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SUMMARY.

Patients admitted to psychiatric hospitals are frequently confronted with coercive measures. Violence and aggression have been identified as the most frequent reason for their use (Gutheil, 1980, Mason, 1994, Morrison & Lehane, 1996, Currier, 2003). The use of coercive measures is subject to discussion as the effects of these measures remain unproven, while a number of negative side effects have been described (Olofsson & Norberg 2001, Sailas & Fenton, 2000, Whittington, et al. 2006). To protect patients' rights and physical integrity the current Act on Special Admissions of Psychiatric Hospitals (Wet Bopz, which was implemented in 1994), limited the options to use forced medication and physical restraints as well as seclusion by means of a number of restrictions (van der Klippe, 1997). After several years, the notion arose this law possibly lead to a relative high use of seclusion in the Netherlands in comparison to other countries in West-Europe, however a clear comparison between countries was not feasible due to a lack of reliable and valid figures. In Dutch psychiatric hospitals it was not clear how frequently coercive measures were used and how many patients were involved. The last years, several projects aimed at a reduction of coercive measures have been implemented. Yet, until recently effects could not be properly investigated and evaluated because of the lack of clear, complete, valid and reliable data.

The main goal of this thesis was to develop a reliable instrument for measuring, counting and explaining the use of coercive measures in Dutch psychiatric hospitals. Clear, valid and reliable figures are an important tool in the evaluation of the use of coercive measures as well as to visualize trends. Analyses of data in their context can clarify these trends especially when reported to teams and ward management. Presentation of trends may contribute to prevention. The goal of this thesis was to investigate the following three main questions:

1. What are the criteria for a valid registration method on coercive measures allowing comparisons on ward, hospital, national and international level?
2. What are the data on the use of coercive measures in the Netherlands?
3. How can these data and possible trends arising thereof be explained?

Health care professionals may use a wide range of strategies to influence patient's behaviour which vary in degree of containment and reduction of patients' freedom to act. The term coercive measure is a collective noun for an array of underlying measures that are associated with force, resulting in the absence of choice for patients. These include seclusion, restraint and forced medication.

At the end of 20th century, psychiatrist, nurses and other professionals in Dutch hospitals increasingly called attention for the disproportionate way in which coercive measures and especially seclusion

were used. Coercive measures were increasingly seen as shortcomings in care for patients. They represent a failure of therapeutic approaches (Steinert, 2011). Cutting off contact and letting the patient alone with all his/her emotions in a seclusion room was regarded as poor quality of care (Berghmans, et al 2001). From 1998 onwards, several initiatives arose aimed at reduction of coercive measures and improvement of the quality of care in the application of coercive measures. Important steps were the development of quality criteria (Berghmans, et al 2001) and implementation of these criteria in daily practice in 12 Dutch hospitals (Abma et al, 2005). During that implementation process the hospitals became aware that valid and reliable figures on use of coercive measures was lacking. It was shown that the information on the use of coercive measures gathered by the Dutch Mental Health Care Inspectorate (IGZ) for supervision and control purposes had several limitations and did not reflect the reality at ward level (Janssen, et al. 2005).

In response to the first study, five Dutch hospitals collaborated with the IGZ and the Dutch hospital's branch organisation (GGZ Nederland) to develop a new registration method (Argus). A committee set the preconditions for Argus, agreed upon by the branch organisation. The preconditions for the registration method that had to be developed were:

1. It should contain uniform definitions on coercive measures, a reporting manual and calculation methods.
2. It should be easy to fill out.
3. All coercive measures should be reported regardless whether the patient consented with or resisted against the application of the measure.
4. It should portray the daily practice of the use of coercive measures in an accurate way and allow a clear view on its use.
5. It should be sensitive to changes through time.
6. It should be appropriate for feedback purposes in teams and management.

