 2009 Sep;80(3):167-72.
40.   Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. Schizophrenia bulletin. 1987;13(2):261-76.
41.   O'Brien L, Cole R. Mental health nursing practice in acute psychiatric close-observation areas. Int J Ment Health Nurs. 2004 Jun;13(2):89-99.
42.   Alexander J, Bowers L. Acute psychiatric ward rules: a review of the literature. J Psychiatr Ment Health Nurs. 2004 Oct;11(5):623-31.
43.   Bowers L. Association between staff factors and levels of conflict and containment on acute psychiatric wards in England. Psychiatr Serv. 2009 Feb;60(2):231-9.
44.   Keinan G. Decision making under stress: scanning of alternatives under controllable and uncontrollable threats. Journal of personality and social psychology. 1987 Mar;52(3):639-44.
45.   Pally SP. Cognitive rigidity as a function of threat. Journal of personality. 1955 Mar;23(3):346-55.
46.   Benbenbishty J, Adam S, Endacott R. Physical restraint use in intensive care units across Europe: the PRICE study. Intensive Crit Care Nurs. 2010 Oct;26(5):241-5.
47.   Husum TL, Bjorngaard JH, Finset A, Ruud T. A cross-sectional prospective study of seclusion, restraint and involuntary medication in acute

psychiatric wards: patient, staff and ward characteristics. BMC health services research. 2010;10:89.

48. Altman DG, Royston P. What do we mean by validating a prognostic model? Statistics in medicine. 2000 Feb 29;19(4):453-73.

49. Doyle M, Dolan M. Violence risk assessment: combining actuarial and clinical information to structure clinical judgements for the formulation and management of risk. J Psychiatr Ment Health Nurs. 2002 Dec;9(6):649-57.

50. Kasper JA, Hoge SK, Feucht-Haviar T, Cortina J, Cohen B. Prospective study of patients' refusal of antipsychotic medication under a physician discretion review procedure. Am J Psychiatry. 1997 Apr;154(4):483-9.

51. Baker JA, Bowers L, Owiti JA. Wards features associated with high rates of medication refusal by patients: a large multi-centred survey. General hospital psychiatry. 2009 Jan-Feb;31(1):80-9.

52. Coburn VA, Mycyk MB. Physical and chemical restraints. Emerg Med Clin North Am. 2009 Nov;27(4):655-67, ix.

53. Flannery RB, Jr., Levitre V, Rego S, Walker AP. Characteristics of Staff Victims of Psychiatric Patient Assaults: 20-Year Analysis of the Assaulted Staff Action Program. The Psychiatric quarterly. 2010 Sep 4.

54. McCue RE, Urcuyo L, Lilu Y, Tobias T, Chambers MJ. Reducing restraint use in a public psychiatric inpatient service. The journal of behavioral health services & research. 2004 Apr-Jun;31(2):217-24.

55. Craig C, Ray F, Hix C. Seclusion and restraint: decreasing the discomfort. J Psychosoc Nurs Ment Health Serv. 1989 Jul;27(7):17-9.

56. Fisher WA. Elements of successful restraint and seclusion reduction programs and their application in a large, urban, state psychiatric hospital. J Psychiatr Pract. 2003 Jan;9(1):7-15.

57. Forster PL, Cavness C, Phelps MA. Staff training decreases use of seclusion and restraint in an acute psychiatric hospital. Archives of psychiatric nursing. 1999 Oct;13(5):269-71.

58. Hellerstein DJ, Staub AB, Lequesne E. Decreasing the use of restraint and seclusion among psychiatric inpatients. J Psychiatr Pract. 2007 Sep;13(5):308-17.

59. Jonikas JA, Cook JA, Rosen C, Laris A, Kim JB. A program to reduce use of physical restraint in psychiatric inpatient facilities. Psychiatr Serv. 2004 Jul;55(7):818-20.

60. Sullivan AM, Bezmen J, Barron CT, Rivera J, Curley-Casey L, Marino D. Reducing restraints: alternatives to restraints on an inpatient psychiatric service--utilizing safe and effective methods to evaluate and treat the violent patient. The Psychiatric quarterly. 2005 Spring;76(1):51-65.

61. Taxis JC. Ethics and praxis: alternative strategies to physical restraint and seclusion in a psychiatric setting. Issues in mental health nursing. 2002 Mar;23(2):157-70.

62. Kirkpatrick H. A descriptive study of seclusion: the unit environment, patient behavior, and nursing interventions. Archives of psychiatric nursing. 1989 Feb;3(1):3-9.

63.   El-Badri SM, Mellsop G. A study of the use of seclusion in an acute psychiatric service. The Australian and New Zealand journal of psychiatry. 2002 Jun;36(3):399-403.

64.   Binder RL. The use of seclusion on an inpatient crisis intervention unit. Hospital & community psychiatry. 1979 Apr;30(4):266-9.

CHAPTER 3

Patients' Preference and Experiences of Forced Medication and Seclusion [3]

ABSTRACT

This study examined patients' preferences for coercive methods and the extent to which patients' choices were determined by previous experience, demographic, clinical and intervention-setting variables. Before discharge from closed psychiatric units, 161 adult patients completed a questionnaire. The association between patients' preferences and the underlying variables was analyzed using logistic regression. We found that patients' preferences were mainly defined by earlier experiences: patients without coercive experiences or who had had experienced seclusion and forced medication, favoured forced medication. Those who had been secluded preferred seclusion in future emergencies, but only if they approved its duration. This suggests that seclusion, if it does not last too long, does not have to be abandoned from psychiatric practices. In an emergency, however, most patients prefer to be medicated. Our findings show that patients' preferences cannot guide the establishment of international uniform methods for managing violent behaviour. Therefore patients' individual choices should be considered.

3.1 Introduction

Forced medication is the commonest method used on psychiatric wards to contain mentally ill patients who are violent toward themselves or others [1], while seclusion is the preferred measure in the Netherlands. These measures are controversial, because while they are intended to protect patients and those around them, they restrict freedom and are usually applied against a patient's will. This causes serious ethical dilemmas for patients, their caregivers, clinicians and policymakers.

Forced medication is defined as the administration, with or without seclusion or restraint, of a rapid tranquilizer. By temporarily restricting the patient's freedom of movement, it is intended to control his or her behavior in a way that reduces the risk to their own safety or that of others [2]. Seclusion involves placing a service user in a locked room from which free exit is denied; it also involves isolation and the reduction of sensory stimuli [3].

Although professionals within and between countries have not found consensus on the best method of restricting patients [4], forced medication is the preferred method of dealing with emergencies in certain countries, such as Australia, the United Kingdom and the United States [5, 6]. Unlike their colleagues in these countries, Dutch psychiatric professionals use forced medication in only 22% of the situations when coercion is needed; instead, they prefer seclusion as the method of containment (59%) [7].

The Dutch preference for seclusion is not supported by scientific evidence or legal regulations, because under the Netherlands' Mental Health Act, seclusion and forced medication are ranked equally for management of acute violence. Forced medication is used less often, due to a non-evidence based cultural norm that intramuscular administration of medication is a more serious violation of the integrity of an individual's body than being locked up in a seclusion room. This prejudice was probably partly the product of the Dutch legislation, which greatly restricts involuntary medication as part of planned involuntary treatment. However,

as it has been shown that seclusion and forced medication are preferred by equal numbers of Dutch patients [8], this cultural norm is not necessarily shared by those who suffer its consequences.

This discrepancy between clinical practice and patients' preferences suggests that coercive practices in the Netherlands have more to do with institutional culture and traditions than with patient's preferences. Rather than seclusion, greater use of medication would fit better with what patients want—especially now Dutch mental health professionals and policymakers have increased their focus on the misapplication and overuse of seclusion [9, 10].

However, such a shift would be justified only if patients' preferences are considered, particularly because there are no scientific evidences from controlled studies about the therapeutic value and the harmfulness of seclusion and forced medication [11], while qualitative studies have reported that seclusion and restraint have serious adverse effects [12–14].

This lack of evidence makes it difficult for psychiatric caregivers to decide which measure provides the most effective and least intrusive method of dealing with violent behaviour, whether under the terms of the Netherlands' Mental Health Act or of other legal systems. Better understanding of the underlying variables that influence patients' choices would therefore improve caregivers' decision-making. If account is taken of patients' own preferences, mental healthcare would become more patient-oriented, patient compliance and safety would be enhanced—possibly increasing not only the quality of treatment, but also patients' satisfaction.

To our knowledge, four studies to date have investigated patients' preferences regarding coercive measures [3, 8, 15, 16]. The findings are contradictory. Veltkamp et al. reported that patients (n = 104) who had been secluded or involuntarily medicated or had undergone both measures judged these measures to be equally effective and aversive. The same authors found that more male patients expressed a preference for seclusion.

Contrasting with these findings, another Dutch study [17] reported that patients (n = 88) who had previously been only secluded judged seclusion to be more aversive than forced medication, while patients who had no experience of coercion (n = 106) or had undergone both measures (n = 115) perceived both measures to be equally aversive.

Unlike the Dutch studies, the American study by Sheline and Nelson [18] found that the majority of the patients (64%) preferred medication, while 24% preferred seclusion, and 10% preferred restraints. Earlier experiences of coercion in the sample were not mentioned. Finally, a strong preference towards medication was found also in the South African study conducted by Mayers et al. [3]. Fifty-seven percent of sedated patients agreed with the use of this measure, against only 25% of the secluded patients.

Although the findings of these studies are difficult to compare due to methodological differences, Dutch patients find seclusion to be a more acceptable intervention for dealing with emergencies. This is not surprising, seeing that seclusion is common practice in the Netherlands.

We therefore hypothesized that differences in patients' preferences reflect differences in coercive practices between countries, and, as Veltkamp et al. [8] have suggested, are strongly influenced by earlier coercive experiences. To test this hypothesis, we compared the preferences of patients who had not experienced coercion with those of patients who had either experienced seclusion alone or had experienced both seclusion and forced medication.

To date, even though patients who have not experienced coercion are in the majority, only one study [15] has explored their preferences. Neither are there many findings on how demographic and clinical variables are associated with patients' preferences. We therefore investigated which demographic and clinical variables (previous coercive experience, gender, legal status, age, diagnoses, perceived coercion, or global assessment of functioning) are most strongly associated with patients' preferences.

Although Vetkamp et al. [8] and Mayers et al. [3] found that patients appreciate an explanation of the reason coercive procedures have been used with them, none of the studies in question explored how other intervention-setting variables may influence patients' preferences—any of which might critically affect their preferences [19]. We therefore investigated whether the following factors had influenced patients' choice: (1) receiving or not receiving an explanation about the reason for being coerced, (2) perceived quality of care during the coercive measure, (3) experiencing or not experiencing improvement after the coercion, (4) approval of the coercive measure, (5) debriefing afterwards, and (6) subjective experience of the duration of the seclusion episodes.

In summary, our aim was to examine patients' experiences and preferences with regard to coercive measures, and the extent to which four factors—previous experiences of coercion, and demographic, clinical, and intervention-setting characteristics—are associated with patients' preferences.

3.2 Methods

3.2.1 Setting

In 2006, a project intended to reduce the use of seclusion and restraint was funded by a grant from the Dutch Ministry of Health and the Western Noord-Brabant Mental Health Center, where the study took place. The first step to achieving this objective was to obtain information about patients' experiences with coercive measures, and their preferences with regard to them. We therefore developed a questionnaire, which was then administered before discharge to individual patients in various closed psychiatric wards.

Participation in this study was completely voluntary. Because data were collected prospectively as part of a quality-control procedure approved by the

institution's Board of Directors, approval by the medical ethical committee was not needed.

3.2.2 Instruments

As no suitable instrument existed, we developed a questionnaire in collaboration with representatives of the local patients' advocacy and family-support organization. It consisted of 31 questions focusing on (1) patients' experiences with forced medication and seclusion during their current period of hospitalization, and (2) the method of containment they would prefer in a future emergency, and also (3) perceived coercion, measured by a slightly adapted version of the Perceived Coercion Scale (PCS; MacArthur Perceived Coercion Scale; [20]). This is a 15-item scale consisting of three construct domains: (1) admission process; (2) inpatient treatment; and (3) medication management. Five statements are addressed per domain (e.g. 'It was my decision to cooperate with the treatment/supervision.'), which are answered on a 5-point Likert-type scale ranging from 1 (full agreement) to 5 (full disagreement). Scores range from 15 to 75, with higher scores indicating higher levels of perceived coercion.

Forced medication was defined as "administration of oral or intramuscular medication against the patient's will during emergencies, which is not part of the regular treatment".

The initial version (Version A) of the questionnaire was intended to investigate the methods of containment preferred solely by patients who had been contained during their stay. In January 2008, the questionnaire was changed slightly so as to allow us also to investigate patients' preferences who had had no experience of containment (Version B).

Data on diagnoses according to DSM-IV [APA 1987] and Global Assessment of Functioning (GAF) were retrospectively collected from patients' clinical files. GAF is widely used in clinical practice to assess the level of patient

functioning. Scores range from 0 to 100, with higher scores indicating better daily functioning and milder symptoms.

3.2.3 Patients

From the beginning of 2007 until the end of 2009, 451 patients were asked to complete the questionnaire. This generated 376 responses (83%). From this sample, we selected only respondents who completed the questionnaire before discharge of their first admission and answered the question "If you could choose between seclusion or forced medication, what would be your choice?". Until January 2008, 82 patients met these inclusion criteria and completed version A of the questionnaire, followed by 79 patients who completed version B. In total, 161 respondents were included in this study.

3.2.4 Statistical Analyses

Chi square analyses and Anova F tests were used to compare patients with different coercive experience on the following variables: (1) preferences for coercive measures (2) sociodeomographic variables; (3) clinical variables; and (4) intervention-setting variables.

Preference for seclusion or forced medication was explored using unadjusted (crude) odds ratios with corresponding 95% confidence intervals (CI) for all predictors. Logistic regression analyses were performed using stepwise forward and backward procedures with 0.25 and 0.05 alpha levels of entry and removal respectively. Interaction effects and collinearities were checked for all main factors. Model selection was based on likelihood ratio test statistics. The fit of final models was assessed using Nagelkerke R^2 and Model Chi-square. Data analyses were performed using SPSS 15.0.

3.3 Results

3.3.1 Sample Characteristics

First, the 161 respondents included in this study were compared with the remaining 215 respondents from the complete sample with regard to the following variables: age, gender, legal status upon admission, psychiatric diagnoses, GAF score and perceived coercion. There were no significant differences between the groups. The demographic, clinical and intervention-setting variables of these 161 respondents are presented in Table 1, where they are divided into three groups: "no experience of coercion" (n = 64), "experience of seclusion and forced medication" (N = 39) and "experience of seclusion only" (N = 58). Only four respondents had experienced forced medication without seclusion. Because of the small size of this subgroup, their answers were analysed together with data of patients who had been medicated and secluded.

Table 1. Demographic, Clinical and Intervention-setting characteristics

Demographic and Clinical characteristics							
		Coercive experience					
Variable	N	No coercive experience N (%) / Mean	Seclusion & Forced medication N (%) / Mean	Seclusion only N (%) / Mean	Chi²/ F	df	P
Gender	158						
Male	73 (46%)	21 (33%)	24 (62%)	28 (51%)	8.8	2	**.012**
Female	85 (54%)	43 (67%)	15 (38%)	27 (49%)			
Legal status upon admission	156						
Involuntary	39 (25%)	4 (6%)	15 (40%)	20 (37%)	20.4	2	**.000**
Voluntary	117 (75%)	60 (94%)	23 (60%)	34 (63%)			
Patients and their diagnosis	142						
Psychotic disorder	40	7 (17%)	12 (30%)	21(53%)	13.83	2	**.001**
Mood disorder	44	19 (43%)	14 (32%)	11 (25%)	3.36	2	.186
Personality disorder	36	16 (45%)	8 (22%)	12 (33%)	.18	2	.916
Addiction	43	18 (42%)	9 (21%)	16 (37%)	.37	2	.833
PTSD	11	3 (27%)	3 (27%)	5 (46%)	1.05	2	.59
Mean age	156	40	37	40	.8	2/153	.45
Mean GAF score	134	49	51	51	.4	2/131	0.7
Mean sum score on Perceived Coercion Scale	128	34	42	37	5.7	2/125	**0.004**
Preferred coercive measure	161						
Seclusion	69 (43%)	19 (30%)	15 (38%)	35 (60%)	12.08	2	**.002**
Forced medication	92 (57%)	45 (70%)	24 (62%)	23 (40%)			

Table 1a. Continued

		Coercive experience					
Variable	**N**	**No coercive experience** **N (%) / Mean**	**Seclusion & Forced medication** **N (%) / Mean**	**Seclusion only** **N (%) / Mean**	**Chi²/ F**	**df**	**P**
Subjective judgment of duration of seclusion	80						
Acceptable	48 (60%)	N/A	13 (42%)	35 (71%)	6.88	1	**.008**
Too long	32 (40%)		18 (58%)	14 (29%)			
Experienced improvement from the measure	60						
Yes	43 (72%)	N/A	13 (52%)	30 (86%)	8.16	1	**.005**
No	17 (28%)		12 (48%)	5 (14%)			
Received explanation of the reason during the measure	82						
Yes	68 (83%)	N/A	27 (82%)	41 (84%)	.83	1	.527
No	14 (17%)		6 (18%)	8 (16%)			
Satisfied with the quality of contact/care during the measure	94						
Yes	68 (72%)	N/A	23 (62%)	45 (79%)	3.16	1	.062
No	26 (28%)		14 (38%)	12 (21%)			
Approval of the measure	94						
Yes	65 (69%)	N/A	25 (66%)	40 (71%)	.337	1	.36
No	29 (31%)		13 (34%)	16 (29%)			
Debriefed after the measure	87						
Yes	58 (67%)	N/A	25 (71%)	33 (64%)	.59	1	.296
No	29 (33%)		10 (29%)	19 (36%)			

Table heading: **Intervention-Setting characteristics**

*N/A = not applicable

Because some of the clinical files were incomplete and some of the respondents did not feel comfortable answering all of the questions, the n and the percentage of respondents vary across the variables, as presented in Table 1.

Male patients and involuntary admitted patients had been subjected to coercive measures more often than others. Coerced patients scored significantly higher on the perceived coercion scale. Many of the patients had comorbid diagnoses (56%), 40 had a psychotic disorder, 44 a mood disorder, 36 a personality disorder, 43 an addiction disorder, and 11 post-traumatic stress disorder (PTSD). Patients with psychotic disorder were more often secluded. We therefore used this diagnostic criterion (psychotic disorder: yes or no) to dichotomize the data for further analyses.

There were no significant differences between the three groups for age and GAF scores.

3.3.2 Experiences and Preferences for Forced Medication or Seclusion

Forced medication during emergencies was preferred by 57% of the patients, which consisted of those who had not experienced coercion (70%), those who had undergone both measures (62%) and those who had undergone seclusion alone (40%). The last group patients were significantly more satisfied with the duration of seclusion episodes and the improvement after the intervention than the respondents who had undergone both measures, which may explain their stronger preference for seclusion.

