Argus: assessment and use of data in evaluating coercive measures in Dutch psychiatry

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Chapter 3.

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

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Abstract

The use of seclusion in psychiatric practice is a contentious issue in the Netherlands as well as other countries in and outside Europe. The aim of this study is to describe Dutch seclusion data and compare these with data reviewed in the literature. An extensive search revealed only 11 articles containing seclusion rates of regions or whole countries either in Europe, Australia or the United States. Dutch seclusion rates were calculated from a governmental database and from a database covering twelve General Psychiatric Hospitals in the Netherlands. According to the hospitals database, on average one in four hospitalized patients experienced a seclusion episode. The mean duration according to the governmental database is a staggering 16 days. Both numbers seem much higher than comparable numbers in other countries. However, different definitions, inconsistent methods of registration, different methods of data collection and an inconsistent expression of the seclusion use in rates limit comparisons of the rates found in the reviewed studies with the data gathered in the current study. The transparency of reviewed data as well as the data sampled in the twelve Dutch Hospitals is discussed.

Keywords

Seclusion incidence, Published seclusion rates; International comparisons; Methodological issues.

Introduction

In the Netherlands seclusion of psychiatric patients is a frequently applied intervention aimed at protection, control and containment of potentially dangerous, aggressive behaviour. Seclusion is defined as: locking up a patient alone in a specially designed seclusion room, clothed in uncomfortable safety robes either with or without his/her consent. Once in the room, the patient has no means of contact with anybody outside apart from the moments nurses attend for drinks or food and take away excrements and urine. Seclusion is a controversial intervention being traumatizing to both patient as well as staff (Fisher, 1994; Holzhorth & Wills, 1999; Hoekstra, Lendemeijer, & Jansen, 2004). Seclusion interrupts the therapeutic process and impedes the recovery process and the effectiveness is subject to controversy (Brown & Tooke, 1992). Though in the opinion of many Dutch psychiatrists, nurses and policy makers locking up patients is an old fashioned unethical intervention, Vrijlandt (1998) and van de Werf (2003) conclude that seclusion is a widely accepted, often used intervention in the Netherlands, and more often used than in many European countries. However, these authors did not support their conclusions with any underlying quantitative data nor related these to any methodological issues and considerations in the process of collecting data.
The aim of this study is to describe Dutch seclusion rates and compare these with rates of countries in and outside Europe. The main question is: is seclusion more often used in the Netherlands. First, a review of current literature with published seclusion rates is presented. Second, the seclusion rates sampled within twelve Dutch psychiatric hospitals and the Dutch Health Care Inspectorate (IGZ) are compared with each other as well as with the reviewed rates. Third, methodological issues such as data collection, sources, and presentation of the Dutch rates and the limitations of the international comparison are discussed.

Review of seclusion rates

For the purpose of an international comparison we selected articles dealing with surveys into seclusion use over several psychiatric hospitals in which the number of seclusions, or seclusion ratios in a circumscriptive time span are presented. Articles containing data which could not be aggregated to the level of an epidemiological comparison were left out of the analysis, mostly because of a lack of relevant denominators. To facilitate data pooling, we were especially interested in information on variance, standard error and standard deviation.
In the USA, Way and Banks (1990; Table 1, 1st ref.) studied the relationship between seclusion, patient characteristics, diagnosis and hospital characteristics in 23 hospitals. Demographic and diagnostic

data were extracted from a patient information database. During one month specific research forms were completed for each seclusion episode. Considerable variations in rates of seclusion between different psychiatric hospitals were found despite these hospitals worked within the same policies and procedures.

Betemps, Buncher and Oden (1992; Table 1, 2nd ref.) studied the use of seclusion and restraint in 82 out of 133 contacted Veterans Affairs medical centres across the USA. Data were obtained from copies of monthly reports of restraint and seclusion, which are standard forms completed by nursing staff. The monthly reports include the dates on which seclusion occurred and the length of time spent by patients in seclusion. They found that during one year patients were secluded or restrained for 15,883 times, for a total of almost 240,000 hour (mean 25.6 hour, median 16.2 hour).