In 2006 two hospitals, Mediant and GGNet, started a pilot study on the Argus registration set. From 2007 onwards a growing number of hospitals implemented Argus. The definitive version of Argus was published by the branch organisation in 2010 and legally mandated in 2012 (Minister van VWS, 2011). In 2007, researchers from GGNet developed a case register for benchmark and research purposes containing Argus reports on coercive measures. Currently nearly all hospitals and wards with a Bopz accreditation to treat involuntary admitted patients, participate in the benchmark study. The first part of the dissertation (chapter 2 to 5) aims at answering the first question: What are the criteria for a valid registration method on coercive measures allowing comparisons on ward, hospital, national and international level? The chapters 2 to 4 discuss the criteria for proper registration. The criteria for reporting, counting and presenting are addressed in chapter 5. The second part in this

dissertation deals with the second question: What are the data on the use of coercive measures in the Netherlands? In the chapters 5 and 6 we illustrate the use of seclusion after implementation of the registration method (Argus) using data obtained from several Dutch hospitals. The last part of this dissertation deals with the third question: How can these data and possible trends detected be explained? We compare figures as presented in the chapter 2 to 4 with the figures in chapter 5 and 6. This comparison shows several trends in the use of seclusion in the Netherlands. In chapter 6 to 8 we studied a number of determinants that could clarify the found trends. The following overview describes the various studies and their contribution to the study objective.

Chapter 2. Quantitative developments in containment measures.

Chapter two examines the nationwide data of IGZ in the period between 2000 and 2005. This study describes the initial situation and the figures that were available back then. We present some of the figures and assess their validity and reliability. The study indicates that between 2000 and 2005 the use of coercive measures as a part of emergency or as involuntary treatment increased.

To assess the validity and reliability of the IGZ data, the IGZ data were compared to data from 12 Dutch hospitals that collaborated in the project for implementing quality criteria (2002 – 2005). When combining the reports of these 12 hospitals in the IGZ database with the hospitals' own databases, over the year 2002, it became clear that:

1. Only a proportion of the coercive measures could be traced in the IGZ database. Measures taken under consent were not reported, according to the requirements in the law.
2. Data were lost. The hospitals had sent in more reports on coercive measures within emergency situations and forced treatment than could be traced in IGZ data.
3. The duration of the seclusions did not match with reality, as the data concerning the duration of the measures was more related to administrative procedures than to the real time spent in seclusion.

This study showed that efforts were necessary to develop an unambiguous interpretation of the consent or objection of patients, urge or coercion as well as a sound interpretation of the duration of the used coercive measures. The study showed the registration of data for a legal purpose was unfit for interpretation of trends and developments at a ward or hospital level.

Chapter 3. The use of seclusion in the Netherlands compared to countries in and outside Europe.

Chapter 3 reviews the literature on the use of seclusion in several countries. A literature search revealed 11 articles containing seclusion rates of European countries, Australia and the USA.

Internationally the number of seclusion varied between 2.7 and 110 seclusions per 1000 daily occupied

beds and between 13 to 1517 seclusions per 1000 admissions. The Dutch seclusion rates were calculated from the IGZ database and from a database covering twelve Dutch psychiatric hospitals. These figures showed 3.5 seclusions per 1000 daily occupied beds and 338 seclusions per 1000 admissions. Especially the last outcome appeared to be significantly higher than in other countries. However, different definitions, inconsistent methods of registration, different methods of data collection and inconsistent expressions of rates limit the comparisons. The transparency of reviewed data as well as the data sampled in the twelve Dutch Hospitals was discussed. We concluded that an unambiguous registration should be an important next step for adequate monitoring of seclusion use.

Chapter 4. Incidence of seclusion and restraint in psychiatric hospitals; a literature review and survey of international trends.

The aim of the study reported in chapter 4 was to identify quantitative data on the use of seclusion and restraint in different countries and on initiatives to reduce these interventions. A literature review was performed on initiatives to reduce seclusion and restraint and data on the frequency and means of use in different countries. Apart from that, unpublished work was gathered by contacting authors of conference presentations. Minimum requirement for the inclusion of data was the report of coercive measures incidence over complete hospitals covering defined catchment areas. Figures fulfilling the inclusion criteria could be detected from 12 different countries, covering single or multiple hospitals in most countries and figures for two countries (i.e., Norway and Finland). The Dutch figures included in this study stand out with respect to the high number of seclusions per 1000 admissions and per 100,000 inhabitants and especially the high average duration per seclusion. Available data suggest that there are huge differences in type, number and duration of coercive measures between countries. We concluded that data bases on the use of seclusion and restraint should use comparable key indicators. Comparisons between countries and different practices can help to overcome local prejudice on the feasibility of various measures and improve clinical practice.