The reasons for the use of the restrictive measure had been explained to most but not all of the patients in question (83%), most of whom were also satisfied with the quality of care they had received and with their contact with the staff during the coercive intervention (72%). Most had been debriefed after the intervention (67%), and most retrospectively approved the measure (69%).

As Table 1 shows, there were no significant differences between the groups on these intervention-setting variables.

3.3.3 Association of Demographic and Clinical Variables with Patients' Preferences

Table 2 presents the odds ratios and the confidence intervals for demographic and clinical variables and patients' preferences for forced medication as opposed to seclusion for all 161 respondents. Three variables were entered into the multivariate logistic regression: (1) experience or no experience of coercive measures, (2) legal status and (3) perceived coercion. The final logistic regression model consisted of two main associations: no experience of coercion (odds ratio [OR] = 3; 95 percent confidence interval [CI] = 1.3–6.6); previous experience with seclusion and forced medication (OR = 2.5; CI = 1–6); and voluntary admission (OR = 2.2; CI = 0.97–4.9); Nagelkerke R 2 = 0.13 and Model Chi-square = 4.8, df = 3, P = 0.186.

Table 2 Bivariate associations between demographic and clinical variables with patients' preferences (N = 161)

Predictor	N	Preference for forced medication	
		OR	95% CI
No experience of coercive measures		3.6	**1.7 - 7.6*** **
Experience of seclusion or forced medication	161	2.4	**1.06 – 5.6** **
Experience of seclusion		1.0	Reference
Male gender	158	1.0	0.5 - 1.9
Voluntary legal status	156	2.8	**1.3 – 5.8*** **
Diagnosed with psychotic disorder	142	0.9	0.4 – 1.9
Age	156	0.9	0.9 - 1.0
GAF score > 50	134	0.9	0.5 – 1.8
GAF score < 50			reference
Perceived Coercion Score	128	0.9	**0.9 - 1.0***

* P < 0.25; ** P < 0.05; *** P < 0.01; coding: seclusion (0), forced medication (1)

3.3.4 Association of Demographic, Clinical and Intervention Setting Variables with Patients' Preferences

Table 3 presents the odds ratios and the confidence intervals for demographic, clinical, intervention-setting variables, and patients' preferences for forced medication as opposed to seclusion, only for the 97 respondents who had experience with coercive measure(s). Six variables were entered into the multivariate logistic regression: (1) the type of coercive experience, (2) legal status, (3) subjective judgment of the duration of seclusion, (4) explanation of the reason for the use of the restrictive measure, (5) satisfaction with the quality of care received, and (6)

approval of the measure. The final logistic regression model consisted of two main associations: discontentment with the duration of seclusion (OR = 5; CI = 2–15), and voluntary admission status (OR = 2; CI = 0.8–7); Nagelkerke R 2 = 0.24 and Model Chi-square = 4.9, df = 2, P = 0.087.

Table 3 Bivariate associations of demographic, clinical and intervention-setting variables with preference for coercive measure for patients with coercive experience (N = 97)

	Preference for forced medication		
Predictor	**N**	**OR**	**95% CI**
Experience of seclusion	97	0.4	**0.2 - .94****
Male gender	94	1.6	0.7 – 3.5
Voluntary legal status	92	3.0	**1.2 – 7.3****
Diagnosed with psychotic disorder	83	0.9	0.4 – 2.4
Age	93	0.9	0.9 – 1.0
GAF score > 50	78	1.2	0.5 – 3.0
GAF score < 50			reference
Perceived Coercion Score	65	0.9	0.9 – 1.0
Duration of seclusion perceived as too long	80	5.3	**2.0 – 14.0*****
Experienced improvement after the measure	60	1.1	0.3 – 3.5
Received explanation of the reason for the measure	82	2.0	**0.6 – 6.7***
Satisfied with the quality of contact/care during the measure	94	2.3	**0.9 – 5.8***
Approval of the measure	94	2.7	**1.0 - 6.6****
Debriefed after the measure	87	1.3	0.5 – 3.2

* P < 0.25;** P < 0.05; *** P < 0.01; coding: seclusion (0), forced medication (1)

3.4 Discussion

We found that the majority of our respondents (57%) stated that they would prefer to be medicated in a future emergency. Their preferences were affected by their previous experiences of coercion: compared to patients who had only been secluded, those who had no experience of coercion were three times more likely to choose forced medication, and those who had experienced both measures were 2.5 times more likely. Those who had been secluded were more likely to choose seclusion if they were content with the duration of the seclusion episode; if they perceived this to be too long, they were 5 times more likely to find forced medication to be more appropriate. Voluntarily admitted patients were two times more likely to favor medication than those who had been admitted involuntarily.

These results confirmed our hypothesis that preferences for coercive measure are influenced by earlier experiences. This could explain why Dutch patients tend to favour seclusion more than patients from countries where violent behaviour is suppressed mainly by forced medication. This makes it difficult to compare findings on patients' preferences, and also to guide the establishment of uniform criteria for coercive practices across countries.

Stolker et al. [21] found a significant association between lack of privacy and a more positive view of seclusion. The high approval of seclusion shown in our results (71%) may therefore be partly explained by patients' residence in multiple-bed psychiatric wards. However, because most secluded patients (86%) experienced an improvement, we conclude that seclusion should not necessarily be excluded from the repertoire of coercive practises—provided the patient is mobilized as soon as the acute danger has passed. This is because the duration of seclusion seems to be a critical factor in patients' choices.

In this connection, there is evidence that the duration of seclusion episodes can be reduced by structural risk-assessment [22]. A significant reduction (>40%) in the duration of seclusion and restraint can also be achieved by legal regulations [23, 24], such as the so-called "one-hour-rule", which stipulates that physicians or

registered nurses must, within one hour of such measures being instituted, conduct face-to-face assessment of all individuals placed in seclusion or restraint [25].

Our findings confirm the controversial nature of coercive measures. Patients who had undergone a coercive intervention during hospitalization judged their treatment to be more coercive than those who had not. On the other hand, a surprisingly high percentage of them experienced an improvement (72%), and also approved the coercive measure(s) (69%)—though this contrasts with earlier studies, which showed that only 4% of secluded patients considered the intervention to be beneficial [26], and that only 29% approved the coercive measures [27].

According to the theory of cognitive dissonance [28], when people hold two contradictory ideas simultaneously, they tend to reduce the resulting discomfort by justifying or rationalizing their attitudes and beliefs. In our case, patients may have been angry and dissatisfied because of their containment, but also have felt guilty due to their violent behaviour, or have felt fear due to their dependence on hospital staff. These contradictory feelings may have led them to justify their beliefs and attitudes; by inflating their approval of coercive practices and reinforcing their denial of any negative consequences, they may thus have become less critical of them.

In accordance with the cognitive dissonance theory, Kleber and Brom [29] found that human beings tend retrospectively to justify traumatic events so as to aid their acceptance of them. Patients should therefore be trained to think more critically and to become aware of their preferences; they should also be encouraged to reflect on their experiences [3]. They should also be educated about their rights with regard to the use of coercive measures.

Eighty-three percent of our respondents had been informed about the reason for their containment. As patients report the most negative experiences with seclusion when they do not understand it and when they have no options for discussing it with others [13], improvement was needed in 17% of cases.

Because respondents in this study were not always satisfied with the quality of care they had received, or with their contact with staff, clinical staff should openly discuss measures for improvement with patients. If staff provide enough psychological and informational support to patients during coercive events, the type of coercive measure may become less relevant.

Further, only 67% of our respondents were debriefed after the measure. To minimize emotional impact, debriefing should always take place [30]: as Scanlan [31] reports, it can successfully eliminate future seclusion and restraint. During debriefing, the most appropriate approach to prevent future crises should be discussed. These should be included in a relapse-prevention plan, or the least restrictive of the preferred interventions should be taken into account in psychiatric advance directives (PADs).

3.4.1 Study Limitations

Although this study gave us new insights into patients' preferences, and particularly into the variables that underlie them, our results reflect a coercive aspect of Dutch psychiatric healthcare that is characterised by many and long seclusion episodes [4], and which makes our results less generalizable to other countries.

As forced medication is rarely practised in the Netherlands, some respondents may also have had some difficulty in understanding its definition. This may have led to some underreporting. We did not specify whether forced medication involved the administration of benzodiazepines, antipsychotics or both, or whether it was combined with physical restraint or mechanical restraint. As these are very different options, they might influence patients' preferences.

We should also acknowledge that we do not know the clinical and demographic characteristics of the patients who did not respond to the questionnaire (17%). We are therefore unsure of the extent to which these patients are comparable

with our respondents, and whether our findings are fully representative for inpatient psychiatric care.

As possible predictors of patient's preferences, data were collected on demographic and clinical variables, and on patients' subjective experiences. Even though this is the most extensive study to date, we realize that differences in patients' preferences may be attributable to underlying mechanisms that have not been considered here.

Similarly, future research might pay greater attention to the type and seriousness of aggression, the reason for seclusion or restraint, and the objective duration of seclusion episodes. Finally, we should add that the scope of our study was limited to the coercive measures that are used most often in the Netherlands, and that we did not investigate patients' preferences toward other freedom-restrictive interventions such as mechanical and physical restraints, continuous observation, or time-out.

3.4.2 Recommendations

As long as coercive measures are still clinical practice, and we want to practise evidence based medicine, while no objective scientific evidence from controlled studies can guide us into choosing the least restrictive and the most effective measure, the only rational way to choose the correct intervention is to consider patients' individual choices. This approach is strongly recommended by the Council of Europe, which states that people with mental illness have a right to individualized treatment, which should be discussed with the patient, reviewed and revised regularly and provided by properly qualified staff [32].

Legally, consideration of the patients' choice is not required. It is also difficult in situations where healthcare consumers are unknown to the services but violent on admission. In such emergency situations, psychiatric patients are judged not to be competent to take decisions on their treatment. As Van Citters et al. [33]

have pointed out, this situation might be improved by the use of psychiatric advance directives (PADs), which are legal instruments that make it possible to document patient's preference regarding future mental health treatments, including coercive measures. It concerns a process of shared decision making, described earlier [34]. Such a document can also designate a surrogate decision-maker for situations in which the patient loses the ability to make reliable treatment decisions during an acute episode of psychiatric illness [35].

Although, unfortunately, PADs are still rarely used and little evidence is available about their efficacy [36], Henderson et al. [37] showed that patients with advance directives focused on crisis prevention, were less likely to commit acts of violence and thus undergo compulsory treatment. Another study [38] also showed that due to PADs, patients' working alliance with clinicians improved significantly. Not only have numerous studies already confirmed that it is feasible to ask patients about their preferences regarding coercive measures [39, 40], other studies have shown that patients' involvement in treatment decisions leads to better treatment outcomes [41, 42].

References

1. Raboch J, Kalisova L, Nawka A, et al.: Use of coercive measures during involuntary hospitalization: findings from ten European countries. Psychiatric Services 61(10):1012–1017, 2010.

2. Ashcraft L, Anthony W: Eliminating seclusion and restraint in recovery-oriented crisis services. Psychiatric Services 59(10):1198–1202, 2008.

3. Mayers P, Keet N, Winkler G, et al.: Mental health service users' perceptions and experiences of sedation, seclusion and restraint. International Journal of Social Psychiatry 56(1):60–73, 2010.

4. Steinert T, Lepping P: Legal provisions and practice in the management of violent patients. A case vignette study in 16 European countries. European Psychiatry 24(2):135–141, 2009.

5. Currier GW: The controversy over "chemical restraint" in acute care psychiatry. Journal of Psychiatric Practice 9(1):59–70, 2003.

6. Vorselman A: Seclusion, fixation and medication: the application of coercive measures in adult psychiatry internationally compared. In: Public Administration and Public Policy—European Studies. University of Twente, The Nertherlands, 2003.

7. Dutch Mental Health Inspectorate: Report Dutch Mental Health Inspectorate. Den Haag, 2008.

8. Veltkamp E, Nijman H, Stolker JJ, et al.: Patients' preferences for seclusion or forced medication in acute psychiatric emergency in the Netherlands. Psychiatric Services 59(2):209–211, 2008.

9. GGZ Nederland: 'Van beheersen naar voorkomen' stand van zaken rond het verminderen van separaties in de GGZ in Nederland. In: Gezondheid FP (Ed), 2008.

10. Tilburg Wv, van Veldhuizen JR, Beijaert EW, van de Ven-Dijkman MV, Mulder CL, Schulte PFJ, Sikkens EPK, Tholen AJ: Richtlijn besluitvorming dwang: opname en behandeling. In: NVvP-commissie Richtlijn besluitvorming dwang. Utrecht, 2008.

11. Sailas E, Fenton M: Seclusion and restraint for people with serious mental illnesses. Cochrane Database of Systematic Reviews (2):CD001163, 2000.

12. Nelstrop L, Chandler-Oatts J, Bingley W, et al.: A systematic review of the safety and effectiveness of restraint and seclusion as interventions for the short-term management of violence in adult psychiatric inpatient settings and emergency departments. Worldviews on Evidence-Based Nursing 3(1):8–18, 2006.

13. Hoekstra T, Lendemeijer HH, Jansen MG: Seclusion: the inside story. Journal of Psychiatric and Mental Health Nursing 11(3):276–283, 2004.

14. Moran A, Cocoman A, Scott PA, et al.: Restraint and seclusion: a distressing treatment option? Journal of Psychiatric and Mental Health Nursing 16(7):599–605, 2009.

15. Welles F, Widderschoven TP: Separatie of medicatie: de patient aan het woord. Maandblad Geestelijke volksgezondheid 62(6):475–486, 2007.

16. Sheline Y, Nelson T: Patient choice: deciding between psychotropic medication and physical restraints in an emergency. Bulletin of the American Academy of Psychiatry and the Law 21(3):321–329, 1993.

17. Welles F, Widderschoven TP: Separatie of medicatie: de patient aan het woord. Maandblad Geestelijke volksgezondheid 62:475–486, 2007.

18. Coburn VA, Mycyk MB: Physical and chemical restraints. Emergency Medicine Clinics of North America 27(4):655–667, ix, 2009.

19. Bernstein R: Commentary: commentary on the "choice" between seclusion and forced medication. Psychiatric Services 59(2):212, 2008.

20. Gardner W, Hoge SK, Bennett N, et al.: Two scales for measuring patients' perceptions for coercion during mental hospital admission. Behavioral Sciences and the Law 11(3):307–321, 1993.

21. Stolker JJ, Nijman HL, Zwanikken PH: Are patients' views on seclusion associated with lack of privacy in the ward? Archives of Psychiatric Nursing 20(6):282–287, 2006.

22. van de Sande R, Hellendoorn, E, Roosenschoon B, Noorthoorn E, Nijman H, van der Staak C, Mulder CL: De CrisisMonitor. Het signaleren van agressie en het voorkomen van separatie. Maandblad Geestelijke volksgezondheid 64(6):540–550, 2009.

23. LeBel J: Regulatory change: a pathway to eliminating seclusion and restraint or "regulatory scotoma"? Psychiatric Services 59(2):194–196, 2008.

24. Currier GW, Farley-Toombs C: Datapoints: use of restraint before and after implementation of the new HCFA rules. Psychiatric Services 53(2):138, 2002.

25. Martin A, Fawcett B, Lee T: Seclusion and restraint "one-hour rule". Journal of the American Academy of Child and Adolescent Psychiatry 43(11):1322–1324, 2004.

26. Meehan T, Bergen H, Fjeldsoe K: Staff and patient perceptions of seclusion: has anything changed? Journal of Advanced Nursing 47(1):33–38, 2004.

27. Eriksson KI, Westrin CG: Coercive measures in psychiatric care. Reports and reactions of patients and other people involved. Acta Psychiatrica Scandinavica 92(3):225–230, 1995.

28. Festinger L: A Theory of Cognitive Dissonance. Stanford University Press, Stanford, CA, 1957.

29. Dickinson T, Ramsdale S, Speight G: Managing aggression and violence using rapid tranquillisation. Nursing Standard 24(7):40–49; quiz 50, 52, 2009.

30. Huckshorn KA: Re-designing state mental health policy to prevent the use of seclusion and restraint. Administration and Policy In Mental Health 33(4):482–491, 2006.

31. Scanlan JN: Interventions to reduce the use of seclusion and restraint in inpatient psychiatric settings: what we know so far. A review of the literature. International Journal of Social Psychiatry 56(4): 412–423, 2009.

32. Kingdon D, Jones R, Lonnqvist J: Protecting the human rights of people with mental disorder: new recommendations emerging from the Council of Europe. British Journal of Psychiatry 185:277–279, 2004.

33. Van Citters AD, Naidoo U, Foti ME: Using a hypothetical scenario to inform psychiatric advance directives. Psychiatric Services 58(11):1467–1471, 2007.

34. Liegeois A, Eneman M: Ethics of deliberation, consent and coercion in psychiatry. Journal of Medical Ethics 34(2):73–76, 2008.

35. Srebnik D, Russo J: Use of Psychiatric Advance Directives During Psychiatric Crisis Events. Administration and Policy in Mental Health, 2008.

36. Campbell LA, Kisely SR: Advance treatment directives for people with severe mental illness. Cochrane Database of Systematic Reviews (1):CD005963, 2009.

37. Allen MH, Currier GW: Use of restraints and pharmacotherapy in academic psychiatric emergency services. General Hospital Psychiatry 26(1):42–49, 2004.

38. Swanson JW, Swartz MS, Elbogen EB, et al.: Facilitated psychiatric advance directives: a randomized trial of an intervention to foster advance treatment planning among persons with severe mental illness. American Journal of Psychiatry 163(11):1943–1951, 2006.

39. Srebnik DS, Russo J, Sage J, et al.: Interest in psychiatric advance directives among high users of crisis services and hospitalization. Psychiatric Services 54(7):981–986, 2003.

40. Amering M, Stastny P, Hopper K: Psychiatric advance directives: qualitative study of informed deliberations by mental health service users. British Journal of Psychiatry 186:247–252, 2005.

41. Harris M, Bergman HC: Differential treatment planning for young adult chronic patients. Hospital and Community Psychiatry 38(6):638–643, 1987.

42. Harden J, Hales RE, Amen D, et al.: Inpatient participation in treatment planning: a preliminary report. General Hospital Psychiatry 8(4):287–290, 1986.

CHAPTER 4

Evaluation of behavioral changes and subjective distress after exposure to coercive inpatient interventions [4]

ABSTRACT

Background: There is a lack of evidence to underpin decisions on what constitutes the most effective and least restrictive form of coercive intervention when responding to violent behavior. Therefore we compared ratings of effectiveness and subjective distress by 125 inpatients across four types of coercive interventions.

Methods: Effectiveness was assessed through ratings of patient behavior immediately after exposure to a coercive measure and 24 hours later. Subjective distress was examined using the Coercion Experience Scale at debriefing. Regression analyses were performed to compare these outcome variables across the four types of coercive interventions.