In an effort to develop national normative data on the incidence of seclusion and restraint, Crenshaw and Francis (1995) (Table 1, 3rd ref) sent a survey to 225 state hospitals across the United States. The survey asked information on the number of patients secluded, the number of discrete seclusion incidents as well as the total number of hours patients spent in a 'locked room' seclusion over a one-year period. The 144 responding hospitals used many ways to track seclusion data, such as number of secluded patients per 1000 patient days, the number of seclusion incidents per 1000 patient days or the hours spent in seclusion per 1000 patient-hours. Crenshaw, Cain and Francis (1997) updated this study two years later to detect trends and validate the original data. Data of 124 psychiatric hospitals were compared with the original data using percentile ranks. The authors concluded that the results of the second study were highly similar to those in the first study, but related this to a limited reliability and a large variability of the data.

Ray and Rappaport (1995; Table 1, 4th ref.) performed a mailed survey in 125 state psychiatric and general hospitals in the USA on the use of seclusion during one month. Their data covered approximately 100,000 inpatients in 1992. The self-report data gathered within the state psychiatric hospitals were compared for accuracy with similar data obtained by the New York State Office of Mental Health. Ray and Rappaport (1995) found in the state psychiatric hospitals as well as in the psychiatric services in general hospitals that 3% of the 100,000 inpatients were secluded.

Cannon, Sprivulis and McCarthy (2001; Table 1, 5th ref.) surveyed the restraint practices in Australia and New Zealand. They sent questionnaires to 116 hospitals asking information on the types of restraint and the estimated frequency. Of these hospitals 68% responded. The rates were calculated by dividing the estimated number of restraint episodes by the combined annual census of the hospitals. The results showed that seclusion was used in 23% of Australian emergency departments with a rate of 1.3 seclusions per 1000 attendances. Attendances may be interpreted to be the same as a hospital admission, being the reference figure used in most other studies.

In Europe, Thompson (1986; Table 1, 6th ref.) studied the determinants of seclusion use in all adult psychiatric units in the catchments area of Newcastle (United Kingdom) between 1981 and 1984. The information was obtained from case-notes, admission documents, nursing notes and seclusion records. Only the number of seclusions in the 1981 was reported. Of the other years the number of patients experiencing one or more seclusions was reported.

Kaltiala-Heino, Korkeila, Tuohimäki, Tuori and Lehtinen (2000) (Table 1, 7th ref.) studied to what extent coercion and restraints were used in three Finnish university hospitals and were associated to patients' characteristics. They reviewed all file sources of admitted patients in the age of 18 to 65 during the study period. The admissions were identified from hospitals' databases. Their data show 6.6% of the admissions were subjected to seclusion (Kaltiala-Heino et al., 2000).

Demeestere, Abraham and Moens (1995; Table 1, 8th ref.) surveyed determinants of seclusion and restraint as well as accompanying incidents on fourteen wards in five out of the seven hospitals in West-Vlaanderen, Belgium. The data were extracted from mandatory legal databases. In the studied period 414 patients admitted underwent 499 admissions and 757 discrete incidents of seclusion with a mean length of 12 hours.

In a German benchmark study (Martin et al., 2005; Table 1; 9th ref.) the authors compared data on the use of coercive measures at a hospital and population level ten psychiatric hospitals in Germany. Of the admitted patients 8.4% were exposed to coercive measures as seclusion, fixation or forced medication with a mean duration of 11.8 hours (median 12.9 hours).

In the Netherlands, few data have yet been published (Janssen, Hutschemaekers, & Lendemeijer, 2005, Table 1; 10th ref.). The official records of the IGZ database showed a total of 42,373 coerced restraint measures in the years 1996 to 2002, varying between the 5984 and 6603 measures in all the Dutch hospitals per year. On average in 83.6% of these measures seclusion occurred. The data of participating hospitals differed strongly from the official IGZ records. In 2002 the hospitals registered 8488 restraint measures applied with or without patients consent. The mean length of de recorded restraints and seclusions is 16 days. Within these 71% seclusions were registered with a mean of 2.2 seclusions per patient. Over the same hospitals the IGZ recorded 2102 restraint and seclusion measures only without patient consent with a mean length of stay 14 days. The authors discussed reliability of the data because the design of registration and the routines in which seclusion and restraint measures were registered as well as the number of persons involved.

Martin, Bernhardsgrutter, Goebel and Steinert (2007; Table 1, 11th ref.) compared the use of seclusion and restraint in patients with schizophrenia in 14 German and Swiss psychiatric hospitals. They found that in Germany of the admitted patients with schizophrenia 7.8% were exposed to seclusion against

17.8% in the Swiss psychiatric facilities, also with a significantly longer duration in the Swiss than in the German hospitals.