Chapter 5. Methodological issues in monitoring the use of restrictive measures.

Chapter 5 focuses on the methodological aspects in the evaluation and comparison of data on coercive measures. In many European countries, initiatives emerged to reduce the use of seclusion and restraint in psychiatric institutions. In order to study the effects of these initiatives at a national and international level, consensus on definitions of coercive measures and methods for assessing and calculating the prevalence's of these measures are required. The aim of this article was to offer a framework for defining and recording coercive measures, and to provide recommendations for meaningful data-analyses and presentation. The literature was reviewed to identify definitions and

calculation modalities for measuring and reporting of coercive measures. Data were collected from a large multicenter study using the newly developed Argus registration method. To illustrate how coercive measures can be calculated and presented, data on seclusion patterns in the Netherlands were used. A large variation in ward and patient characteristics between the 12 hospitals and 227 wards was identified. The seclusion rates at the region level varied between 0.31 and 1.6 seclusion incidents per 100,000 inhabitants. The duration in seclusion hours per 1000 inpatient hours at the hospital level varied from less than 1 up to 18 hours. The number of seclusion incidents per 1000 admissions at the ward level varied between 79 up to 745.

We concluded that coercive measures can be reliably assessed and presented in a standard and comparable way when using clear definitions, standardized calculation and presentation methods. In this study recommendations are made for an international standard on gathering data as well as calculating outcome parameters on the use of coercive measures.

Chapter 6. Differences in seclusion rates between seven Dutch psychiatric hospitals: Does patient compilation explain?

This chapter relates seclusion data to patient characteristics. For this, the seclusion figures of 5097 patients admitted to 29 wards are presented. The findings show substantial differences in number and duration of seclusions between the wards. In the opinion of nurses and ward managers, these differences can predominantly be explained by differences in patient characteristics. Nurses assumed more admissions of severely ill patients were related to higher seclusion rates. To test this hypothesis we compared characteristics of all admitted patients to the characteristics of the secluded patients by means of an extreme group analysis. In a multivariate and multi level analysis, various patient and ward characteristics turned out to be related to the number of seclusion hours per 1000 bed hours. The multilevel analyses revealed that differences in seclusion hours between wards only partially could be explained by ward size or patient characteristics. This study provided some evidence that ward policy and adequate staffing may, in particular on smaller wards, be key issues in the use of seclusion.

Chapter 7. The power of day today motivational techniques and family participation in reducing seclusion: a comparison of two admission wards with and without a seclusion prevention protocol.

In this chapter we studied the effects of a combined intervention to prevent the use of seclusion. The opening of a new admission ward provided the opportunity to study the effect of a non-seclusion policy, team training and participation of family members on the use of seclusion. Data of the experimental ward were compared with a control ward within the same hospital. Both admission wards had approximately the same staff compilation, the same admission criteria and comparable

catchment areas and were followed for 29 months. In the experimental ward a project was started with the aim to abandon seclusion as far as possible over two and a half years, the comparable ward had care as usual. This study suggests that a non seclusion policy combined with team training and participation of family members may result in a substantial reduction in number as well as duration of seclusions. An important limitation of this study was that a combination of interventions was carried out on the experimental ward. The intervention contributing most to the difference remained unknown.

Chapter 8. Influence of staffing level on the use of seclusion.

This study focuses on the relationship between staff characteristics and the incidence of seclusion. Daily changes in nursing team composition such as male-female staff ratio, level of education and level of work experience as well as number of nurses on the ward per shift were observed. This study found two variables to be associated with seclusion rates, first the variability in team's work experience (OR = 0.871 and OR = 0.778).

Second the male-female staff ratio (OR = 0.75 and OR = 0.353). This implies more male nurses in the team and a higher variability in team's work experience may be related to less use of seclusion.

Chapter 9. Discussion.