Results: Using univariate statistics, no significant differences in effectiveness and subjective distress were found between the groups, except that patients who were involuntarily medicated experienced significant less isolation during the measure than patients who underwent combined measures. However, when controlling for the effect of demographic and clinical characteristics, significant differences on subjective distress between the groups emerged: involuntary medication was experienced as the least distressing overall and least humiliating, caused less physical adverse effects and less sense of isolation. Combined coercive interventions, regardless of the type, caused significantly more physical adverse effects and feelings of isolation than individual interventions.

Conclusions: In the absence of information on individual patient preferences, involuntary medication may be more justified than seclusion and mechanical restraint as a coercive intervention. Use of multiple interventions requires significant justification given their association with significant distress.

4.1 Background

Coercive interventions such as seclusion, involuntary medication and mechanical restraint are common methods for managing violent behavior during psychiatric hospitalization. Even though they are intended to protect patients and those around them, they are highly controversial, because they restrict freedom and are used against a patient's will. They are even more problematic when used in combination – for example, when seclusion is combined with mechanical restraint. They can also be extremely traumatic [1], causing physical and psychological damage to patient and staff alike [2]. As a result, practitioners contemplating their use are confronted with a serious ethical and professional dilemma

It is widely accepted in mental health services around the world that coercion is a last resort and should be proportionate to the degree of threat being faced [3-5]. For this reason, it should always be decided whether its possible dangers are considerably outweighed by the likely benefits to the patient and others. Similarly, the principle of subsidiarity requires that the intervention is justifiable only if no other, less coercive, interventions are available to deal with the imminent threat [6]. In other words, an individualized approach is required in which the most effective and least damaging intervention for the particular person is established.

To make such a judgement, mental health professionals need to have substantial knowledge of the effectiveness and harmfulness of the various coercive interventions. Unfortunately, there is not enough evidence on the relative effectiveness and harm of specific interventions such as seclusion or restraint [7]. Recently two studies have been published, comparing the effectiveness and impact of seclusion and mechanical restraint [8-9]. Although these are methodologically excellently studies as randomized controlled trials, their relevance for clinicians in constructing a hierarchy for the use of coercive interventions is limited in comparison to this study, because their scope is

restricted to two interventions (i.e. seclusion and mechanical restraint). In addition both studies found no significant differences between the groups in patients' experienced coercion or satisfaction with care. Other studies on this topic tend to focus on staff and patient attitudes rather than actual experiences [10-13]. As attitudes are likely to be influenced by previous coercive experiences [14] and by traditions and culture [15], studying them is more likely to explain differences in coercive practices between institutions [16] and between countries [17-18] than to provide a basis for clinical decisions.

To obtain information which can help clinicians to apply the proportionality and subsidiarity principles, it is not just attitudes that should be compared, but coercive interventions. Ideally, such comparisons should use validated assessment instruments in "real life" settings. Directly and one-to-one, they should contrast individual interventions (such as seclusion vs. involuntary medication) and their combinations (such as seclusion and mechanical restraint vs. seclusion alone). Here we report such an "in vivo" study using formal assessments.

A further issue in any decision to use coercion is the balance of therapeutic and safety factors. The international literature has still found no consensus on whether coercive interventions are simply safety interventions whose aim is not to provide therapeutic value but simply to reduce the imminent risk of danger to the individual or others, whether they are counter-therapeutic treatment failures [19], or whether they are therapeutic interventions that also improve a patient's psychological functioning. We therefore evaluated both aspects, measuring changes in aggression and uncooperativeness on the one hand, and changes in psychological functioning and insight on the other.

4.1.1 Aims of the study

To compare ratings of effectiveness and subjective distress with respect to the following: 1) different types of coercive methods, especially seclusion versus involuntary medication; and 2) individual versus combined measures.

4.2 Methods

4.2.1 Hospital characteristics and study design

Data for this study were collected from November 2007 until October 2010 in an acute ward in a psychiatric hospital that provides care to a catchment area of around 276,000 people in the south-western Netherlands. The Netherlands' Mental Health Act ranks five coercive interventions equally for management of acute danger – seclusion, involuntary medication, isolation, mechanical restraint and forced feeding – an individualized approach requires that the least harmful and most effective intervention is applied.

We studied all patients who underwent coercion during the research period. The study used a prospective design that examined the relationships between independent variables (type of coercive intervention, demographic and clinical characteristics) and two dependent variables (effectiveness and subjective distress). The index intervention for the study was the first coercive intervention after admission. Although there may have been other coercive interventions during the stay in the ward, our evaluation in this study is based only on the index intervention.

The research was approved by the local Medical Ethical Committee, which waived the requirements for informed consent because the research involved no risks to the patients, and because data were being collected as part of a policy-control procedure.

4.2.2 Procedure

4.2.2.1 Definitions of coercive interventions

Seclusion was defined as the placement of a patient in a locked room from which free exit was denied for a fixed period of time.

Involuntary medication was defined as the administration of a rapid tranquilizer without the consent of the patient, and with or without manual restraint. Rapid tranquillization involved the oral or intramuscular administration of a combination of haloperidol and promethazine, or lorazepam to achieve rapid, short-term behavioural control of any extreme agitation, aggression or potentially violent behaviour that placed the individual and those around them at risk. Initially, 10 mg haloperidol and 100 mg promethazine, or lorazepam 2½-5 mg was offered as oral medication to the agitated patients with psychotic or non-psychotic symptoms, respectively. Nevertheless, in some situations patients refused to take the medication orally, so IM medication (5mg haloperidol and 50mg promethazine or 2½-5 mg lorazepam) was used. Due to the coercive nature of the setting, administration of "as required" medication during a period of seclusion was also counted as involuntary medication, regardless of patient consent at the time.

Mechanical restraint was defined as the application of any mechanical device which limited the patient's movement, physical activity, or normal access to his or her body.

For the purpose of this study, combination of coercive measures involved any use of more than one of the interventions specified above. In practice, there were two types of combined intervention: seclusion plus medication, and seclusion plus mechanical restraint (including a few cases in which involuntary medication was also used).

4.2.2.2 Independent variables

Data on gender, age, and voluntary / involuntary admission status were collected from patients' records. Past coercive experiences, ethnicity and marital status were established by interviewing patients directly after admission. DSM-IV diagnoses were generated by the psychiatrist on the ward and obtained form the patients' chart. Data on the type and duration of the restrictive measures were extracted from the hospital database after the episode had finished. The staff assessed the level of coercion / pressure they had applied at the beginning of every coercive intervention on a scale from 0 to 10. A higher score signifies more coercion.

4.2.2.3 Dependent variables

Effectiveness was operationalized in four ways: 1) psychological functioning, 2) insight into the illness, 3) uncooperativeness with treatment, and 4) aggressive behaviour. These variables were twice rated by nurses who had been trained in the use of the respective instruments (see below). The first rating was made immediately after the patients had begun their exposure to the restrictive measure or measures. The second was made 24 hours later. Analyses were based on a change score, i.e. on changes in these four dimensions between the two time points. As some interventions lasted longer than 24 hours – especially seclusion (29.5% of the incidents) – the second assessment may have taken place while the patient was still subjected to it.

During a standard debriefing procedure in the week that followed the end of the intervention, subjective distress was examined by assessing the patients' experience with the coercive measure or measures.

4.2.2.3.1 Instruments for assessing effectiveness

The patient's general wellbeing and level of functioning was assessed using the short version of the Kennedy Axis V [20]. This consists of four domains: 1) psychological impairment 2) social skills 3) violence, and 4) activities of daily living (ADL) and occupational skills, each rated from 10 to 100. A higher score reflects better functioning. The mean score of these domains was used to derive the global assessment of functioning (GAF) score used in the study.

The level of uncooperativeness and lack of judgment and insight at admission were determined on the basis of items G8 and G12 of the Positive and Negative Syndrome Scale (PANSS) [21]. Each item was rated on a scale from 1 (absent) to 7 (extreme).

Aggression was assessed using the Social Dysfunction and Aggression Scale (SDAS) [22], which contains 11 items scored from 0 (not present) to 4 (extremely severe). As well as nine items covering interpersonal (other-directed) aggression (i.e. non-directed verbal aggressiveness, directed verbal aggressiveness, irritability, negativism, dysphoric mood, socially disturbed behaviour, physical violence to staff, physical violence to others, and physical violence to things), it consists of two items covering self-harm (i.e. suicidal behaviour vs. self-injurious behaviour). The reliability of this scale is high (interclass coefficient: .97, Cronbach's a: .79) [22]. The validity of the SDAS is high as well: the sum-scores of the scales MOAS [23], SDAS, and SOAS [24] correlate highly (r between .78 and .91) [25].

4.2.2.3.2 Instrument for assessing subjective distress

During the debriefing that followed the end of a coercive intervention, patients filled in the Coercion Experience Scale (CES) [26], an instrument to measure the psychological and physical impact of coercive interventions in mental health settings. The reliability and validity of its psychometric properties are

satisfactory, as follows: Cronbach alpha of the CES scale ranged from .67 to .93, while the convergent and discriminant validity yielded respectively: r=.79 (p<.001), and r=.38 (p<.001) [26]. The questionnaire consists of six factors: "humiliation" (14 items, e.g. "dignity taken away"); "physically adverse effects" (4 items, e.g. "pain"); "separation" (2 items, e.g. "restrictions of interpersonal contact"); "negative environment" (5 items, e.g. "fear of not getting enough air"); "fear" (2 items, e.g. "afraid to die"); and "coercion" (2 items, e.g. "the applied coercion was…"). Each item is assessed on a Likert-Scale that provides scope to indicate the degree to which the coercive method was stressful (not at all / mildly / moderate / severely / extreme) or how it had been experienced (acceptable / uncomfortable / unpleasant / very unpleasant / extremely unpleasant). In addition, a visual-analogue-scale (VAS) was used to measure the overall burden of the coercive measure.

Since the original questionnaire was developed specifically to compare seclusion with mechanical restraint, we added three items to cover the subjective distress that had been experienced upon the administration of involuntary medication: "I was held by staff members", "I got medication against my will" and "My functioning was hindered by side-effects of the medication". We analyzed these three items by adding them to the total score of the CES. They were also included in the revised edition of the questionnaire by the author of the scale.

4.2.3 Statistics

To compare patients' socio-demographic and clinical details, we used Chi square analyses and Anova F tests in four groups based on the coercive interventions they had experienced: (1) seclusion alone, (2) medication alone, (3) seclusion and medication combined, and (4) seclusion and mechanical restraint combined. To achieve normal distribution, some variables were

logarithmically transformed. If the data were still skewed, non-parametric tests (e.g. Wallis & Mann Whitney U) were used.

Multiple linear regression analyses were then used to explore associations between the two main dependent variables: effectiveness over 24 hours and the subjective distress of the episode as assessed at its conclusion on the one hand and the type of coercive intervention(s) on the other, whilst controlling for the effect of other independent variables and baseline scores. The four types of coercive interventions were entered into the regression analyses using combined seclusion and mechanical restraint as a reference group. In addition, separate regression analyses were conducted to compare seclusion alone (reference group) versus medication alone, and individual interventions (reference group) versus combined interventions. All other independent variables were entered using the stepwise method.

4.3. Results

4.3.1 Descriptives and univariate analyses

In total, 125 patients underwent coercion during the research period. Between a third and three-quarters were male (65%), single (75%), of Dutch origin (72%), and had been admitted involuntarily (69%). The average age was thirty seven years (SD=13). Most of the patients suffered from a psychotic disorder (39%), followed by a mood disorder (33%), addiction (drugs or alcohol; 26%), personality disorder (12%), and post-traumatic stress disorder (PTSD) (4%). Forty-six (37%) patients reported having been coerced during previous periods of hospitalization. During the study, 52 patients received involuntary medication; in over half the cases, this was administered orally (57%).

Table 1 reports descriptive data on all variables across the four intervention groups. Combined interventions were used most among patients with a psychotic disorder, which was therefore the diagnostic criterion we used

to dichotomize the data for further analyses (psychotic disorder: yes or no). Those subjected to seclusion in combination with medication were significantly more likely to have been subjected to coercive experiences during previous hospitalizations. Seclusion episodes combined with mechanical restraint were (non-significantly) longer than those combined with medication, or those in which seclusion was used on its own. This is probably because patients subjected to seclusion and mechanical restraint were significantly less well (lower GAF score), had less insight into their illness, or were more uncooperative at the start of the intervention than the patients who were secluded only.

In terms of effectiveness, Table 1 also shows clearly that all groups improved 24 hours after undergoing the coercive intervention (GAF score (t=-11.4, df=121, p.001); insight into the illness (Wilcoxon, Z=-6.9, $p<.001$); reduction in uncooperativeness (Wilcoxon, Z=-7.9, $p<.001$); and reduction in aggression (Wilcoxon, Z=-8.5, $p<.001$). However, there were no significant differences in these change scores between the groups.

Table 1. Patients' demographic and clinical characteristics divided in four groups according to the applied coercive intervention(s) during the first 24 hours

		Demographic and Clinical characteristics				
		Coercive experience				
Variable	N*	Group 1 Seclusion only N=62 N (%) / Mean (SD)	Group 2 Involuntary medication only N=18 N (%) / Mean (SD)	Group 3 Combined Seclusion & medication N=34 N (%) / Mean (SD)	Group 4 Combined Seclusion & mechanical restraint N=11** N (%) / Mean (SD)	P
Male gender	125	36(58%)	11(61%)	24(71%)	10(91%)	0.2
Mean age	125	36(12)	38(13)	39(13)	35(15)	0.6
Married status: single	118	45(48%)	15(16%)	25(27%)	9 (10%)	0.7
Ethnicity 1st & 2nd generation immigrants	120	13(22%)	5(28%)	7(22%)	3(27%)	0.9
Legal status upon admission Involuntary commitment	119	37(65%)	12(67%)	24(73%)	9(82%)	0.7
Coercive experience during previous admissions	106	19(36%)	2(13%)	17(63%)	5(46%)	**0.01[1]**
Patients and their diagnosis*	119					
Psychotic disorder	46	16(27%)	7(39%)	17(53%)	6(60%)	**0.045[2]**
Mood disorder	39	20(34%)	6(33%)	12(38%)	1(10%)	0.4
Personality disorder	14	5(9%)	6(33%)	3(9%)	0	-
Addiction	31	19(32%)	5(28%)	4(13%)	3(30%)	0.2
PTSD	5	3(5%)	0	2(6%)	0	-
Oral (versus intramuscular) administration of medication	52	X	14(78%)	12(43%)	2(50%)	0.08

Table 1a. Continued

		Demographic and Clinical characteristics				
		Coercive experience				
Variable	N*	Group 1 Seclusion only N=62 N (%) / Mean (SD)	Group 2 Involuntary medication only N=18 N (%) / Mean (SD)	Group 3 Combined Seclusion & medication N=34 N (%) / Mean (SD)	Group 4 Combined Seclusion & mechanical restraint N=11** N (%) / Mean (SD)	P
Level of coercion at the start of the measure	115	3.6(3)	3(3)	4.8(3)	5.8(3.8)	0.08
Mean duration seclusion episode in hours****	105	21(31)	X	31(38)	65(67)	0.13
Mean score GAF						
Pre-measurement	125	44 (9)	41 (9)	41 (11)	35 (12)	**0.03[3]**
Post-measurement	122	60(16)	54(16)	54(14)	54(20)	0.2
Change score****	122	16(14)	12(15)	14(15)	19(20)	0.3
Mean score Uncooperativeness (PANSS)						
Pre-measurement*****	125	5(1.5)	5(1.5)	6(1.4)	6(1)	**0.001[4]**
Post-measurement	119	3(1)	4(2)	3(2)	4(2)	0.4
Change score	119	-1.7(1.7)	-1(1.9)	-2.5(2)	-2(2)	0.1
Mean score Lack of judgment and Insight (PANSS)						
Pre-measurement*****	125	5(1.5)	5(1.5)	6(1.6)	6(0.9)	**0.001[5]**
Post-measurement	119	3.5(1)	4.3(1.9)	4.2(1.7)	4.8(1.6)	0.03
Change score	119	-1.2(1.5)	-.9(1.7)	-1.6(1.7)	-1.4(1.8)	0.5
Mean score SDAS						
Pre-measurement	125	18(9)	18(7)	21(8)	22(10)	0.2
Post-measurement****	119	7(7)	11(9)	8(8)	10(12)	0.5
Change score	119	-11(9)	-7(9)	-13(9)	-14(9)	0.1

* The *n* and the percentage of respondents vary across the variables, because some of the clinical files were incomplete

** This includes one patient who received extra involuntary medication and 3 patients who received prn medication

*** 20% of the patients had more than one diagnose

**** Analyses were conducted with the logarithmic transformed scores to normalize the distribution

***** Non-parametric tests (Kruskal Wallis & Mann Whitney U) were used

Post-hoc analyses:

[1] Group 3 differs significantly from group 1 & group 2; [2] Group 1 differs significantly from group 3; [3] Group 1 differs significantly from group 4; [4] Group 1 & 2 differs significantly from group 3 & group 4; [5] Group 1 differs significantly from group 3 & group 4; group 2 differs significantly from group 4.

Figure 1 illustrates differences in subjective distress across the four intervention groups. Because some patients were subjected to an additional coercive measure (or measures) 24 hours after the start of the first coercive intervention, fewer respondents were included with regard to this outcome variable. It was also the case that 40% of the coerced patients refused to fill in the Coercion Experience Scale (CES), or were discharged before debriefing. These patients had a significantly lower GAF score and were more uncooperative ($p < .05$) at the respective post-measurements.

There was no significant variation between the groups in CES total and factor scores, apart from Factor 3 (Separation), which was rated significantly higher by those who had been subjected to combined interventions than by those who had been medicated only.