From some countries we found data too scant to include in our comparison seclusion however being an issue. In a general way Needham, Abderhalden, Dassen, Haug and Fisher (2002) gathered data in Switzerland. Of the 30 responding institutions had 81.7% seclusion facilities and 82.9 recorded seclusion. In France, no data were acquired on the use of seclusion.

Table 1. Calculation of seclusions per inpatient days or per number of admission from literature data

Country	Year	Number of hospitals	Time span	Presented data of seclusions.	Supplementary information	Calculations: Number of seclusions per 1000 Inpatient days or per 1000 Admissions
USA (Way & Banks 1990)	1984	23	1 month	657 patients seclusions 1409 seclusion	23,596 admissions	60/1000 Inpatient days
(USA Betemps et al 1992)	1987 – 1988	82	1 year	15,883 seclusions and restraints	14,756 beds 10,937 occupied beds	4/1000 Inpatient days
USA (Crenshaw & Francis 1995)	1991	66	1 year	Mean number of patients seclusion per 1000 inpatients days = 2,7/1000 SD 2.9/1000	Mean number of beds = 353, SD =262 Mean daily census = 366, SD = 255 Mean length of stay = 196 days SD = 265	
		78		Mean number of seclusion per 1000 inpatients days = 9,5/1000 SD = 10/1000		9,5/1000 Inpatient days
USA (Ray & Rappaport 1995) (4)	1992	22 adult state psychiatric centres	1 month	Mean number of patients seclusion per 100 inpatients days = 3/100 SD = 3/100 Mean number of seclusion per 100 inpatients days = 6/100 SD = 10/100	Daily census = 100,000	60/1000 Inpatient days
		103 general hospitals	1 month	Mean number of patients seclusion per 100 inpatients days = 3/100 SD = 5/100 Mean number of seclusion per 100 inpatients days = 11/100 SD = 19/100		110/1000 Inpatient days
Australia/ New Zealand (Cannon et al (2001) (5)		79	1 year	Mean number of seclusion per 1000 admissions = 1,3/1000		1,3/1000 Admissions
United Kingdom (Thompson 1986)(6)	1981		1 year	66 patients seclusion 234 seclusions	2017 admissions	116/1000 Admissions
	1982		1 year	56 patients seclusion	1336 admissions	

Country	Year	Number of hospitals	Time span	Presented data of seclusions.	Supplementary information	Calculations: Number of seclusions per 1000 Inpatient days or per 1000 Admissions
	1983		1 year	42 patients seclusion	1867 admissions	
	1984		1 year	49 patients seclusion	1884 admissions	
Finland (Kaltiala-Heino et al 2000) (7)	1996	3	6 months	102 seclusions	1543 admissions	66/1000 Admissions
Belgium (Demeestere et al 1995) [(2)](8)	1992	5	1 year	757 seclusions	468 beds on closed wards 413 daily occupied beds 499 admissions	1517/1000 Admissions 5/1000 Inpatient days
Germany (Martin et al 2005) (9)	2004	10	6 months	1344 seclusions and restraints	16005 admissions	84/1000 Admissions
The Netherlands (Janssen et al 2005) (10)	2002	12	1 year	2752 patients seclusions and restraints 8488 seclusions and restraints	Mean of 5417 occupied beds	4.3/1000 Inpatient days
	2003	12	1 year	2508 patients seclusions and restraints 7341 seclusions and restraints	Mean of 5417 occupied beds	3.7/1000 Inpatient days
Germany and Switzerland (Martin et al 2007) (11)	2004	14	1 year	Germany: 524 cases of seclusion	6761 admissions	77/1000 admissions
				Switzerland: 351 cases of seclusion	1976 admissions	177/1000 admissions

An expert panel study, performed by the French organization l'Aneas, estimated that 10% of all admitted patients in French psychiatric hospitals have some experience with seclusion practices (L'Anaes, 1998). In some other European countries seclusion is not an issue, as it is not part of the daily practice (Bowers et al., 2005).

In summary, little research has explored the number of seclusions in countries or regions in countries. There is no consensus in how to count the number of seclusions. Terms as discrete seclusions, episodes, records or incidents were not clarified. Some authors (Crenshaw & Francis, 1995, Demeestere et al., 1995) counted each discrete seclusion as the time the patient spends in seclusion. Other authors (Janssen et al., 2005) counted each seclusion as a record that was used for a number of days in which patients stayed in the seclusion room each day interspersed with a short or longer stay on the ward. However, these authors didn't elucidate these data in the precise number of discrete seclusions. Other authors provided no information on the real data at all, apart from scant and unclear supplementary information with respect to mean or median duration of hours patients spent in seclusion.