In chapter 9, the overall findings of the studies in this thesis are discussed. This thesis provided some essential criteria for a valid registration method on coercive measures. We showed that the Argus method provided more precise and accurate data on coercive measures than the current register of the IGZ. The Argus method contains definitions on coercive measures in line with international definitions. The registration of all episodes of each used coercive measure contributes to uniform and accurate figures, sensitive to daily changes. This approach also served as a framework for comparisons between hospitals and countries. However, there are several issues still needing further study.

The reliability of the Argus data was studied once and was found to be moderate to good. However, the hospitals using Argus need to pay attention to validity and reliability of the data on a continuing basis. The responsibility for completing the Argus forms has not been formally ruled yet. This could affect accuracy and the risk of the data collection becoming less accurate as time progresses. Next to this, several hospitals paid little attention to the important role of data in feedback and how feedback can improve practice (Voskes, et al. 2012). The value of feedback is clarified in feedback theory (Carver & Scheier, 1981, Locke & Latham, 1990, Kluger & DeNisi, 1996) The discrepancy between the current state and the intended situation has to be sufficiently clear for nurses to see the need to reduce it

(Hattie & Timperley, 2007). We advocate that the reported coercive measures must be embedded in a larger organisational context in which the data are used in feedback to provide information for evaluation purposes, treatment planning as well as ward and hospital policy.

To answer the second research question in this thesis the studies of the findings of chapters 2 to 4 were re-analyzed and combined with more recent data (Noorthoorn et al, 2011). The findings indicate we are able to present more detailed and more accurate figures on the use of seclusion in the Netherlands. The results also show that Dutch seclusion figures are now more in line with several other European countries in which seclusion is used as first choice intervention. For the most recent years a decreasing trend in the use of seclusion is observed. Still, the results reveal large differences in the number and the duration of seclusions between hospitals and wards. Some hospitals are more effective in reducing seclusion than others. Yet, the comparisons contain some weaknesses. We recommend designing clear and valid classifications on patient groups and types of wards.

The international seclusion figures as presented in this thesis have some shortcomings. For instance, using the mean duration of seclusion ignores changes in the composition of patient groups over time. Expressing the number of seclusion incidents per 1000 admissions suggests that only newly admitted patients are likely to be exposed to seclusion. This does not take into account that patients residing at long-term care wards are also at risk of being secluded. To deal with this shortcoming we suggest reporting the number seclusion incidents per 1000 inpatient days. The number of seclusion incidents per 100,000 inhabitants has also some omissions. This does not take into account the degree of urbanization of hospital's catchment area and it suggests that patients living in a hospital's area always are treated in that hospital, which is not necessarily true. In short, we suggest expressing the seclusion figures in numbers of seclusion hours per 1000 inpatient hours.

The last section of the discussion chapter discusses possible explanations for the trends in the data on coercive measures. The chapters six, seven and eight describe efforts to clarify relationships between determinants and found trends on the use of coercive measures, which was the third question of this thesis. Chapter 6 described the relationship between patient characteristics and the duration of seclusion. It is concluded that patient characteristics have a limited influence on the number and duration of seclusion. To a large extent, this rejects the assumption from many ward managers and nurses that differences in seclusion rates between wards and hospitals are due to differences in the severity of illness of individual patients. Chapter 6 en 7 addresses the influence of team policy and team culture on the use of coercive measures. The importance of variability in work experience in a

team, as suggested in chapter 8, is a condition for more interaction and reflexivity (Benner, 1984, Boumans, et al 2012) in the team. Chapters 6 to 8 indicate that staffing and staff culture may be the most important factors in the use of coercive measures.

In future studies the use of less restrictive measures, such one-on-one supervision and the use of comfort rooms on the use of coercive measures need to be studied. It seems fair to conclude that the development of the Argus method and the implementation in psychiatric practices is an important step forward for studying the effects of interventions aiming at reducing the use of coercive measures.

From hospitals that used the Argus method more precise data is available now. The data can be used in benchmark and scientific research on the use of coercive measures and their determinants.

However, data on coercive measures by themselves will not improve daily practice. Feedback to teams and management is essential. The studies in this thesis make plausible that valid and reliable figures on coercive measures and feedback can indeed support a reduction of the use of coercive measures.

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