Figure 1. Subjective distress compared between four types of coercive interventions on the Coercion
Experience Scale (CES)
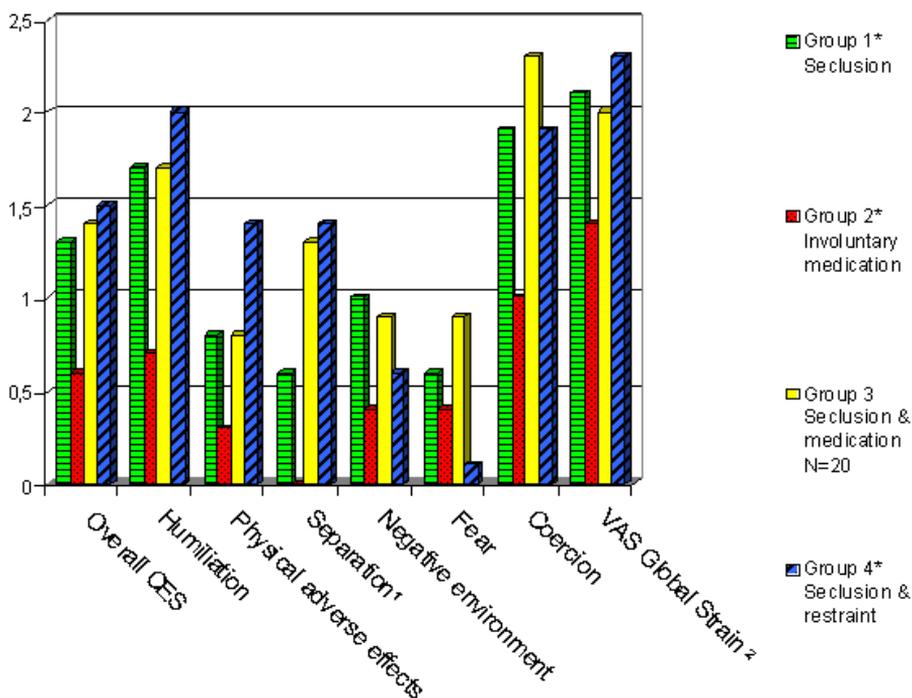
¹ Group 2 differs significantly from group 3 & group 4 on Separation
² The mean values of VAS Global Strain were divided by 30 to stay in proportion with the
rest of the scales
* The number of respondents varies in a range between: 44 and 46 (Group 1); 9 and 11
(Group 2); 8 and 9 (Group 4)
** Higher score indicates more psychological and physical burden

4.3.2 Results from multiple regression analyses

Tables 2-4 report findings from the regression analyses, which show only regression
models with at least one significant predictor (beyond baseline scores of the
dependent variables). It was shown by comparison of group 1 (seclusion), group 2
(involuntary medication) and group 3 (seclusion combined with involuntary
medication) with group 4 (seclusion combined with mechanical restraint) that type of
coercive intervention did not predict any aspects of effectiveness (Table 2).
However, lower psychological and physical burden (including overall CES, and the

factors humiliation, physically adverse events, and feelings of separation) was significantly associated with the use of involuntary medication as compared to seclusion combined with mechanical restraint, after controlling for demographic and clinical variables.

With regard to their association with lower levels of physically adverse events, all methods were significantly better than seclusion plus mechanical restraint. Similarly, coercive experience during previous periods of hospitalization, and psychotic disorder were positively associated with changes in effectiveness scores, while increased levels of subjective distress were significantly associated with female gender, involuntary admission status, pressure applied by the staff at the start of the measure, lower age, and unmarried status.

Table 2. Results of regression analyses investigating the associations between effectiveness and subjective distress (CES), and type of coercive interventions, controlling for demographical and clinical variables (patients who experienced seclusion and mechanical restraint constituted the reference group; only models with at least one significant predictor beyond baseline scores are reported here).

Dependent variables / Independent Variables[1]	Change scores Effectiveness			Subjective distress : Mean scores Coercion Experience Scale (CES)						
	SDAS df(6;92) R^2=0.4*** Unstandardized coefficients	Uncooperativeness df(5;93) R^2=0.4*** Unstandardized coefficients	Lack of insight into the illness df(5;93) R^2=0.3*** Unstandardized coefficients	Total score CES df(5;68) R^2=0.3*** Unstandardized coefficients	Factor Humiliation df(5;68) R^2=0.2** Unstandardized coefficients	Factor Physical adverse effects df(6;68) R^2=0.4**** Unstandardized coefficients	Factor Separation df(5;71) R^2=0.26** Unstandardized coefficients	Factor Negative environment df(6;68) R^2=0.34*** Unstandardized coefficients	Factor Fear df(5;69) R^2=0.2** Unstandardized coefficients	Factor Coercion df(4;73) R^2=0.13* Unstandardized coefficients
Seclusion	1.9	-0.2	-0.5	-0.5	-0.7	**-0.9****	**-1.2***	0.2	0.6	0.2
Involuntary medication	6.1	0.2	-0.003	**-1****	**-1.5****	**-1.4*****	**-1.8*****	-0.3	0.5	-0.5
Seclusion & medication	-.08	-0.5	-0.5	-0.3	-0.6	**-0.8***	-0.5	0.3	0.8	0.4
Female gender	n.s.	n.s.	n.s.	**0.6*****	**0.6***	**0.9*****	**0.7****	**0.8*****	**0.6***	n.s.
Age	n.s.	n.s.	n.s.	**-0.02****	**-0.02***	**-0.02***	n.s.	**-0.02****	n.s.	n.s.
Married status	n.s.	n.s.	n.s.	n.s.	n.s.	**-0.3***	**-0.6***	n.s.	n.s.	n.s.

Table 2a. Continued

Independent Variables[1]	Change scores Effectiveness			Subjective distress : Mean scores Coercion Experience Scale (CES)						
Dependent variables	SDAS df(6;92) R^2=0.4*** Unstandardized coefficients	Uncooperativeness df(5;93) R^2=0.4*** Unstandardized coefficients	Lack of insight into the illness df(5;93) R^2=0.3*** Unstandardized coefficients	Total score CES df(5 ;68) R^2=0.3*** Unstandardized coefficients	Factor Humiliation df(5 ;68) R^2=0.2** Unstandardized coefficients	Factor Physical adverse effects df(6;68) R^2=0.4**** Unstandardized coefficients	Factor Separation df(5;71) R^2=0.26** Unstandardized coefficients	Factor Negative environment df(6;68) R^2=0.34*** Unstandardized coefficients	Factor Fear df(5;69) R^2=0.2** Unstandardized coefficients	Factor Coercion df(4;73) R^2=0.13* Unstandardized coefficients
Voluntary status at admission	n.s.	n.s.	n.s.	n.s	n.s.	n.s.	n.s.	**-0.5****	n.s.	n.s.
Coercive experience during previous admissions	**3.8***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Psychotic disorder	**3.8***	**0.9****	**0.7***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Pressure applied from the staff at the start of the measure	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	**0.09****	**0.1***
Baseline score of SDAS, Uncooperativeness and lack of insight, respectively	**-0.7*****	**-0.7*****	**-0.6*****	N/A²	N/A	N/A	N/A	N/A	N/A	N/A

 * significant at the 0.05 level; ** significant at the 0.01 level; *** significant at the 0.001 level; [1] Ethnical minority was excluded from all stepwise regression analyses; ²N/A = not applicable

In subsequent analyses we compared seclusion alone with involuntary medication alone (Table 3). These did not differ with regard to predicting relative changes in GAF, insight, uncooperativeness and aggression. Involuntary medication was a significant predictor of lower CES total score, humiliation, unpleasant environment, and lower global strain. Gender, age, marital status and pressure applied by the staff again emerged as significant predictors of various aspects of psychological and physical burden.

Table 3. Results from regression analyses investigating the associations between effectiveness and subjective distress (CES) of patients experienced only involuntary medication and only seclusion with other clinical and demographical variables (codes: involuntary medication (1); seclusion (0); only models with at least one significant predictor beyond baseline scores, are reported here).

Dependent variables	Change scores Effectiveness	Subjective distress : Mean scores Coercion Experience Scale (CES)					
Independent variables[1]	Uncooperativeness df(3;64) R²=0.4*** Unstandardized coefficients	Total score CES df(4 ;48) R²=0.3*** Unstandardized coefficients	Factor Humiliation df(1;51) /R²=0.1 Unstandardized coefficients	Factor Physical adverse effects df(3;50) / R²=0.3 Unstandardized coefficients	Factor Negative environment df(3;50) /R²=0.3 Unstandardized coefficients	Factor Coercion df(2;55) /R²=0.13* Unstandardized coefficients	VAS Global Strain df(1;50) / R²=0.08 Unstandardized coefficients
Involuntary medication	0.4	**-0.6***	**-0.9***	-0.4	**-0.6***	-0.7	**-21***
Female gender	n.s.	**0.6***	n.s.	**0.7****	**0.7****	n.s.	n.s.
Age	n.s.	**-0.02***	n.s.	**-0.03****	n.s.	n.s.	n.s.
Married status	n.s.	n.s	n.s.	n.s.	**-0.7****	n.s.	n.s.
Psychotic disorder	**0.9***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Pressure applied from the staff at the start of the measure	n.s.	**0.7***	n.s.	n.s.	n.s.	**0.12***	n.s.
Baseline score of uncooperativeness	**-0.7****	N/A²	N/A	N/A	N/A	N/A	N/A

significant at the 0.05 level; ** significant at the 0.01 level; *** significant at the 0.001 level; [1] Independent variables excluded from all stepwise regression analyses: ethnical minority, voluntary status & coercive experience during previous admissions; ² N/A = not applicable

Further, comparison of any combined coercive intervention ("seclusion plus") with any singular intervention (seclusion alone and involuntary medication alone), showed that combined measures (Table 4) were associated with higher subjective distress, more specifically with causing more feelings of separation and more physically adverse effects. Pressure applied by the staff at the beginning of the measure significantly increased feelings of fear and coercion during the intervention.

Table 4. Results from regression analyses investigating the associations between effectiveness and subjective distress (CES) of patients experienced individual and combined interventions with other clinical and demographical variables (codes: combined interventions (1); individual interventions (0); only models with at least one significant predictor beyond baseline scores, are reported here).

Independent variables[1] / Dependent variables	Change score Effectiveness			Subjective distress : Mean scores Coercion Experience Scale (CES)						
	SDAS df(4;94) R^2=0.4*** Unstandardized coefficients	**Uncooperativeness** df(3;95) R^2=0.4*** Unstandardized coefficients	**Lack of insight into the illness** df(3;95) R^2=0.3*** Unstandardized coefficients	**Total score** df(4;69) R^2=0.26*** Unstandardized coefficients	**Factor Humiliation** df(3;70) R^2=0.13* Unstandardized coefficients	**Factor Physical adverse effects** df(3;71) R^2=0.3*** Unstandardized coefficients	**Factor Separation** df(2;74) R^2=0.18** Unstandardized coefficients	**Factor Negative environment** df(4;70) R^2=0.3*** Unstandardized coefficients	**Factor Fear** df(3;71) R^2=0.16** Unstandardized coefficients	**Factor Coercion** df(2;75) R^2=0.09* Unstandardized coefficients
Combination	-2.9	-0.4	-0.02	0.3	0.4	**0.4***	**0.9***	0.07	0.07	.3
Female gender	n.s.	n.s.	n.s.	**0.6***	**0.6***	**0.8***	**0.7***	**0.8***	**0.6***	n.s.
Age	n.s.	n.s.	n.s.	**-0.02***	**-0.02***	**-0.03***	n.s.	**-0.02***	n.s.	n.s.
Voluntary status at admission	n.s.	n.s.	n.s.	n.s	n.s.	n.s.	n.s.	**-0.5***	n.s.	n.s.
Coercive experience during previous admissions	**3.3***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Psychotic disorder	**4***	**0.97***	**0.7***	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Pressure applied from the staff at the start of the measure	n.s.	n.s.	n.s.	**0.06***	n.s.	n.s.	n.s.	n.s.	**0.09***	**0.1***

Table 4a. Continued

Dependent variables / Independent variables[1]	Change score Effectiveness			Subjective distress : Mean scores Coercion Experience Scale (CES)						
	SDAS df(4;94) R²=0.4*** Unstandardized coefficients	Uncooperative-ness df(3;95) R²=0.4*** Unstandardized coefficients	Lack of insight into the illness df(3;95) R²=0.3*** Unstandardized coefficients	Total score df(4;69) R²=0.26*** Unstandardized coefficients	Factor Humiliation df(3;70) R²=0.13* Unstandardized coefficients	Factor Physical adverse effects df(3;71) R²=0.3*** Unstandardized coefficients	Factor Separation df(2;74) R²=0.18** Unstandardized coefficients	Factor Negative environment df(4;70) R²=0.3*** Unstandardized coefficients	Factor Fear df(3;71) R²=0.16** Unstandardized coefficients	Factor Coercion df(2;75) R²=0.09* Unstandardized coefficients
Baseline score of SDAS, uncooperativeness and lack of insight, respectively	-0.7***	-0.7***	-0.6***	N/A[2]	N/A	N/A	N/A	N/A	N/A	N/A

* significant at the 0.05 level; ** significant at the 0.01 level; *** significant at the 0.001 level

[1] Independent variables excluded from all stepwise regression analyses: married status, ethnical minority & coercive experience during previous admissions; [2] N/A = not applicable

4.4 Discussion

This study set out to investigate the relative effectiveness of four types of coercive interventions used by the mental health services, and the relative psychological and physical burdens these interventions imposed on patients. The study, which used structured and validated assessment tools completed by trained staff at two time points, also sought to assess the patient's perspective through interviews conducted after the coercive event.

By using change scores, it is possible to identify improvement or deterioration in mental state after the implementation of a coercive intervention. It is noticeable that mental health (GAF) and behavior (SDAS, PANSS) improved in all four groups irrespective of the measure to which they had been exposed. While it is possible for reductions in conflict behaviors such as aggression (SDAS) and uncooperativeness (PANSS) to reflect submission to the authority and power of the staff that acts coercively, more notable were the improvements in wellbeing (GAF) and insight. Nevertheless all such ratings are at risk of contamination, as they were completed by staff who were not blind to the allocated intervention, and who were likely to have an investment in reporting improvements. It is also possible that there would have been equal or even better improvements in wellbeing and insight if the coercive interventions had not been used. Only a controlled research design would be able to establish this relationship, which is difficult to apply when violent behavior needs to be managed.

Although testing in both the univariate and multivariate analyses did not enable us to find any significant differences in effectiveness between the coercive interventions, there were differences between the groups with regard to the change scores for psychological functioning (change scores for GAF and insight into the illness) and reduction of imminent danger (change scores for aggression and uncooperativeness) (see Table 1). This suggests that differences in effectiveness might become significant with a larger sample.

Our study raises a number of key issues. Firstly, it provides evidence that, when all else fails and a patient's preference has not been previously recorded, involuntary medication should be the treatment of choice if a coercive intervention is unavoidable. In the first instance, the patient's unequivocal consent to the oral route of administration is recommended, not only because oral administration is experienced as less coercive (27) but also because it manages acute agitation just as effectively as an intramuscular formulation (28).

When seclusion was not part of the coercive intervention, patients in our study who received medication alone experienced less isolation. After controlling for the effect of other variables, involuntary medication emerged as significantly associated with lower burden in more aspects of CES (i.e. overall CES, humiliation, and physically adverse events) than seclusion with or without restraint was. Medicated patients also reported substantially less global strain than patients who had been secluded only.

Conversely, we found that, as reported earlier (29), subjecting the patient to a combination of seclusion and mechanical restraint is highly aversive and should be the least preferred option. As 9% of our sample was subjected to this highly intrusive intervention, it is by no means uncommon – and, given the availability of the less intrusive interventions examined here, could also be said to risk contravening the well-established principle of proportionality. If seclusion episodes were combined with mechanical restraint, they were more than twice as long as seclusion alone or seclusion combined with medication. Although the restraint group sample was small (n=11), there is no evidence that, in terms of aggression and psychological functioning, the restrained group were more disturbed than the secluded and medicated group at the onset of the intervention.

Further, combining seclusion with mechanical restraint was not significantly more effective in improving psychological functioning or reducing aggression than the rest of the restrictive measures were. However, all three other types of intervention as measured by some of the CES's subscales were associated

with lower burden; this further indicates the psychological costs to the patient of being restrained and secluded. These findings are in line with the recommendation of the Council of Europe as stated in the White Paper: "seclusion and mechanical or other means of restraint for prolonged periods should be resorted to only in exceptional cases" (3).

By the same token, there is evidence that the combination of coercive interventions should be avoided – regardless of the types being combined. The principle of proportionality indicates that, because combined interventions were not more effective, single interventions should be used – and our findings indicate that these single interventions should preferably consist of medication.

It is also clear that different groups of patients react differently to the coercive situation. This variation amongst gender and age groups in terms of attitudes to coercive measures has been observed elsewhere (10). Our own study produced evidence that women and younger people reported that they had experienced coercive interventions as more burdensome – something staff should be aware of when deciding on implementing coercive interventions. This higher reported burden may of course reflect a willingness to report feelings of vulnerability, but it may also reflect not just women's lower average tolerance thresholds for painful stimuli (30), but also, as a socially influenced gender-based characteristic, their greater emotional responsiveness (31). While no decision to coerce should be taken lightly in this context, it seems that decisions to coerce women should be considered particularly carefully.

At the start of the coercive interventions, nursing staff should also use as little pressure as possible, because it may increase patients' feelings of fear and coercion during the intervention. This may aggravate their condition: previous research has provided strong evidence that anxiety is related to the occurrence of persecutory delusions (32), paranoia and hallucinations (33). Such interventions may thus end up counteracting the main therapeutic goal of psychiatric admission, which is to reduce symptoms and bizarre behaviours – although in this study we have also

noted the general improvement in psychological functioning brought about by the coercive intervention(s).

In addition to this, increased perceived coercion might lead a patient to disengage from psychiatric services. It can also seriously damage the therapeutic relationship (34). In order to facilitate effective communication and aid the patients' recovery, patients should be encouraged to participate and negotiate in decision-making on their own care (35). Increased feelings of coercion, humiliation, physically adverse effects and fear can also cause serious long-lasting adverse effects like retraumatization (36) and PTSD.

4.1 Study limitations

While this is the first study yielding evidence that involuntary medication is less distressing for patients than seclusion or restraint by exploring actual coercive experiences, we must acknowledge a number of limitations. Firstly, 40% of the coerced patients refused to fill in the CES or were discharged before debriefing. Although a response rate of 60% has been described as good in an acute setting with difficult-to-recruit patients (37), the non-respondents were significantly less cooperative and had lower GAF, so it is possible that the most seriously ill and traumatized patients were unable to participate, or refused to, making the CES scores here an underestimate of the real burden.

Secondly, patients were interviewed by the nursing staff and not by an independent researcher. Again, it is therefore possible that patients underreported the intensity of their experience to avoid challenging the staff.

Thirdly, a randomized clinical design and a larger sample size would clearly be preferable for establishing the effectiveness of these interventions (38). But such a design is extremely difficult to implement for this particular question, and samples are difficult to recruit. Although patients were not randomly allocated to the interventions groups and patients' condition differed significantly between some of

the groups at the start of the coercive interventions, we controlled for these baseline differences in the analyses.

Fourthly, the setting here in a single Dutch mental health unit makes widespread generalizability to other services and national policy contexts difficult.

Fifthly, we could not subdivide patients according to whether they received oral or intramuscular medication because of the small sample size.

Finally, we should add that the scope of our study was limited to the coercive measures that are used most often in the Netherlands, and that we did not evaluate the effects of other restrictive interventions such as physical restraint, continuous observation, or time-out. Ideally, the next step in this field would be an international multi-centre study conducted in way that assessed differences in a broader range of coercive practices and patients' responses.

4.5 Conclusions

In the absence of information on individual patient preferences, evidence here suggests that seclusion and mechanical restraint are less justified than involuntary medication as a coercive intervention. Besides that, use of multiple interventions requires significant justification given their association with significant distress.