As shown in Table 1 the reviewed studies show various ways to rate seclusion expressed in either absolute numbers or in means per 1000 inpatient days as well as per 1000 admissions. Also, authors (Crenshaw & Francis, 1995; Ray & Rappaport, 1995) expressed their seclusion rates in the mean number of seclusions per 1000 inpatient days. This last method of presentation is in the opinion of Bowers (2000) the best and easiest to understand, but he reported a few drawbacks: the resulting data ignore patients on leave as well as patients turn-over and this rate is not sensitive to variations in length of stay. The presentation of duration in hours of seclusion or restraint per 1000 patient-hours (Crenshaw & Francis, 1995) suggests a more precise presentation than the number of seclusions per 1000 patient days. Cannon et al. (2001) presented the number of seclusions calculated by the number of admitted patients. In short, relating seclusion rates per 1000 admissions have several interpretation problems. Results based on admission data are not directly sensitive to differences in length of stay and the length of the seclusion episode. Incidents expressed per admission or per patient, lead to the effect that an admission of one day has the same impact upon the calculated rates as an admission of six months, but also a seclusion of 1 hour has the same effect on the rates as a seclusion of a whole year (Bowers, 2000).

The time frame differs from one month to one year. The study methods differ over many of the reviewed articles. Some authors as Way and Banks (1990), Crenshaw and Francis (1995), Ray and Rappaport (1995), Crenshaw et al. (1997), Cannon et al. (2001) used posted questionnaires or self reports. The responders filled them in separately using their registrations as a data source. Widely

varying response rates between the 49% and 99% were found in these studies. Most of the non responders were unwilling to expend staff time or failed to routinely collect data (Crenshaw & Francis, 1995). Beside this, data gained by survey are by its nature retrospective and subject to recall and other biases (Cannon et al., 2001). Other authors extracted their data from hospitals or the government. Within these aggregated data, underreporting or at least some kind of response bias may be expected. Several hospitals counted exclusively the involuntary seclusions, whereas other hospitals counted both voluntary and involuntary seclusions. In the hospitals statistics it is unclear what was registered (Janssen et al., 2005). A number of authors make no difference between restraint and seclusion. They presented rates on the number seclusions included (Martin et al., 2005).
Essential epidemiological information such as number of beds, the daily census and number of admissions as well as variance, standard error and standard deviation are lacking in most of the articles. The inconsistent ways to express the seclusion rates, missing often essential data as well as the heterogeneity of method and time span leave it impossible to weigh the importance of each study and calculate an overall mean of seclusions per 1000 admission or inpatient days. With these limitations some recalculations were made to facilitate a comparison between the studies. The seclusion ratios in the USA varied between the 2.7 and 110 seclusions per 1000 inpatient days and 60 seclusions per 1000 admissions. In Europe ratios varied between the 66 and 116 seclusions (and restraints) per 1000 admissions. In most sources, a mean of 2 up to 3.6 seclusion incidents per patient was found.

Methods and materials

The present study is a part of a collaboration of twelve middle sized up to large psychiatric hospitals aimed at a reduction of the use of seclusion and restraint through implementing a set of quality criteria for using restraint and coercion (Abma, Widdershoven, & Lendemeijer, 2005; Berghmans, Elfahmi, Goldsteen, & Widdershoven, 2001; CBO, 2001). One of the goals of this collaborative effort was to gain insight in the number of applied seclusions in all the Dutch psychiatric hospitals.
In the calculation of the comparison rates, we chose to follow Bowers (2000), relating incidence to number of admissions (proportion of seclusions per 1000 admissions) or number of seclusion incidents per inpatient days (number of seclusions per 1000 patient days). We chose to count the seclusion incidents and relate these to the complete population of psychiatric patients, in accordance with much of the reviewed literature.
The data were extracted from the IGZ database and several administrative databases of the general psychiatric hospitals. Geriatric, young and mental disabled patients were excluded from the study, as these are also treated in categorical Hospital facilities, impairing a sound comparison.