References

1. Bilanakis N, Peritogiannis V. Attitudes of patients and families toward restraint and seclusion. Psychiatr Serv. 2008 Oct;59(10):1220.
2. Moran A, Cocoman A, Scott PA, Matthews A, Staniuliene V, Valimaki M. Restraint and seclusion: a distressing treatment option? J Psychiatr Ment Health Nurs. 2009 Sep;16(7):599-605.
3. Steering Committee on Bioethics of the Council of Europe. WHITE PAPER on the protection of the human rights and dignity of people suffering from mental disorder, especially those placed as involuntary patients in a psychiatric establishment: Council of Europe2005.
4. Kingdon D, Jones R, Lonnqvist J. Protecting the human rights of people with mental disorder: new recommendations emerging from the Council of Europe. Br J Psychiatry. 2004 Oct;185:277-9.
5. Liegeois A, Eneman M. Ethics of deliberation, consent and coercion in psychiatry. Journal of medical ethics. 2008 Feb;34(2):73-6.
6. O'Brien AJ, Golding CG. Coercion in mental healthcare: the principle of least coercive care. J Psychiatr Ment Health Nurs. 2003 Apr;10(2):167-73.
7. Sailas E, Fenton M. Seclusion and restraint for people with serious mental illnesses. Cochrane Database Syst Rev. 2000(2):CD001163.
8. Huf G, Coutinho ES, Adams CE. Physical restraints versus seclusion room for management of people with acute aggression or agitation due to psychotic illness (TREC-SAVE): a randomized trial. Psychol Med. 2012 Mar 12:1-9.
9. Bergk J, Einsiedler B, Flammer E, Steinert T. A randomized controlled comparison of seclusion and mechanical restraint in inpatient settings. Psychiatr Serv. 2011 Nov 1;62(11):1310-7.
10. Whittington R, Bowers L, Nolan P, Simpson A, Neil L. Approval ratings of inpatient coercive interventions in a national sample of mental health service users and staff in England. Psychiatr Serv. 2009 Jun;60(6):792-8.
11. Georgieva I, Mulder N, Wierdsma A. Patients preferences and experiences of forced medication and seclusion. in press.
12. Mayers P, Keet N, Winkler G, Flisher AJ. Mental health service users' perceptions and experiences of sedation, seclusion and restraint. Int J Soc Psychiatry. 2010 Jan;56(1):60-73.
13. Allen MH, Currier GW, Carpenter D, Ross RW, Docherty JP, Expert Consensus Panel for Behavioral E. The expert consensus guideline series. Treatment of behavioral emergencies 2005. J Psychiatr Pract. 2005 Nov;11 Suppl 1:5-108; quiz 10-2.
14. Georgieva I, Mulder CL, Wierdsma A. Patients' Preference and Experiences of Forced Medication and Seclusion. The Psychiatric quarterly. 2011 Apr 24.
15. Larue C, Dumais A, Ahern E, Bernheim E, Mailhot MP. Factors influencing decisions on seclusion and restraint. J Psychiatr Ment Health Nurs. 2009 Jun;16(5):440-6.

16.   Kaltiala-Heino R, Tuohimaki C, Korkeila J, Lehtinen V. Reasons for using seclusion and restraint in psychiatric inpatient care. Int J Law Psychiatry. 2003 Mar-Apr;26(2):139-49.

17.   Steinert T, Lepping P, Bernhardsgrutter R, Conca A, Hatling T, Janssen W, et al. Incidence of seclusion and restraint in psychiatric hospitals: a literature review and survey of international trends. Social psychiatry and psychiatric epidemiology. 2010 Sep;45(9):889-97.

18.   Raboch J, Kalisova L, Nawka A, Kitzlerova E, Onchev G, Karastergiou A, et al. Use of coercive measures during involuntary hospitalization: findings from ten European countries. Psychiatr Serv. 2010 Oct;61(10):1012-7.

19.   Huckshorn KA. Re-designing state mental health policy to prevent the use of seclusion and restraint. Adm Policy Ment Health. 2006 Jul;33(4):482-91.

20.   Kennedy JA. Mastering the Kennedy Axis V: A New Psychiatric Assessment of Patient Functioning. Washington, D.C: American Psychiatric Publishing, Inc,; 2003.

21.   Kay SR, Fiszbein A, Opler LA. The positive and negative syndrome scale (PANSS) for schizophrenia. Schizophrenia bulletin. 1987;13(2):261-76.

22.   Wistedt B, Rasmussen A, Pedersen L, Malm U, Traskman-Bendz L, Wakelin J, et al. The development of an observer-scale for measuring social dysfunction and aggression. Pharmacopsychiatry. 1990 Nov;23(6):249-52.

23.   Kay SR, Wolkenfeld F, Murrill LM. Profiles of aggression among psychiatric patients. I. Nature and prevalence. The Journal of nervous and mental disease. 1988 Sep;176(9):539-46.

24.   Palmstierna T, Wistedt B. Staff observation aggression scale, SOAS: presentation and evaluation. Acta psychiatrica Scandinavica. 1987 Dec;76(6):657-63.

25.   Steinert T, Gebhardt RP. [Are coercive measures carried out arbitrarily?]. Psychiatrische Praxis. 2000 Sep;27(6):282-5.

26.   Bergk J, Flammer E, Steinert T. "Coercion Experience Scale" (CES) - validation of a questionnaire on coercive measures. BMC Psychiatry. 2010 Jan 14;10(1):5.

27.   Patel MX, de Zoysa N, Bernadt M, Bindman J, David AS. Are depot antipsychotics more coercive than tablets? The patient's perspective. J Psychopharmacol. 2010 Oct;24(10):1483-9.

28.   Currier GW, Medori R. Orally versus intramuscularly administered antipsychotic drugs in psychiatric emergencies. J Psychiatr Pract. 2006 Jan;12(1):30-40.

29.   Harris GTR, Marnie E.; Preston, Denise L. . Staff and Patient Perceptions of the Least Restrictive Alternatives for the Short-Term Control of Disturbed Behavior. The Journal of Psychiatry & Low. 1989;17:239-63.

30.   Fillingim RB, King CD, Ribeiro-Dasilva MC, Rahim-Williams B, Riley JL, 3rd. Sex, gender, and pain: a review of recent clinical and experimental findings. J Pain. 2009 May;10(5):447-85.

31.   Pratchett LC, Pelcovitz MR, Yehuda R. Trauma and violence: are women the weaker sex? The Psychiatric clinics of North America. 2010 Jun;33(2):465-74.

32.   Startup H, Freeman D, Garety PA. Persecutory delusions and catastrophic worry in psychosis: developing the understanding of delusion distress and persistence. Behaviour research and therapy. 2007 Mar;45(3):523-37.

33.   Freeman D, Fowler D. Routes to psychotic symptoms: trauma, anxiety and psychosis-like experiences. Psychiatry research. 2009 Sep 30;169(2):107-12.

34.   Lidz CW, Mulvey EP, Hoge SK, Kirsch BL, Monahan J, Eisenberg M, et al. Factual sources of psychiatric patients' perceptions of coercion in the hospital admission process. Am J Psychiatry. 1998 Sep;155(9):1254-60.

35.   McCabe C. Nurse-patient communication: an exploration of patients' experiences. Journal of clinical nursing. 2004 Jan;13(1):41-9.

36.   Steinert T, Bergbauer G, Schmid P, Gebhardt RP. Seclusion and restraint in patients with schizophrenia: clinical and biographical correlates. The Journal of nervous and mental disease. 2007 Jun;195(6):492-6.

37.   Katsakou C, Priebe S. Outcomes of involuntary hospital admission--a review. Acta psychiatrica Scandinavica. 2006 Oct;114(4):232-41.

38.   Bergk J, Einsiedler B, Steinert T. Feasibility of randomized controlled trials on seclusion and mechanical restraint. Clinical trials (London, England). 2008;5(4):356-63.

CHAPTER 5

Reducing seclusion through involuntary medication: a randomized clinical trial [5]

CHAPTER 6

Successful reduction of seclusion in a newly developed psychiatric intensive care unit [6]

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ABSTRACT

Introduction: Psychiatric Intensive Care Units (PICU) are small wards, designed for the most difficult-to-manage patients. They have higher levels of nursing and other staff, are often locked, and sometimes have facilities for seclusion. Although PICU staff is often confronted with aggressive behavior, resulting in higher usage of coercive measures, there is not enough knowledge about necessary infrastructure and treatment policy for successfully reducing seclusion and restraint.

Aim: To investigate whether patients transferred to a newly developed PICU, focused on the effective and non-coercive management of disruptive behavior, are secluded and restrained less than during earlier stays in a psychiatric unit.

Method: The effect of the newly developed PICU on reducing seclusion was evaluated in eight patients, six of whom had been diagnosed with a severe form of borderline personality disorder. The number of days in seclusion during the period before admission to the PICU was compared to the number of days in seclusion after admission to the PICU.

Results: After patients' admission to PICU, the use of seclusion was almost completely eliminated, falling from 40% of admission days spent in seclusion before transfer to the PICU to 0.1% during their stay at the PICU.

Conclusion: When a special non-coercive infrastructure and treatment policy is applied at a PICU, seriously disturbed patients can be treated without coercive measures.

6.1 Introduction

Although intensive care is accepted as a standard component of the health care system in the Netherlands, psychiatric intensive units (PICU) are still a new phenomenon within the mental health arena. Psychiatric intensive care, according to the Department of Health (1) is designed for 'patients compulsory detained usually in secure conditions, who are in an acutely disturbed phase of mental disorder. These patients have an associated loss of capacity for self-control, with a corresponding increase in risk, which does not allow their safe, therapeutic management and treatment in a general open acute ward.'

Despite the long existence of PICUs in countries such as the U.S.A. (2), Australia and the U.K. (3), there is still little information on their admission criteria, working mechanisms and clinical effectiveness. Bowers et al. (4) recently concluded in a review that the most common reason for admitting a patient to a PICU is the inability to deal with the patient's aggression, disruptive behavior and suicide risk at general acute wards, with aggression accounting for 30-50% of the admissions. Consequently, patients in a PICU seem to be three times more likely to be violent than those on acute wards (5). Although there are no standardized admission criteria, the importance of the dangerousness criteria is confirmed by other authors. 'Patients whose condition is such that his/her behavior presents a danger either to themselves or others' ((6) p. 835) are especially likely to be admitted to a PICU, as are 'suicidal or assaultive patients who are acutely disturbed and present serious management problems' ((7) p.81).

Since the patients transferred to the PICU often meet the dangerousness criteria, we can expect that the use of coercive measures will be higher there than at the general acute wards. A number of studies (5, 8-9) have already reported that rapid tranquillization, mechanical restraint and seclusion are indeed more frequently used at a PICU than at general acute wards.

Although Sailas and Fenton (10) concluded that the intrusiveness and the efficacy of coercive measures have been poorly investigated, some qualitative studies show that such invasive treatments can have serious adverse effects on

both patients and staff (11). Seclusion, can be particularly traumatic for some patients, who experience feelings such as anger, depression, helplessness, punishment, loneliness and humiliation during or after the seclusion (12). For nurses and physicians, the use of seclusion and restraint often involves an ethical dilemma when they are forced to act against the patient's will (13-14). In addition, coercive measures can not only have harmful consequences for the working relationship between the nurse, the doctor and the patient (15), they can significantly reduce patients' satisfaction with care (16). Both the higher prevalence of coercive measures at PICUs and their harmful consequences for the treatment of the patient mean that PICUs should be specialized in managing violent behavior and suicidal risk in a less intrusive way than restraining or secluding the patients.

As far as we are aware, only one study has evaluated the impact of opening a PICU on the reduction of seclusion and restraint (17). This found that patient accidents decreased by 60%, seclusion hours fell by 92%, and the numbers of patients in seclusion fell by 83% relative to historical data. However, the core features of the PICU responsible for this decline were not mentioned in this publication. We therefore conclude that there is no documented knowledge on the infrastructure and treatment policy needed by a PICU's for successful reduction of seclusion and restraint.

In the Netherlands, the mean duration of seclusion episodes registered in psychiatric hospitals is 16 days; maximum length is 595 days (18). This suggests that some patients are held in seclusion longer than a year, as this was the case at the psychiatric hospital where this study took place. Our project was also driven by the unavailability of facilities for the non-coercive treatment of the most seriously disturbed patients. By developing a PICU focused on effective and non-coercive management of disruptive behavior we wanted to eliminate the use of coercive measures, and provide the higher quality of intensive care required by seriously disturbed patients. We therefore investigated whether coercive measures

were used less often with admitted participants at the PICU than had been used with the same patients in their earlier stays in psychiatric units.

6.2 Method

6.2.1 Setting

The study was performed in the Mental Health Care Centre West North Brabant in the southern part of the Netherlands, which provides psychiatric care to a catchment population of around 276, 075.

6.2.2 Design of the PICU

Firstly, we designed a model for a four-bed PICU with optimal infrastructure for preventing and managing dangerous behavior at an early stage. Two main components guided us in our development of the model: (1) greater safety and thus less seclusion and fewer restraint measures; (2) the need to speed recovery through more intensive treatment. Both components were reported as being the biggest advantages of PICU in comparison with general acute wards (4). Our theoretical PICU design needed to suit the resources available at an existing unit for chronic-disturbed psychiatric patients.

The reorganization of this unit resulted in a small closed PICU with four beds, higher nursing staff levels, a maximal length of stay of two years and one seclusion room shared with other units. Our unit thus fitted the general definition of PICUs provided by Bowers et al. ((4) p.66): 'small wards, with higher levels of nursing and other staff, mostly locked and sometimes with facilities of seclusion.'

6.2.3 Admission criteria

The only patients to be transferred to the PICU were those, with involuntary admission status, who had been identified with a higher risk either to themselves or to others, who had a history of long seclusion episodes and who had had substantial unsuccessful admissions at different acute or long-stay units at the same hospital. The previous units did not have higher staffing ratios that allowed specialised management of challenging patients, or special intensive monitoring. As a consequence, the staff felt so incapable and hopeless when dealing with these patients, that coercive measures (in particular seclusion) seemed to be the only feasible intervention.

6.2.4 Philosophy of care

Our aim was similar to that suggested by (19) to find a balance between ensuring security needs and creating an environment where patients are offered a level of autonomy in making decisions. Care was focused on rehabilitation and recovery that would offer perspectives for the patients' future development and for supporting their autonomy. Staff approached patients in humane and empowering way based on the assumption that each person possesses potential for maturation, learning and growth if an environment is offered that preserves their dignity and fosters mutual respect and acceptance. A high quality of care was offered by a multidisciplinary team with good professional skills; this supported stable working alliances based on trust, mutual cooperation and special treatment policy. A prevention-based approach to care was introduced. Guidelines and protocols described and organized the treatment processes, and the safety in the ward.

6.2.5 Staff and attitude

The multidisciplinary team comprised ten nurses each 9.0 FTE, an occupational therapist (0.1 FTE), a social worker (0.05 FTE) and a part-time psychiatrist with

(0.1 FTE). There were two full-time nurses on day and afternoon shifts, and one nurse on the night shifts, the ratio of male to female nurse was: 3:7. This high staff to patient ratio allowed close monitoring of the patients' mental status and potentially violent behavior. The permanent physical presence of the staff was necessary to ensuring an intensive patient-staff involvement that would facilitate a stable relationship with the suspicious, agitated or very anxious patients. Through close observation, the team was able to respond quickly to patients' needs and thus to prevent aggressive incidents. Sometimes one-to-one supervision was required.

The team members had the knowledge and expertise necessary to dealing with seriously disturbed patients with complex needs. In addition, training was provided to improve the professional skills of the team, this focused on changing the staff's attitude from controlling patient's behavior to one of negotiation. The staff were instructed to use a non- authoritarian, non-condemnatory way of communication that allowed patients to express any anger or confusion. An approach was introduced whereby patients' individual needs were respected, acutely disturbed patients were not talked down to, and patients' autonomy was stimulated. In this manner, it would be possible to maintain contact and commitment with the patient.

The management of the PICU supported the continuity of the nursing staff's professional development and discouraged the use of restrictive interventions. The operational policies and procedures at the unit were monitored weekly in the context of multidisciplinary staffs meetings.

6.2.6 Treatment policy

The treatment was focused on patients' stabilization and recovery, and offered a structured daily program for all patients. It involved various therapeutic activities, including cognitive behavior therapy with elements of mentalisation and elements derived from attachment theory. Mentalisation is the developmental achievement

of being able to reflect one's own behaviors and those of others (20); by providing a 'buffering' process between emotionally charged behaviors of others and a patient's emotional reaction (21), it allows patients to control their behavior and reattribute the motives of others.

According to the second element, attachment theory (22), a patient's relationship with the caring staff becomes characterized by disturbed patterns of attachment that reflect the patterns of interaction from the past. The PICU staff therefore aimed to replace disturbed, often destructive patterns of interaction with normal ways of relating, thereby establishing a healthy pattern of attachment. Patients were treated according to these therapeutic principles twice a week, once in a group context and once individually. In addition, they were offered psychomotor therapy twice a week and work integration therapy three times per week. Treatment protocols such as care plans (23), and personalized crisis-management plans were used as tools for planning therapeutic activities and offering structured crisis-prevention treatment. Patients were able to choose daily activities in collaboration with the nursing staff.

Close observation by staff that leads to early recognition of warning signs (such as aggressive acts, conflicts and dangerous situations) has been shown to be a successful approach to preventing escalations and seclusions at forensic psychiatric wards (24). For this reason, personalized crisis-management plans were introduced at the PICU. In addition, staffs were trained in early recognition of warning signs, thereby improving their risk-assessment skills, and their ability to prevent and manage aggression in early stages. When aggressive situations occurred, the least paternalistic and restrictive approaches were applied to prevent seclusion, such as verbal interventions, personal assistance, offering food, beverages, voluntary medication or other patient-friendly activities. When coercive measures proved inevitable, a special debriefing took place afterwards.

6.2.7 Physical environment

Because the safety of the patients and staff had a high priority at the unit, the staff carried a personal alarm system to alert others if emergency occurred. Single rooms for each patient were available, each with bathroom facilities in order to maintain privacy. Recreational facilities as sitting room equipped with a television and free access to an enclosed garden area, and simple sport facilities had to ensure daily occupation. Because aggression and inactivity have been found to be positively related (25), these facilities were expected to contribute to the maintenance of a secure environment.

6.2.8 Study design

This was a retrospective study evaluating the effect of a PICU on reducing seclusion. The follow-up period was 28 months. The length of seclusion episodes and other coercive measures were compared with historical data. Information on restrictive measures and on sociodemographic, and diagnostic characteristics were collected from the patients' case records of the patients during their stay. Psychiatric diagnoses were assessed by the psychiatrist at the PICU and based on the DSM-IV-TR criteria (26). Reliable data on usage of medication and violent acts were not available for study purposes.