The IGZ database reports according to the Dutch jurisdiction (Special Admissions act for Psychiatric Hospitals (Bopz)) (GIGV, 1990; IGZ, 2004) only involuntary admissions and emergency measures or involuntary treatment. These reports are necessary due to the Bopz which was instituted to protect patients' rights. Following the Dutch jurisdiction involuntary seclusions, restraints or forced medication may only be used within an emergency measure (short term) or as part of a specifically elaborated involuntary treatment (long term). The hospitals are obliged to register and report these seclusions as well as other restraints or forced medication within either of these articles to the IGZ. Next to the involuntary seclusions, a large number of seclusions occur with patients consent. The hospitals are not obliged to register nor report them to the IGZ. The majority of the searched hospitals register both the involuntary and the consented seclusions.

The study of the twelve hospitals as well as the IGZ provided data on the seclusion use. Every seclusion was counted as an intervention over a period of one day or longer. Each count was noted with a start date and an end date. In this way of registration, information on the discrete seclusion episodes and interventions within a day cannot be traced. A seclusion of 1 hour a day over five days revealed the same data as a full seclusion over five days. A seclusion started up over again was counted as a new seclusion. Both databases contained supplementary information on patient characteristics such as date of birth, sex and the Bopz context of the seclusion and restraint measures. The IGZ provided data of both the collaborating hospitals as well as all other Dutch hospitals for the purpose of the current study, allowing an extrapolation of our findings to all Dutch Hospitals. The IGZ quarterly reports published on internet were used as adjacent source data in 2003 (www.igz.nl). The length of the intervention in number of days was calculated by subtracting start date from end date. GGZ Nederland (the Dutch business organization of all Dutch psychiatric hospitals) provided information such as the total number of admitted patients and the mean number of occupied beds in all the psychiatric hospitals over the study period (GGZ Nederland, 2003, 2005).

The data were entered in the Statistical Package for Social Science (SPSS 14.0). Four databases were made. Each had a different aggregation level, necessary for analyses on the counts. The first database contained the seclusions registered by the IGZ and categorized to a legal framework useful for all Dutch psychiatric hospitals. Each record covered a single report of a seclusion incident to the IGZ, containing day of onset, day of end, cause and other measures. Using the first database as a source, the data were aggregated per patient, in order to calculate the number of seclusion records per patient. This count was transformed into a second database. In this database each record covered a single patient. The third database contained the seclusions of the twelve collaborating hospitals, counted at the level of the ward. The data were organized in the same way as the first (IGZ) database. Again, the

number of seclusions per patient was transformed into a fourth database. These databases were used as follows:

1. With the first database we tested the differences on the use of seclusion between twelve collaborating hospitals and the other hospitals by means of the student t-test, confirmed by with a log-transformation or non-parametric tests when the data were skewed.
2. Using the second database the counts in the ward data of collaborating hospitals were compared to the counts based on the IGZ data. With these findings an extrapolation of the comparison between the IGZ data and the data of the collaborating hospitals was made to estimate the total number of seclusions in the Netherlands.
3. With the third and the fourth database we calculated the number of seclusions per 1000 admissions as well as number of seclusion per 1000 inpatient days, in order to compare our data with the outcomes of the reviewed literature.

Results

The twelve collaborating hospitals had a capacity of 250 to 900 beds and a mean number of 430 occupied beds. These hospitals contained approximately 35% of the beds of all Dutch psychiatric hospitals (Table 2). Out of the total 633 available seclusion rooms in Dutch psychiatric hospital 30% are located in the collaborating hospitals. In general, the admission rates in the Netherlands may be estimated on 0.5 per 1000 inhabitants, consequently the incidence rates per admission need to be multiplied by 2000 to obtain population based data (GGZ Nederland, 2003, 2005).

Table 2. Data of admitted patients for the years 2002 and 2003

Year		12 collaborating hospitals	66 anonymous hospitals	Total in the Netherlands
2002	Number of admitted patients	17.500	32.845	50.345
	Number of daily occupied beds	5205	8308	13.510
	Number patients days	1.900.000	3.000.000	4.900.000
2003	Number of admitted patients	18.800	34.640	53.440
	Number of daily occupied beds	5479	13.154	18.633
	Number patients days	2.000.000	4.800.000	6.800.000

Source materials (GGZ-Nederland, 2003, 2005)

In 2002, according to the IGZ database, 3232 patients were secluded in the Netherlands and were subject to 5318 seclusions. On average 1.65 seclusions per patient was registered (SD=1.374). Most of the patients were secluded only once. A minority of the patients (27%) have been two or more seclusions, with a range of 2 up to 15 seclusion events per patient. The mean duration of the seclusion

episodes was 16 days (SD=47.87, median=6 days, and a maximum length of 595 days). Of these registered seclusions 35% occurred in the twelve collaborating hospitals, within 1138 patients, again revealing a mean of 1.65 seclusions per patient (SD=1.349 , median=1) (Table 3).