6.3 Results

In the period from February 2007 until June 2009, seven female and one male patient were admitted to the PICU. These patients were treated according to the principles of intensive care as described above. The patients' sociodemographic and diagnostic characteristics are presented in Table 1. All were Dutch natives, who had been admitted involuntarily under the Dutch Mental Health Act. In six cases the status of detention changed from involuntary to voluntary status during

treatment at the PICU. The eight patients at the PICU were chronic psychiatric patients with complex co-morbid diagnoses, six of whom suffered from severe borderline personality disorder with dissociative or psychotic characteristics. Most had serious comorbid posttraumatic stress disorder as a result of sexual and physical traumas in childhood. All female patients either had tendency to harm themselves or exhibited suicidal behavior.

Before admission to the PICU, all patients had spent different periods of time in seclusion, the shortest stay being 7 days and the longest 517 days. On average, patients had been kept in seclusion for 156 (SD=215) days at different psychiatric units, during a mean hospitalization period of 368 (SD=221) days. After they had been transferred to the PICU, the average seclusion time decreased dramatically to 0.5 (SD=1) day per patient over a mean stay period of 349 (SD=167) days. This shows that after patients' admission to PICU, the use of seclusion was almost completely eliminated, falling from 40% to 0.1% of the seclusion time in historical data. The reduction in seclusion did not result in the use of other coercive measures such as involuntary medication and physical or mechanical restraint. The duration of the seclusion periods per patient before and after the admission to the PICU are shown in Table 1.

Tabel 1. Characteristics of patients admitted to the PICU

Patient	Gender	Age	Axis I (DSM-IV codes)	Axis II (DSM-IV codes)	Type of aggression	Days of hospitalization before admission to the PICU	Days in seclusion before admission to the PICU	Days of hospitalization at the PICU	Days in seclusion at the PICU
1	female	37	PTSD (309.81) Depression (296.34) Dissociative identity disorder (300.13)	Personality disorder NAO (301.9)	Suicidal Self-harm	535	517	512	0
2	female	33	PTSD (309.81)	Borderline personality disorder (301.83)	Suicidal	318	69	413	3
3	female	22	Psychotic disorder NAO (298.9) Anxiety (300.0)	Borderline personality disorder (301.83)	Suicidal Self-harm	820	490	556	1
4	male	32	Psychotic disorder NAO (298.9) ADHD (314.01) PTSD (309.81) Substance dependence (304.8)	Borderline intellectual Functioning (V62.89)	Threatened assault on staff Verbal aggression	394	7	360	0
5	female	48	PTSD (309.81) Psychotic disorder NAO (298.9)	Borderline personality disorder (301.83)	Self-harm	254	63	393	0
6	female	20	PTSD (309.81) Psychotic disorder NAO (298.9)	Borderline personality disorder (301.83)	Suicidal Self-harm	76	24	351	0
7	female	24	Psychotic episodes	Borderline personality disorder (301.83)	Self-harm	275	47	127	0
8	female	44	Dysthymic Disorder (300.4)	Borderline personality disorder (301.83)	Self-Harm	417	32	80	0

6.4 Discussion

This intensive psychiatric care unit promoted a philosophy of providing care in the least restrictive environment, and succeeded in almost eliminating the use of restrictive measures with seriously disturbed patients. We attribute the great success of the intervention to the introduction of multiple therapeutic approaches at different levels of the ward's organization. We also believe that five factors were the key to the successful delivery of this seclusion-free type of care: the staff's therapeutic and de-escalation skills, their close involvement with the patients, the cultural change from control to negotiation, the skilled leadership, and the introduction of personalized treatment and crisis-management plans. Although this study gives no insight into the relative impact of each particular component of the reduction in seclusion, a review of interventions for reducing the use of seclusion (27) in psychiatric facilities has already reported on the effectiveness of some of the core components implemented at the PICU: personalized treatment plan, leadership, higher staff-to-patient ratios and staff education.

Although most studies report that patients with psychotic illness are the largest diagnostic group admitted to a PICU (5, 9), the majority of our population was diagnosed with a severe form of borderline personality disorder. This group of patients had the highest risk of suicidal and/or self harm and/or aggressive behavior at our hospital, and spent long periods in seclusion. Because coercive measures can have such a negative impact, causing posttraumatic stress disorder - and patients with borderline personality disorder have been already traumatized in the past -, restrictive interventions should be avoided in this group of patients, because of the higher risk for re-traumatization. Because this can impair their clinical improvement more unsuccessful admissions and more restrictive measures may result, as was the case of our patients before their transfer to the PICU. By delivering a special intensive care, we managed to transform this vicious circle of clinical regression to a virtuous circle of improvement.

Although this study focuses mainly on reduction of seclusion and although we cannot provide any evidence about patients' clinical improvement, our clinical observations suggest that the hospitalization of patients with borderline personality disorder does not have to be always ineffective and counterproductive as suggested by Dawson and MacMillan (28) – or not when a special high-quality treatment is offered.

This study has several limitations. It is not a randomized controlled trial and the size of study population is small. For this reason, we could not provide any statistical analyses. However, the use of restrictive measures was so enormously reduced that it must be a true effect of the PICU and not simply a natural variation over time.

This study shows, first and foremost, that when the reduction of seclusion and restraint is considered a priority at a psychiatric intensive care unit, it is possible to eliminate restrictive measures, at least of patients diagnosed with borderline personality disorder. As already concluded by Hoch ((29) p.181): "it is possible to essentially stop using seclusion and restraint to 'treat' patients with borderline personality disorder." Future research should investigate whether the PICU model we described can lead to the non-coercive treatment of other different categories of patients.

Acknowledgements

References

1. DepartmentOfHealth. Mental Health Policy Implementation Guide for National Minimum Standards for General Adult Services in Psychiatric Intensive Care Units (PICU) and Low Secure Environments. London: Department of Health2002.

2. Rachlin S. On the need for a closed ward in an open hospital: the psychiatric intensive-care unit. Hospital & community psychiatry. 1973 Dec;24(12):829-33.

3. Jeffery A, Goldney R. An innovation: the psychiatric intensive care unit. Aust Nurses J. 1982 Nov;12(5):42-3, 9.

4. Bowers L, Jeffery D, Bilgin H, Jarrett M, Simpson A, Jones J. Psychiatric intensive care units: a literature review. Int J Soc Psychiatry. 2008 Jan;54(1):56-68.

5. Brown S, Bass N. The psychiatric intensive care unit: patient characteristics, treatment and outcome. Journal of Mental Health 2004;13(6):601–9.

6. Warneke L. A psychiatric intensive care unit in a general hospital setting. Canadian journal of psychiatry. 1986 Dec;31(9):834-7.

7. Allan E, Brown RC, Laury G. Planning a psychiatric intensive care unit: Intensive care for people with serious mental illness. Hospital & community psychiatry. 1988;39 (1):81-3.

8. Cohen S, Khan A. Antipsychotic effect of milieu in the acute treatment of schizophrenia. General hospital psychiatry. 1990;12 (4):248–51.

9. Wynaden D, S. M, R. C, D. C, P. L, C. H, et al. Types of patients in a psychiatric intensive care unit. Australian and New Zealand Journal of Psychiatry 2001;35:841-5.

10. Sailas E, Fenton M. Seclusion and restraint for people with serious mental illnesses. Cochrane Database Syst Rev. 2000(2):CD001163.

11. Fisher WA. Restraint and seclusion: a review of the literature. Am J Psychiatry. 1994 Nov;151(11):1584-91.

12. Kasander R, C. H, Hutschemaekers G. Dwang en drang in Europees Perspectief. Wolheze: Gelderse Roos Instituut voor Professionalisering (GRIP)2002.

13. Marangos-Frost S, Wells D. Psychiatric nurses' thoughts and feelings about restraint use: a decision dilemma. J Adv Nurs. 2000 Feb;31(2):362-9.

14. Olofsson B, Gilje F, Jacobsson L, Norberg A. Nurses' narratives about using coercion in psychiatric care. J Adv Nurs. 1998 Jul;28(1):45-53.

15. Berghmans R, Elfahmi D, Goldsteen M, Widdershoven GA. Kwaliteit van dwang en drang in de psychiatrie. Eindrapport. Utrecht: GGZ Nederland2001.

16. Iversen KI, Hoyer G, Sexton HC. Coercion and patient satisfaction on psychiatric acute wards. Int J Law Psychiatry. 2007 Nov-Dec;30(6):504-11.

17. Musisi SM, Wasylenki DA, Rapp MS. A psychiatric intensive care unit in a psychiatric hospital. Canadian journal of psychiatry. 1989 Apr;34(3):200-4.

18.   Janssen W, Noorthoorn E, Linge R, Lendemeijer B. The influence of staffing levels on the use of seclusion. Int J Law Psychiatry. 2007 Mar-Apr;30(2):118-26.
19.   Crowhurst N, Bowers L. Philosophy, care and treatment on the psychiatric intensive care unit: themes, trends and future practice. J Psychiatr Ment Health Nurs. 2002 Dec;9(6):689-95.
20.   Fonagy P, Gergely G, Jurist E, Target M. Affect regulation, mentalisation and the development of the self. Londen: Karnac; 2004.
21.   Schore A. Affect regulation and the Repair of the Self. New Jersey: Lawrence Erlbaum; 2003.
22.   Ainsworth MD. Object relations, dependency, and attachment: a theoretical review of the infant-mother relationship. Child Dev. 1969 Dec;40(4):969-1025.
23.   Donat DC. Impact of a mandatory behavioral consultation on seclusion/restraint utilization in a psychiatric hospital. J Behav Ther Exp Psychiatry. 1998 Mar;29(1):13-9.
24.   Fluttert FA, van Meijel B, Nijman H, Bjorkly S, Grypdonck M. Preventing aggressive incidents and seclusions in forensic care by means of the 'Early Recognition Method'. Journal of clinical nursing. 2010 Jun;19(11-12):1529-37.
25.   Lloyd C. Forensic psychiatry for health professionals. Therapy in practice. London: Chapman and Hall; 1995.
26.   AmericanPsychiatricAssociation. Diagnostic and Statistical Manual of Mental Disorders (4th edn, revised) (DSM-IV-TR) Washington DC: APA; 2000
27.   Gaskin CJ, Elsom SJ, Happell B. Interventions for reducing the use of seclusion in psychiatric facilities: review of the literature. Br J Psychiatry. 2007 Oct;191:298-303.
28.   Dawson D, MacMillan HL. Relationship management of the borderline patient: From understanding to treatment. New York: Brunner/Mazel; 1993.
29.   Hoch JS, O'Reilly RL, Carscadden J. Relationship management therapy for patients with borderline personality disorder. Psychiatr Serv. 2006 Feb;57(2):179-81.

CHAPTER 7

General Discussion

7.1 Short summary of the findings

7.1.1 Chapter 2

We found that 14% of the patients at the Dutch acute ward where our study took place had undergone at least one coercive measure during their hospitalization. Most (58%) had been coerced on the day of admission. In 62% of the cases, they had been secluded only, the mean duration of seclusion being 21 hours.

Coercive measures had been used significantly more often during the night shift. Univariate analyses showed that the risk of being coerced was higher in male, young, psychotic and uncooperative patients, who had been hospitalized involuntarily, had been coerced during earlier hospitalizations, had a global assessment of functioning (GAF) score lower than 35, and lacked insight into their illness. After multivariate regression analyses and control for the effects of other variables, only three factors were associated with occurrence of seclusion or restraint: psychological impairment, involuntary commitment, and uncooperativeness. On the basis of these risk factors, we developed a simple, highly predictive model. It classified 72% of the patients correctly, the sensitivity rate (80%) being higher than the specificity rate (71%).

7.1.2 Chapter 3

Patients who had been secluded or restrained during hospitalization perceived their treatment as having been significantly more coercive than those who had not. Forty percent of those who had been secluded also perceived the seclusion as having been too long. Similarly, 28% of those who had been either secluded or restrained reported that the measure(s) had produced no benefit; 31% disapproved of their use. Twenty-eight percent were not satisfied with the quality of the contact or care they had received during the measure, 17% had received no explanation about the reason for it, and 33% had not been debriefed after it. Although we also found that a small majority of the patients preferred

involuntary medication (57%), their preferences for seclusion or medication were significantly associated with their previous coercive experiences and with their approval or disapproval of the duration of any seclusion they had experienced.

7.1.3 Chapter 4

We also found that patients who had been exposed to combined measures (e.g. seclusion and mechanical restraint) had lower GAF score and less insight into their illness at the start of the measure(s), and were also more uncooperative than those who had undergone individual interventions (e.g. seclusion). When patients' coercive experiences were evaluated and compared, we found that patients experienced involuntary medication as the least distressing option, especially with regard to aspects such as humiliation, separation and physically adverse effects. The most distressing option associated with more physically adverse effects was the combination of seclusion and mechanical restraint. Regardless of type, combined interventions were associated with significantly more physically adverse effects and feelings of isolation than individual interventions were. Female patients, young patients and those who had been admitted voluntarily experienced more distress during the measure/measures. We also found that patients' feelings of fear and coercion during the measure were associated with the pressure that staff had applied at the beginning of the measure.

7.1.4 Chapter 5

Although we also found that the use of involuntary medication in emergency situations could successfully replace seclusion, thereby reducing the number of seclusion incidents, its application in a new policy did not significantly reduce the average duration of seclusion episodes or the total number of coercive incidents.

7.1.5 Chapter 6

Finally, we found that when a special non-coercive infrastructure and treatment policy was implemented at a psychiatric intensive care unit (PICU), the use of seclusion was almost completely eliminated. Before their transfer to the PICU, patients had spent 40% of their hospitalized days in seclusion. After their transfer, this fell to 0.1%.

7.2 Discussion

The overall objective of this research project was to determine how the use of coercive interventions could be prevented and reduced. Because complete elimination is still impossible, we also wished to determine how the quality of coercive practices could be improved – by taking patients' preferences and experiences into account, for example, or by replacing more distressing coercive interventions with less distressing ones. Findings from this and other studies were used to rank interventions for the prevention and management of violent behavior by psychiatric inpatients, and also for improving the quality of coercive practices (from least restrictive to most restrictive) by developing a continuum (see the diagram/figure below). This continuum will serve as a framework to synthesize and elaborate our findings, and to integrate them with existing knowledge by indicating their relevance for clinical practice.

A continuum of interventions for managing (**M**) violent behavior in psychiatric inpatients and for reducing the use of coercive interventions by prevention (**P**) or quality improvement (**QI**) of coercive practices

1. Advanced directives registering patients' preferences for future coercive intervention(s) (**QI**)	
2. Individual crisis-management plan for preventing agitation and violence (**P**)	
3. Structured Risk Assessment of short-term violent behavior by the clinical staff (**P**)	

RESTRICTIVENESS OF THE INTERVENTION(S)[1] — LESS → MORE

SEVERITY OF VIOLENT BEHAVIOUR — LESS → MORE

Interpersonal responses (P):

4. De-escalation techniques
5. Distraction
6. Creative ways of meeting patients' needs

Controlling responses (M):

7. Intermittent observation
8. Time-out
9. PRN medication
10. Constant observation
11. Open-area seclusion
12. Transfer to PICU of patients who are frequently involved in violent/coercive incidents
13. Involuntary oral administration of medication
14. Involuntary intramuscular administration of (IM) medication with or without physical restraint
15. Seclusion with or without IM
16. Mechanical restraint with or without seclusion or IM
17. Net bed

Rapid Response Team (QI)

18. Evaluation of patients' condition within one hour of the start of coercive intervention(s) (**QI**)

19. Post-coercive debriefing of patients and clinical staff (**QI**)

[1]The hierarchical ranking of the controlling responses is based on findings from the following studies: Whittington *et al.* (1), Georgieva *et al* (2) and Harris *et al.* (3)

7.3 Prevention of coercive incidents

I am convinced that Desiderius Erasmus, the man to whom Erasmus University owes its name and academic heritage, was right when he stated that "Prevention is better than cure." Although agitated and violent behavior can never be predicted with 100% accuracy, two recent studies on the assessment of short-term risk of violence in acute psychiatric wards (see intervention 3 in the diagram) showed very promising results, significantly reducing the number and duration of aggression incidents (4-5). In line with these results, we found by assessing patients' uncooperativeness and psychological impairment that the likelihood of them being coerced could be predicted with 80% accuracy. I therefore believe that structured risk assessment should include tools that assess not only agitated and violent behavior, but also patients' psychological impairment and uncooperative behavior. This may lead to more accurate prediction and the successful prevention of coercive incidents.

Assessment of these two dynamic risk factors might also increase nurses' awareness of deteriorations in patients' behavior, allowing them to intervene on time and thereby to prevent incidents. This was paralleled by a recent study in a forensic setting, whereby the number of seclusions and the mean severity of inpatient incidents were significantly reduced by the early recognition of signs of patients' aggression and by the development of individual interventions for preventing severe violence (6). The early-recognition method underlies the individual crisis-management plan for preventing agitation and decompensation episodes (see intervention 2 in the diagram).

Further, a recent research by Swanson *et al*. found that use of advanced directives reduced significantly coercive interventions (7) (see intervention 1 in the diagram). An advance directive is a document specifying a person's preferences for treatment should he or she lose capacity to make such decisions in the future (8).

Previous research has already emphasized the importance and efficacy of de-escalation techniques in preventing aggression and coercive episodes (9-10). There are various de-escalation techniques, such as observing patients for the signs and symptoms of anger and agitation, approaching them in a calm and controlled manner, avoiding confrontation, and providing them with choices. In all cases, nurses should capitalize on the therapeutic use of their own personality and on their relationship with the patient (11). However, it should be noted that crisis situations can be successfully de-escalated only by staff who are extraordinarily skilled in the conscious management of their own verbal and non-verbal behaviors; this enables them to avoid triggering aggressive reactions in patients, who – due to paranoid symptoms or previous traumatic experiences – are often hypersensitive to any form of threat (41-42).

The use of individual-crisis management plans, de-escalation techniques and other interpersonal responses such as meeting patients' needs in creative ways; also the increases in staff ratio and the program changes were the key elements, which have led to almost a total elimination of the use of coercive measures with patients with severe borderline symptoms at the psychiatric intensive care unit (PICU) we evaluated. To break the vicious cycle of coercion, three groups of patient should be transferred to a PICU that operates a special treatment policy focused on reducing seclusion and restraint: those who tend to pose a higher risk to themselves or others, those who have a bad treatment relationship with the nursing staff, and those whose periods in restraint are both frequent and prolonged (see intervention 12 in the diagram).

7.4 Improving the quality of coercive practices

While the variety of coercive measures across Europe (12-13) may seem surprising in an era of evidence-based medicine, it demonstrates the extent to which such measures are still based mainly on local and national traditions rather than scientific evidence. But as Chapter 3 shows, the harmonization of

these measures across Europe cannot be guided solely by research on patients' preferences, as such preferences seem to be biased by earlier experiences of coercive measures. Coercive experiences seem to cause patients and staff alike to become habituated to the unpleasant effects of such methods of control – which, when they are practiced frequently, are generally perceived as less unpleasant (3).