Table 3. Registered number of seclusions (source material IGZ and participating hospitals

Number of seclusions		2002			2003	
		Dutch hospitals Database IGZ	Collaborating hospitals as communicated in database IGZ	Collaborating hospitals own database	Dutch hospitals database IGZ	Collaborating hospitals own database
Involuntary	Number of seclusions	5318	1881	2059	5398	2495
	Number of patients	3232	1138	1853	3721	1551
Voluntary	Number of seclusions			3685		2828
	Number of patients			1779		944
Total number of seclusions				6194		5323
Total number of patients				2165		1961
Mean duration of the seclusion in days		16	18	17		25
Median of duration of the seclusion in days		6	6	5		6

The mean number of seclusions per patient of the anonymous hospitals with collaborating hospitals in the IGZ database showed no significantly differences with respect to seclusion use per patient (student t=−0.228 df 3230 p=0.820, mean difference=−0.012 (95% CI=−0.111 up to 0.088). Because of the positive skewed data, log-transformation and non-parametric unpaired tests were carried out to confirm the t-test findings, revealing no significant differences (Mann–Whitney U=1,187,148 Z=−0.204 Asym sig (two tailed)=0.838).

Table 3 shows the collaborating hospitals registered in 2002 more involuntary seclusions and patients within an emergency measure as well or a involuntary treatment than was represented in the IGZ database over the same hospitals. In this year the collaborating hospitals registered 2509 seclusions over a total of 1853 patients. The IGZ received 1881 seclusions over 1138 patients.

Together with these involuntary seclusions the seclusions with patients consent were presented. In the twelve collaborating hospitals 2165 patients were secluded once or more times with an average of 2.9 seclusions per patient (SD=5.58, median=1, range of 1 to 120 seclusions per patient). Of these seclusions 61% occurred with patients consent, 26% occurred within emergency treatment and 13% within involuntary treatment. The mean duration of the stay in seclusion is 16 days, 52% of the seclusion episodes did not exceed 5 days. More male patient (61%) than female patients (39%) were secluded.

In 2003, in the twelve hospitals, 1961 patients were secluded. On average 2.7 seclusions per patient occurred (SD=4.77, median=1, range 1–74 seclusions per patient). Of these seclusions 53% occurred with patients consent, the proportion involuntary seclusions increased to 47% in 2003. The male–female ratio remained unchanged.

Comparing the IGZ and hospital databases, the collaborating hospitals registered 28% more seclusions as emergency treatment or as part of therapeutic intervention as found in the IGZ database. When these data are extrapolated to all the Dutch hospitals, it may be estimated the IGZ could register approximately 6600 seclusions and 4000 patients in 2002 as well as 6900 seclusions and 4760 patients in 2003. When the extrapolation is extended to the Dutch psychiatric hospitals as a whole, including the seclusions with consent, for 2002 it may be calculated that 17,500 seclusions (95% CI 16,300–19,200) occurred, involving 6000 patients. In 2003 an occurrence of 15,250 seclusions (95% CI 14,000–16,500) was estimated involving 5400 patients. For 2002, a mean of 3.5 seclusions per 1000 inpatient days and 338 seclusions per 1000 admissions was calculated, this means that one out of three patients experienced a seclusion during their admission. In 2003 the same calculations showed 2.2 seclusions per 1000 inpatient days and 275 seclusions per 1000 admissions, or one out of four admitted patients experienced a seclusion. These figures are much higher than in other countries (see Table 1).

Discussion

This study provides some insight into the Dutch seclusion rates. However, with the data of this study only a rough estimation of the seclusion use in the Netherlands can be made. At first glance, the results confirm the impression that seclusion is a widely accepted, (too) often used intervention in the Netherlands in comparison with several European and non-European countries (Vrijlandt,1998; van de Werf, 2003). However, the international studies we reviewed showed widely disparate rates of seclusion in various countries, in line with earlier findings of Korkeila, Tuohimäki, Kaltiala-Heino, Lehtinen and Joukamaa (2002). Several authors note that the use of restraint and seclusion is not vigorously monitored, or that many institutions did not yet collect data on it (Ray & Rappaport 1995; Crenshaw& Francis 1995; Cannon et al., 2001). Because of the inconsistent and often quite different methods and materials as well as the variation in chosen presentations of data a sound comparison between the countries is hardly possible. As Martin et al. (2007) state, there is no really interpretable data providing the basis for a European comparison of the incidence of such measures.

The data in this study describe only the number of times a seclusion is started, in effect a seclusion record. Each seclusion record may comprise one or more discrete seclusion episodes. The presented mean and median length of stay in seclusion is related to a number of days in which we do not know how much discrete seclusion episodes occurred. Because of the legal purpose the start of the intervention may be expected to be registered accurately. For the end no real incentive exits, leaving room for error. The hospital data in Netherlands could only be compared on the level of seclusion records. To compare the development of the data within hospitals and at a general level with data of other countries, we need more information, such as mean and median length of stay on the level of the discrete seclusion episodes.

In the current study the number of seclusions, the number of patients, and the number of daily admitted patients are presented as well as the ratios by 1000 inpatient days or per 1000 admissions, in line with Bowers (2000) recommendations as being a valid and accurate way to express seclusion rates. Expression of discrete seclusions and duration of patients stay in seclusion in hours per 1000 patients-hours, following Crenshaw and Francis (1995) was not possible with the current data.

In this study we compared the data of the twelve hospitals to the official records of the Dutch government gathered within the IGZ database. The data of both have their origins in the same patients being secluded. The twelve hospitals registered much more seclusions as we found in the IGZ database over the same twelve hospitals. This underreport is an effect of an unnatural and disputable distinction between seclusions with and without patients permission, as made in the Dutch Bopz act. The concept “with permission of the patient” has not yet been discussed and is underexposed in the

literature, but may very well be a specific Dutch phenomenon. However, it remains unclear how nurses on the wards deal with this concept and what the consequences are for registry. When nurses report "patient is secluded with his/her permission", it is doubtful whether the patient really gave permission. Sometimes it is easier to fill in that the patient agrees with his/her seclusion to avoid a time consuming bureaucratic procedure in reporting the intervention to the IGZ. In this way many seclusion and restraint measures may remain undetected.

Next to individual variation in their choice to register, also the logistic process of the registration as well as the information transfer to the IGZ leads to loss of data. Handwritten forms leave several opportunities for error or misinterpretation. Finally, in the IGZ database seclusions of less than one week are linked up to one count. This leads to the loss of information on the frequency of seclusions during a few days. Using the reports of the participating hospitals an estimation of the scale of underreport could be made. Despite evidence on lack of accuracy and reliability of the data, the IGZ and the hospitals remained using these to review their own developments and trends in using seclusion year by year.

This study shows that sound conclusions about the seclusion use in Dutch psychiatric hospitals compared to other countries cannot be made because the differences in methodology of the reviewed literature and the way the Dutch figures were acquired. This study shows that in comparing data it is crucial that all the seclusions should be reported regardless of the voluntary or involuntary legal context. Clear definitions of seclusion as well as other forms of restraints and also a clear incidence registration, preferably electronic, on the level of discrete seclusion and restraint measures are necessary for a good comparison as well as to set up benchmarking. These issues tie in with the experiences of Martin et al. (2005, 2007) in a German project in which they succeeded in creating a database on the use of seclusion and restraint in 10 hospitals in the Baden Württemberg region.

Conclusion

In this study, seclusion rates of various countries, drawn from published studies, were compared to an extrapolation of the seclusion rates in the Netherlands, based on a recalculation of the data of a sample of twelve hospitals. The study shows seclusion is a frequently used intervention in the Netherlands. However, several limitations in the accuracy of data acquisition impede the conclusion that in Dutch hospitals more patients were secluded than in other countries. We conclude that more precise data are necessary to facilitate the discussions on the seclusion use in Netherlands. Differences in registration methods as well as in collecting and presentation data limit sound comparisons and impede discussions between hospitals and countries about seclusion use. A sound registration is a vital step

towards adequately monitoring and comparing restraint and seclusion use within hospitals, regions or countries. These activities may provide a basis for the debate on seclusion, and may thereby lead to improvements in the quality of care and a decrease in the use of seclusion. This study provides initial parameters for further research between hospitals as well as between countries.

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