Ideally, a patient's individual preference of a particular type of coercive measure should therefore be taken into account and registered in a psychiatric advanced directive or in a crisis-management plan. This should preferably be done by the patient's case manager during a preadmission period of outpatient care. However, if an agitated patient's preferences are unknown at admission, and if no de-escalation interventions succeed in preventing the use of coercive measures, medication might be offered – preferably orally – rather than seclusion with or without mechanical restraint. This is not only because most patients seem to prefer it, but also because – as shown in Chapter 4 – it was associated with less distress than seclusion and mechanical restraint were.

Combined interventions should be avoided, especially the combination of seclusion and mechanical restraint, which was found to be associated with more distress (see Chapter 4). This is unsurprising: a previous study found not just that there was considerable agreement between staff and patients on the level of restrictiveness of different coercive interventions, but also that the perceived restrictiveness increased in line with the number of coercive measures applied (3). We should add that these findings are also consistent with the recommendations of the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT), which considers that seclusion must be abandoned as a practice within the context of modern psychiatry (14). Similarly, the use of mechanical restraint is now forbidden in the United Kingdom (15), and it used to be forbidden by the Council of Europe to 'ensure the protection of the human rights and dignity of people with a

mental disorder, especially those placed as involuntary patients in a psychiatric establishment' (16).

As we show in Chapter 5, the duration and total number of coercive measures have not been significantly reduced by replacing seclusion with the less distressing alternative, namely involuntary medication. If seclusion and restraint are to be reduced as we describe above, other interventions should therefore be implemented.

Our findings also showed that there is scope for improving the way coercive interventions are used. First of all, uncooperative but non-violent behavior by patients is not a legally, ethically and therapeutically justifiable reason for coercion. As the greatest risk of abuse or ill-treatment lies in the method whereby coercion is applied, one important aspect of improvement thus concerns the methods of its application. As stated in the United Nation's General Assembly resolution (17) and in the recommendations of the Council of Europe (16), the reason for coercion should be explained to all patients who are coerced, the patients should be supervised closely and regularly by qualified members of staff, the measure should be terminated immediately after the imminent danger has been removed, and all patients should be debriefed after the intervention.

With regard to the speedy termination of coercion, Currier and Farley-Toombs found that the number of coercive episodes was reduced by over 50% and their duration by nearly 50% after the introduction of a legal regulation known as "the one hour rule", which requires a patient to be assessed face-to-face by a physician or licensed independent practitioner within one hour of the initiation of restraint or seclusion (18) (see intervention 18 in the diagram). Our own findings suggest that patients' own choices may indeed be largely determined by the duration of a coercive episode: if seclusion did not last too long, patients who had been secluded earlier preferred it to involuntary medication.

With regard to debriefing after the event, we found – like Needham and Sands (19) – that post-incident debriefing is not routinely performed after a coercive episode (see intervention 19 in the diagram). In my opinion, effective communication and the establishment and sustainment of a patient's individual identity are facilitated when the nurse-patient relationship is based on empathy and trust. If this relationship is upset by a coercive episode, debriefing can help to restore it (20). Debriefing also makes it possible to discuss the patient's preferences for any coercive measures in future, and to discuss the early signs of patients' aggression. These signs can then be updated and registered in an advanced directive or in the individual crisis-management plan. In this way, patients' awareness of their early signs of aggression may increase, improving their capacity for self-control and helping to prevent further escalations. Earlier research by Fisher found that debriefing was one of the key elements in reducing seclusion and restraint (21).

As Chapter 4 shows, staff should also be aware that the use of pressure or coercion at the start of a measure may increase the patient's fear, thereby exacerbating his or her mental condition. Coercion exists on a continuum: it can be explicit, as it is when a patient is secluded by force; or implicit, as it is when staff make a subtle show of force by gathering in proximity to a conflict situation, or when it is suggested that other options will have to be explored if the patient will not take medication orally (22). Similarly, our findings show that women and younger people can be more sensitive to the harmful effects of coercive measures, and that these cause them greater discomfort.

In my view, introducing a Rapid Response Team (RRT) specialized in the management of violent behavior may not only significantly reduce the use of coercive measures, as proved earlier (23-25), but may also improve the quality of care provided in conflict situations. RRTs quickly bring large group of workers to a crisis scene, the objective being to diffuse and safely resolve the crisis through conflict resolution, mediation, therapeutic communication, and violence-prevention skills (24).

We stress that only staff who have taken additional training to enhance their conflict resolution skills may become member of a RRT. When regular staff are replaced by a RRT in the management of violent patients, the emotional distress they experience in conflictual or coercive situations may decrease, as may the subsequent emotional withdrawal (26). This may also prevent counter-aggression from staff toward patients and in this way, it may help sustain effective therapeutic nurse-patient relationships, which are essential for a patient's recovery. Support by the Rapid Response Team can be crucial to regular staff, especially during shifts when few staff are available, i.e. in the evening, at night, and at weekends.

Between them, these factors emphasize the need for modifying the organizational structure and for staff in all disciplines to undergo special non-coercively oriented training on the causes, prevention and proper, non-coercive management of agitated and violent behavior.

At an organizational level, too, management should create a positive working environment in which enough qualified staff are present, especially during the night shift, and in which no possibilities can arise for abuse or humiliation at lower hierarchical levels. The latter can reduce staff members' self-esteem, which, once vulnerable, can be further threatened by the threats implicit in non-compliance or low-level verbal abuse on the part of a service-user (27). A recent study showed that nurses with greater therapeutic optimism and lower scores of emotional exhaustion were less likely to support the use of seclusion in specific situations (28). This highlights the key role played by nurses in the use of coercive measures, and the responsibility of managers to provide the best possible working environment.

Organizations should be aware that the successful implementation of new evidence-based strategies to prevent or deal with agitated or violent behavior requires systematic inputs at all levels of the organization. Without them, changes in attitude and culture will not be achieved, and psychiatric practice will not improve. Only when they are properly implemented can

evidence-based interventions help improve the quality of coercive practices and bring about more humane and patient-friendly care.

7.5 Limitations

As stated above, most of these studies were conducted at a single psychiatric ward, meaning that the generalizability of their findings is limited. The risk-prediction model therefore requires further validation before it is implemented in clinical practice. When the efficacy and restrictiveness of different coercive interventions were compared, it was not possible to collect data according to a randomized controlled design; this means that no causal inferences can be made on the basis of the results in chapter 4. In addition, as chapter 5 describes, involuntary medication was not a routine intervention at the research wards, making it difficult for the physicians and nurses to deal with emergencies by using involuntary medication only with patients who had been allocated to the involuntary medication group. Although we showed that the number of seclusion incidents was significantly reduced by introducing involuntary medication as treatment of first choice, the clinical relevance of this substitution of coercive interventions will be limited for countries outside the Netherlands, where involuntary medication has already been practiced for years.

As noted in chapter 4 and 6, a larger sample size would produce a more reliable estimate of the effectiveness of the various coercive interventions.

7.6 Directions for future research

Taking due account of the limitations mentioned above, various follow-up studies can be recommended. In my view, the focus of international research should be redirected. Rather than investigating the attitudes of patients and staff towards coercive measures, clinical trials should be conducted to compare the effectiveness and harmfulness of coercive interventions in "real-life" settings.

This type of research is biased neither by patients' previous coercive experiences, nor by the various cultures and traditions in psychiatric practice and it can contribute to the development of evidence-based guidelines.

However, when the effectiveness and harmfulness of coercive measures are compared, other interventions such as time-out and one-to-one nursing should be included, as they can be experienced as even less restrictive. Such a huge diversity of interventions can be compared only at an international level, because psychiatric practices in most countries are limited by local legislation and traditions, and do not involve the whole spectrum of interventions used around the world, or (in a European situation) even those used in Europe. Therefore even a methodologically excellent study that is designed as a randomized controlled trial – such as the one currently being conducted in Brazil to compare the effectiveness of mechanical restraint with seclusion (29) – can be of limited scientific and practical relevance, especially to countries which do not use these coercive interventions. In Iceland, for example, aggressive behavior by patients is managed using only 1:1 nursing, involuntary medication and physical restraint. Although practices across countries are difficult to compare, a multi-center international study will increase not only the scientific and practical relevance, but it will also make it possible to acquire more data.

A further recommendation is to evaluate the efficacy of PICUs in reducing seclusion and restraint using a larger and more varied psychiatric population, preferably patients with psychotic disorders, who are most frequently involved in coercive incidents as proved by earlier research (30) and found in Chapter 2 & 4. It would be of additional value – especially to policy makers – to establish not only the benefits of PICUs, but also their cost. It would be equally valuable to establish the relative cost-effectiveness of seclusion and involuntary medication, which, to the best of our knowledge, has not yet been done.

Finally, there have been few randomized controlled studies on the efficacy of (1) post-incidental debriefing and (2) the broader involvement of the Rapid Response Team (RRT) in preventing and managing agitated and violent behavior as suggested in Diagram/Figure 1. However, researchers should be aware that it is sometimes difficult, or even unfeasible, to conduct randomized controlled trials to evaluate the efficacy of the interventions described above, as facilities, organizational culture, and patient and staff characteristics vary greatly across settings.

Last but not least, studies that aim to establish the risk factors for seclusion or restraint should shift their focus from patient-related characteristics to more interpersonal and contextual factors, whose importance is becoming increasingly evident (31).

References

1.   Whittington R., Baskind E., Paterson B. Coercive measures in the management of imminent violence: Restraint, Seclusion and Enhanced Observation. In: Richter D., Whittington R., editors. Violence in Psychiatry; Causes Consequences and Control. New York: Springhouse; 2006.

2.   Georgieva I, Mulder N, Whittington R. Evaluation of behavioral changes and subjective distress after exposure to inpatient coercive interventions. (submitted).

3.   Harris GTR, Marnie E.; Preston, Denise L. . Staff and Patient Perceptions of the Least Restrictive Alternatives for the Short-Term Control of Disturbed Behavior. The Journal of Psychiatry & Low. 1989;17:239-63.

4.   van de Sande R, Nijman HL, Noorthoorn EO, Wierdsma AI, Hellendoorn E, van der Staak C, et al. Aggression and seclusion on acute psychiatric wards: effect of short-term risk assessment. Br J Psychiatry. 2011 Oct 20.

5.   Abderhalden C, Needham I, Dassen T, Halfens R, Haug HJ, Fischer JE. Structured risk assessment and violence in acute psychiatric wards: randomised controlled trial. Br J Psychiatry. 2008 Jul;193(1):44-50.

6.   Fluttert FA, van Meijel B, Nijman H, Bjorkly S, Grypdonck M. Preventing aggressive incidents and seclusions in forensic care by means of the 'Early Recognition Method'. Journal of clinical nursing. 2010 Jun;19(11-12):1529-37.

7.   Swanson JW, Swartz MS, Elbogen EB, RA VAND, Wagner HR, Moser LA, et al. Psychiatric advance directives and reduction of coercive crisis interventions. J Ment Health. 2008 Jan 1;17(3):255-67.

8.   Campbell LA, Kisely SR. Advance treatment directives for people with severe mental illness. Cochrane Database Syst Rev. 2009(1):CD005963.

9.   Schreiner GM, Crafton CG, Sevin JA. Decreasing the use of mechanical restraints and locked seclusion. Adm Policy Ment Health. 2004 Jul;31(6):449-63.

10.   Gaskin CJ, Elsom SJ, Happell B. Interventions for reducing the use of seclusion in psychiatric facilities: review of the literature. Br J Psychiatry. 2007 Oct;191:298-303.

11.   Muralidharan S, Fenton M. Containment strategies for people with serious mental illness. Cochrane Database Syst Rev. 2006;3:CD002084.

12.   Steinert T, Lepping P, Bernhardsgrutter R, Conca A, Hatling T, Janssen W, et al. Incidence of seclusion and restraint in psychiatric hospitals: a literature review and survey of international trends. Social psychiatry and psychiatric epidemiology. 2010 Sep;45(9):889-97.

13.   Steinert T, Lepping P. Legal provisions and practice in the management of violent patients. a case vignette study in 16 European countries. Eur Psychiatry. 2009 Mar;24(2):135-41.

14.   Niveau G. Preventing human rights abuses in psychiatric establishments: the work of the CPT. Eur Psychiatry. 2004 May;19(3):146-54.

15.   Gordon H., Hindley N., Marsden A., Shivayogi M. The use of mechanical restraint in the management of psychiatric patients: Is it ever appropriate? The Journal of Forensic Psychiatry. 2008 04 Jan 10(1):173-86.

16.   Kingdon D, Jones R, Lonnqvist J. Protecting the human rights of people with mental disorder: new recommendations emerging from the Council of Europe. Br J Psychiatry. 2004 Oct;185:277-9.

17.   Office of the United Nations High Commissioner for Human Rights. Principles for the protection of persons with mental illness and the improvement of mental health care. Geneva1991.

18.   Currier GW, Farley-Toombs C. Datapoints: use of restraint before and after implementation of the new HCFA rules. Psychiatr Serv. 2002 Feb;53(2):138.

19.   Needham H, Sands N. Post-seclusion debriefing: a core nursing intervention. Perspectives in psychiatric care. 2010 Jul;46(3):221-33.

20.   Peplau HE. Interpersonal relations: a theoretical framework for application in nursing practice. Nursing science quarterly. 1992 Spring;5(1):13-8.

21.   Fisher WA. Elements of successful restraint and seclusion reduction programs and their application in a large, urban, state psychiatric hospital. J Psychiatr Pract. 2003 Jan;9(1):7-15.

22.   Peterson B. Corrupted cultures in mental health in-patient settings. Is restraint

reduction the answer? Journal of Psychiatric and Mental Health Nursing. in press.

23.   Prescott DL, Madden LM, Dennis M, Tisher P, Wingate C. Reducing mechanical restraints in acute psychiatric care settings using rapid response teams. The journal of behavioral health services & research. 2007 Jan;34(1):96-105.

24.   Smith GM, Davis RH, Bixler EO, Lin HM, Altenor A, Altenor RJ, et al. Pennsylvania State Hospital system's seclusion and restraint reduction program. Psychiatr Serv. 2005 Sep;56(9):1115-22.

25.   D'Orio BM, Purselle D, Stevens D, Garlow SJ. Reduction of episodes of seclusion and restraint in a psychiatric emergency service. Psychiatr Serv. 2004 May;55(5):581-3.

26.   Moran A, Cocoman A, Scott PA, Matthews A, Staniuliene V, Valimaki M. Restraint and seclusion: a distressing treatment option? J Psychiatr Ment Health Nurs. 2009 Sep;16(7):599-605.

27.   Paterson B. Restraint, seclusion and compulsory medication. Still valid after all

these year? . In: Barker P., editor. Mental Health Ethics: The Human Context. London: Routledge; 2010.

28.   Happell B, Koehn S. Seclusion as a necessary intervention: the relationship between burnout, job satisfaction and therapeutic optimism and justification for the use of seclusion. J Adv Nurs. Jan 24.

29.   Huf G, Coutinho ES, Ferreira MA, Ferreira S, Mello F, Adams CE. TREC-SAVE: a randomised trial comparing mechanical restraints with use of seclusion for aggressive or violent seriously mentally ill people: study protocol for a randomised controlled trial. Trials. 2011;12:180.

30.   Marie van der Merwe, Len Bowers, Julia Jones, Eimear Muir-Cochrane, Tziggili M. Seclusion: a literature review. London: City University London, Disability DoMHaL;2009.

31.   Boumans CE, Egger JI, Souren PM, Mann-Poll PS, Hutschemaekers GJ. Nurses' decision on seclusion: patient characteristics, contextual factors and reflexivity in teams. J Psychiatr Ment Health Nurs. 2011 Jul 3.

CHAPTER 8

Summary

Nederlandse samenvatting

Acknowledgements

Curriculum vitae

PhD Portfolio

8.1 Summary

8.1.1 Risk factors for seclusion and restraint

The main objective of this study, described in **Chapter 2** was to examine the predictive power of static and dynamic risk factors assessed at admission to an acute psychiatric ward and to develop a prediction model evaluating the risk of seclusion and restraint. We collected data prospectively over 20 months on different demographic and clinical characteristics and use of coercive measures of 520 patients at admission. Logistic regression analysis was used to develop a prediction model. The magnitude of the predictive power of this model was estimated using receiver-operating characteristic analysis. The prediction model contained one static predictor (involuntary commitment) and two dynamic predictors (psychological impairment and uncooperativeness), with a high predictive power (ROC AUC=0.83). The final risk model classified 72% of the patients correctly, with a higher sensitivity rate (80%) than specificity rate (71%). We concluded that an early assessment of patients' psychological impairment and uncooperativeness can help clinicians to recognize patients at risk for coercive measures and approach them on time with preventive and less restrictive interventions. However as our prediction model was constructed on data collected in a single ward, the generalizability of our findings can be questioned. Therefore before this simple, highly predictive model can be adopted into routine clinical practice, further validation studies are needed.

8.1.2 Patients' preferences and experiences of seclusion and forced medication

This study, described in **Chapter 3** examined patients' preferences for coercive methods and the extent to which patients' choices were determined by previous experiences, demographic, clinical and intervention-setting variables. Before discharge from closed psychiatric units, 161 adult patients completed a structured questionnaire. The association between patients' preferences and the

underlying variables was analyzed using logistic regression analyses. We found that patients' preferences were mainly defined by earlier experiences: patients without coercive experiences or who have had experienced seclusion and forced medication, favoured forced medication. Those who had been secluded preferred seclusion in future emergencies, but only if they approved its duration. This suggests that seclusion, if it does not last too long, does not have to be abandoned completely from psychiatric practices. In an emergency, however, most patients prefer to be medicated. Our findings show that patients' preferences cannot guide the establishment of international uniform methods for managing violent behaviour, because their preferences are influenced by previous experiences or local coercive practices and traditions. Therefore patients' individual choices should be considered, for example by using psychiatric advance directives.

8.1.3 Evaluation of the effectiveness and restrictiveness of coercive interventions

The main objective of this study, described in **Chapter 4**, was to explore what constitutes the most effective and least restrictive form of coercive intervention when responding to violent behaviour. We compared ratings of effectiveness and subjective distress across four types of coercive interventions: seclusion only, medication only, combination of seclusion with medication and combination of seclusion with mechanical restraint. The effectiveness of the interventions was assessed through rating patients' uncooperativeness, insight into the illness, psychological functioning and aggression immediately after exposure to a coercive measure and 24 hours later. Distress was examined by interviewing patients using the Coercion Experience Scale at debriefing. Regression analyses were performed to compare these outcome variables across the coercive interventions. Using univariate statistics, no significant differences in effectiveness and subjective distress were found between the groups, except

that patients who were involuntarily medicated experienced significantly less isolation during the measure than patients who underwent combined measures. However, when controlling for the effect of demographic and clinical characteristics, significant differences on subjective distress between the groups emerged: involuntary medication was associated with less distress overall and least humiliation, less physical adverse effects and less sense of isolation, while the combination of seclusion with mechanical restraint was the most distressing option. Combined coercive interventions, regardless of the type, were significantly associated with more physical adverse effects and feelings of isolation than individual interventions. We concluded that in the absence of information on individual patient preferences, involuntary medication may be more justified than seclusion and mechanical restraint as a coercive intervention. In addition, multiple interventions require significant justification given their association with significant distress.

8.1.4 Reducing seclusion through involuntary medication: a randomized clinical trial

The purpose of this study, as described in **Chapter 5,** was to evaluate whether seclusion and coercive incidents would be reduced in extent and number if involuntary medication was the intervention of first choice. Therefore patients admitted to an acute psychiatric ward were randomly allocated into two groups. In Group 1, involuntary medication was the intervention of first choice for dealing with agitation and risk of violence. In Group 2, seclusion was the intervention of first choice. Patient characteristics were compared between the groups by Pearson Chi² and two-sample t-tests; the incidence rates and risk ratios (RRs) were calculated to examine differences in number and duration of coercive incidents. We found that in Group 1, the relative risk of being secluded was lower than in Group 2, whereas the risk of receiving involuntary medication was higher. However, the mean duration of the seclusion incidents

did not differ significantly between the two groups; neither did the total number of coercive incidents. Based on these findings, we concluded that using involuntary medication as a primary intervention to manage violent behaviour could successfully replace and reduce the number of seclusions. However, if we aim to reduce the overall number and duration of coercive incidents, alternative interventions are needed. As we were unable to achieve a structural change in staff attitudes towards the use of specific coercive measures and in ward culture that would be required to completely replace seclusion with involuntary medication and to reduce the duration of seclusion, we also give recommendations in this chapter on how a new policy for managing acute aggression – such as involuntary medication – can be implemented effectively.

8.1.5 Successful reduction of seclusion in a newly developed psychiatric intensive care unit

The aim of this study, described in **Chapter 6**, was to investigate whether patients transferred to a newly developed Psychiatric Intensive Care Unit (PICU), focused on the effective and non-coercive management of disruptive behavior, were secluded and restrained less than during earlier stays on other psychiatric units. The effect of this newly developed PICU on reducing seclusion was evaluated in eight patients, six of whom had been diagnosed with a severe form of borderline personality disorder. The number of days in seclusion during the period before admission to the PICU was compared to the number of days in seclusion after admission to the PICU. We found that after patients' admission to PICU, the use of seclusion was almost completely eliminated, falling from 40% of admission days spent in seclusion before transfer to the PICU to 0.1% during their stay at the PICU. We concluded that when a special non-coercive infrastructure and treatment policy is applied at a PICU, seriously disturbed patients with borderline diagnoses and psychotic symptoms can be treated without coercive measures. Besides that, this study

provides information on the necessary infrastructure and treatment policy of PICU for successfully reducing seclusion and restraint.

8.2 Nederlandse samenvatting

8.2.1 Risicofactoren voor het toepassen van separatie en fixatie (Hoofdstuk 2)

De eerste doelstelling van deze studie was om de voorspellende waarde te bepalen ten aanzien van het optreden van separatie van diverse statische en dynamische risicofactoren. Deze factoren zijn geregistreerd vlak na de opname van de patiënten op een acute psychiatrische afdeling. De tweede doelstelling was om een model te ontwikkelen dat zo nauwkeurig mogelijk het risico van separatie schatte. Demografische en klinische kenmerken en gegevens over het gebruik van separatie werden tijdens 20 maanden prospectief verzameld bij 520 patiënten. Een logistische regressie-analyse werd gebruikt om het voorspellingsmodel te ontwikkelen. De omvang van de voorspellende waarde van dit model werd geschat met behulp van "receiver-operating characteristic" analyse. Het voorspellingsmodel bevatte een statische voorspeller (onvrijwillige opname) en twee dynamische voorspellers (ernst van de psychische problemen en onwilligheid van de patiënt om mee te werken aan de behandeling), met een hoge voorspellende waarde (ROC AUC = 0,83). Het definitieve model voorspelde 72% van de separatie toepassingen correct, met een hogere sensiviteit (80%) dan specificiteit (71%). We concludeerden dat een inschatting van de ernst van de psychische problemen en de bereidheid van patiënten mee te werken aan de behandeling, hulpverleners kan helpen om patiënten die risico lopen op separatie te herkennen en hen op tijd te benaderen met preventieve en minder beperkende maatregelen. Ons model was echter gebaseerd op gegevens verzameld op een enkele afdeling en daarom is de generaliseerbaarheid van onze bevindingen beperkt. Daarom is het belangrijk om ook studies uit te

voeren op andere afdelingen, voordat dit eenvoudige, zeer voorspellende risicotaxatiemodel gebruikt kan worden in de dagelijkse klinische praktijk.

8.2.2 De voorkeuren en ervaringen van patiënten met separatie en noodmedicatie (Hoofdstuk 3)

De doelstelling van deze studie was om de voorkeuren van patiënten te onderzoeken ten aanzien van separatie of noodmedicatie in geval van dwangtoepassingen. Bovendien werd bestudeerd in hoeverre deze keuze werd beïnvloed door eerdere ervaringen met dwangtoepassingen en door demografische, en klinische variabelen. Vlak voor het ontslag uit een gesloten psychiatrische afdeling, vulden 161 volwassen patiënten een vragenlijst in. Het verband tussen de voorkeuren van de patiënten en de onderliggende variabelen werd geanalyseerd met behulp van een logistische regressie analyse. Wij vonden dat de voorkeuren van de patiënten voornamelijk werden bepaald door eerdere ervaringen: patiënten zonder dwangervaringen of die zowel separaties als gedwongen medicatie hadden meegemaakt, hadden een voorkeur voor medicatie in geval van nood of dwang. Degenen die eerder gesepareerd waren geweest, wilden liever gesepareerd worden in toekomstige noodgevallen, maar alleen wanneer ze vonden dat ze in het verleden niet te lang gesepareerd waren geweest. Dit suggereert dat separaties, als de subjectieve duur niet te lang is, niet helemaal vermeden hoeven te worden in de psychiatrische praktijk. In geval van nood gaf echter de meerderheid van de patiënten de voorkeur aan medicijnen. Onze bevindingen laten zien dat de voorkeuren van de patiënten kunnen wisselen en dat het dus van groot belang is om bij het ontwikkelen van richtlijnen en methodieken voor het toepassen van dwang rekening te houden met individuele voorkeuren van patiënten.

8.2.3 Evaluatie van de effectiviteit en de ervaren dwang van dwangtoepassingen (Hoofdstuk 4)

Het belangrijkste doel van deze studie was om te onderzoeken wat de meest effectieve en minst ingrijpende vorm van dwanginterventie was bij het omgaan met acuut gevaar. We vergeleken inschattingen van effectiviteit en subjectief ervaren disstress van patiënten die vier verschillende dwangtoepassingen ondergingen: alleen separatie, alleen noodmedicatie, combinatie van separatie met noodmedicatie en combinatie van separatie met fixatie. De effectiviteit van de interventies werd getoetst door middel van observatie schalen. Deze schalen maten de bereidheid van patiënten om mee te werken aan de behandeling, hun ziekte-inzicht, psychisch functioneren en het niveau van agressie, onmiddellijk na het starten van een dwangtoepassing en 24 uur later. De patiënten beoordeelden de ingrijpendheid van de maatregel die ze hadden ervaren door de vragenlijst "coercive experience schaal" in te vullen. Regressie-analyses werden uitgevoerd om deze uitkomstvariabelen te vergelijken tussen de verschillende dwangtoepassingen. Univariate analyses lieten geen significante verschillen in effectiviteit en ingrijpendheid zien tussen de dwangtoepassingen, behalve dat patiënten die noodmedicatie hadden gehad zich aanzienlijk minder geïsoleerd voelden tijdens de maatregel dan patiënten die gecombineerde maatregelen hadden ervaren. Echter, na correctie voor demografische en klinische variabelen, bleek dat patiënten de ingrijpendheid van de maatregelen significant anders ervaarden: noodmedicatie werd ervaren als de minst ingrijpende en minst vernederende maatregel, veroorzaakte minder lichamelijke beperkingen en minder gevoel van isolement, terwijl de combinatie van separatie met fixatie werd ervaren als de meest ingrijpende optie. Gecombineerde dwangtoepassingen, ongeacht het type, werden ervaren als significant meer leidend tot gevoelens van lichamelijke inperking en isolatie dan individuele interventies. We concludeerden dat bij het ontbreken van informatie over de individuele voorkeur van de patiënt, noodmedicatie mogelijk meer gerechtvaardigd kan worden dan de combinatie van separatie met fixatie

als een middel om acuut gevaar te bestrijden. Bovendien lijkt het gebruik van meerdere interventies het meest tot negatieve ervaringen. Een belangrijke methodologische beperking bij deze studie is dat het geen gerandomiseerd design betrof, waardoor er geen causale verbanden konden worden onderzocht.

8.2.4 Reductie van separaties door middel van noodmedicatie: een gerandomiseerde klinische trial (Hoofdstuk 5)

Het doel van deze studie was om te evalueren of het aantal en de duur van separaties en andere dwangtoepassingen verminderden wanneer noodmedicatie als eerste maatregel werd toegepast bij acuut gevaar. Daarom werden patiënten bij opname op een acute psychiatrische afdeling willekeurig toegewezen aan twee groepen. In groep 1, was noodmedicatie de eerste keuze bij het omgaan met agitatie en risico van geweld. In groep 2, was separatie de eerste keuze. De kenmerken van de patiënten tussen de groepen werden vergeleken en de incidentie van de maatregelen en het relatieve risico (RR) werden berekend op basis van verschillen in het aantal en de duur van dwangtoepassingen. We vonden dat in groep 1, het relatieve risico om gesepareerd te worden lager was dan in groep 2, terwijl het risico om noodmedicatie te krijgen hoger was. Echter, de gemiddelde duur van de separaties was niet significant verschillend tussen de twee groepen, en ook het totale aantal dwangtoepassingen verschilden niet significant. Op basis van deze bevindingen concludeerden wij dat het gebruik van noodmedicatie met succes separaties zou kunnen vervangen voor het wegnemen van acuut gevaar. Echter, voor het verminderen van het totale aantal en de duur van dwangtoepassingen, zijn alternatieve interventies nodig. Het bleek niet gelukt om een structurele verandering in de houding van medewerkers en afdelingscultuur in te brengen die nodig was om separaties volledig te kunnen vervangen met noodmedicatie. Daarom worden in dit hoofdstuk aanbevelingen gegeven over hoe een nieuw dwangbeleid - zoals noodmedicatie - effectief geïmplementeerd zou kunnen worden.

8.2.5 Succesvolle reductie van separaties op een nieuw opgerichte
psychiatrische intensive care unit (Hoofdstuk 6)

Deze studie onderzocht of patiënten na een overplaatsing op een nieuw opgerichte Psychiatrische Intensive Care Unit (PICU) met een speciaal dwangreducerend beleid minder vaak gesepareerd werden in vergelijking met hun eerder verblijf op andere psychiatrische afdelingen. Het effect van deze PICU werd geëvalueerd bij acht patiënten in de periode van 2 jaar, zes van hen waren gediagnosticeerd met een ernstige vorm van borderline persoonlijkheidsstoornis met psychotische kenmerken. Het aantal separatiedagen in de periode voor en na de opname op de PICU werd vergeleken. Wij vonden dat tijdens het verblijf op de PICU, het gebruik van separaties vrijwel volledig was geëlimineerd, het daalde van 40% tot 0,1% % van de gemiddelde verblijfsduur op de afdeling. We kwamen tot de conclusie dat wanneer patiënten met borderline diagnose intensief worden behandeld en de infrastructuur en het beleid op de afdeling gericht zijn op eliminatie/ vermijden van dwangmaatregelen, patiënten behandeld kunnen worden vrijwel zonder dwangtoepassingen. Deze infrastructuur en behandeling worden in dit hoofdstuk in detail beschreven.

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I would like to thank all my international colleagues from the European Violence in Psychiatry Research Group (EViPRG), their expertise inspired me with new ideas; our meetings gave me the strength to go on, making me believe that I am not the only idealistic person on this world trying to free the psychiatric patients from the seclusion rooms and improve the care for them. I am especially thankful to Prof. Peter Lepping, who agreed to come from UK and give presentation about the English way of using involuntary medication. I owe special thanks to Prof. Richard Whittington for agreeing to participate in the writing of one of my papers and for becoming a member of the promotion committee. Dear Richard, you were always ready to help me with your expertise and I enjoyed reading your comments. I hope that our cooperation will continue in the future. I would like also to thank Dr. Jan Bergk and Prof. Tilman Steinert for letting me translate and use the questionnaire which they had developed. I owe special thanks to the president of our research group Dr. Roger Almvink for his support, sometimes even via the informal way of the social media 'facebook'. Dear Roland van de Sande, thank you for introducing me to EViPRG, without your initiative my dissertation was going to look differently.

I would like to thank also Prof. Michiel Hengeveld, Prof. Hjalmar van Marle and Prof. Anton Loonen for their willingness to participate in my reading committee.

Dear Jolanda, we have been sharing the same office, unfortunately only for the last few years. I was always looking forward to our conversations discussing all difficulties and trying to support each other in critical moments. You never refused to check the correctness of the Dutch language in some official letters, thank you for all that support!

Dear Cilia, you successfully fulfilled the role of 'a surrogate Dutch mother' by bringing me regularly chocomel de luxe and small presents or by cheering me up with your regular visits at my isolated office, thank you for your presence and support! I will miss you.

Not to forget to thank my colleagues - the young generation of researches and psychologists: Gabry, Sanne, Tony, Salvatore & Inge for their 'gezellige' company during the dinners and the party nights.

Dear Liselotte, your readiness to listen to all my PhD stories, calmness and understanding always gave me the feeling that despite all difficulties I could finish the project. It is not surprising that I choose you to become my paranimf. Dear Nelly, I appreciate your readiness to become my second paranimf. Your creativity and supportive attitude make you very suitable for this position.

I would like to thank also Nezha Guerrouj and Sebahat Kahriman Unal (from the cleaning personnel), who often brought me food and kept me company during the late hours when everybody had already left the department.

Dear Judith, you were always ready to help me with organizing the research files or entering data, taking all my requests very seriously. I will never forget how you stood up spontaneously at the end of one of my presentations in GGZ WNB and requested the public bravely: Let's help Irina with her research!

8.4 Curriculum Vitae

Irina Georgieva was born on 5th of July 1976 in Sofia, Bulgaria. She graduated the High School for Mathematics in Sofia in 1994. Then she enrolled the University for National and World Economy in Sofia where she studied International Economic Relations until 1997. In 1998 she moved to the Netherlands where she took the Dutch language course for foreign students at the University of Amsterdam. After that she started her studies in Psychology, obtaining her Bachelor's degree in Psychology in 2004 at the Erasmus University and her Master's degree in Clinical & Health Psychology in 2006. During her academic studies she worked as a part time social therapist at different mental health institutions in Rotterdam and surroundings. Then she was confronted for the first time with the misapplication of seclusion. She started her PhD project aiming at the reduction of seclusion and restraint in 2006 at the Erasmus Medical Centre, Rotterdam in cooperation with the Mental Health Centre West North-Brabant, Halsteren. In 2006 she became a board member of the Foundation Children of Bulgaria, involved in activities, aiming to support abandoned children in Bulgaria. Since 2007 she is a member of the European Violence in Psychiatry Research Group.

8.5 PhD Portfolio

Summary of PHD-training and teaching

Name PhD student: Irina Georgieva	PhD period: November 2006 – November 2011	
Erasmus MC Department: Psychiatry	Promotor: Prof. dr. C.L. Mulder	
Research School: O3 Research Center		

1. PhD training	Year	Workload
Courses		
• Integrity in medical research (NIHES)	**2008**	**30**
• English scientific writing (O3 Research Center)	**2009**	**100**
• Introduction to Data Analyses (NIHES)	**2010**	**50**
Seminars and workshops		
• Cursus Bopz (GGZ WNB)	**2007**	**10**
• Workshop Tutoren (Erasmus MC)	**2009**	**20**
• Workshop End Note (Erasmus MC)	**2010**	**3**
• Seminars at O3 Research Center (Erasmus MC)	**2006-2010**	**30**
Presentations	**2006-2010**	**120**
• Various presentations at research seminars		
Presentations at (inter)national conferences		
• New trends in the use and reduction of coercive measures in psychiatry - results from 4-year study in the Netherlands, Sofia, Bulgaria	**2011**	**30**
• Is the pharmacological approach of acute agitation the most effective and least harmful coercive intervention?, National Association of Psychiatric and Intensive Care, Bruges, Belgium	**2011**	**30**
• Evaluation of the effectiveness and the restrictiveness of containment measures, Symposium EViPRG, Utrecht, The Netherlands	**2010**	**20**
• Risk factors for seclusion and restraint, Symposium EViPRG, Coimbra, Portugal	**2010**	**30**
• The implementation of Psychiatric Intensive Care for long-stay patients in the Mental Health Care Centre West North Brabant in the Netherlands, 6th European Congress on Violence in Clinical Psychiatry, Stockholm, Sweden	**2009**	**30**
• Effect of chemical restraint on use of restrictive measures and perceived coercion: randomized control trial, 6th European Congress on Violence in Clinical Psychiatry, Stockholm, Sweden	**2009**	**30**
• Randomized Controlled Trial of Effect of Chemical Restraint versus Seclusion on Mental Functioning and Restriction to Human Rights, The 31st Congress of the International Academy of Law and Mental Health, New York, USA	**2009**	**30**
• Separatie of noodmedicatie: wat kiest de patient?, 37de	**2009**	**20**
	2009	**30**

Congres van de vereniging van de Psychiatrie, Groningen, The Netherlands	**2008**	**20**
• Seclusion or involuntary medication: what does the patient prefer?, Symposium EViPRG, Nottingham, UK	**2008**	**20**
• RCT naar het effect van noodmedicatie in het bestrijden van acuut gevaar en het voorkomen van separaties, Onderzoeksdagen Psychiatrie, Zandvoort, The Netherlands	**2007**	**20**
• Effect van intensieve zorg in het verminderen van separaties, 36de Congres van de vereniging van de Psychiatrie, Amsterdam, The Netherlands	**2007**	**20**
• Do not leave a seriously ill patient alone - randomized clinical trial on reducing seclusion. (poster) 5th European Congress on Violence in Clinical Psychiatry, Amsterdam, The Netherlands		
• Do not leave a seriously ill patient alone - randomised clinical trial on reducing seclusion. 35de Congres van de vereniging van de Psychiatrie, Maastricht, The Netherlands		
2. Teaching		
• Various workshops in research methodology and data collection for mental health practitioners of GGZ WNB	**2008-2009 2010**	**50**
• Supervising medical students (tutoraat)		**80**
TOTAL		**823 hours**