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Mechanical and pharmacological restraints in acute psychiatric wards—Why and how are they used?

Maria Knutzen [a,b,*], Ståle Bjørkly [a,c], Gunnar Eidhammer [a,d], Steinar Lorentzen [b,e], Nina Helen Mjøsund [d], Stein Opjordsmoen [b,e], Leiv Sandvik [f], Svein Friis [b,e]

[a] Centre for Research and Education in Forensic Psychiatry, Oslo University Hospital, P.O. Box 4956, Nydalen, N-0424 Oslo, Norway
[b] Division of Mental Health and Addiction, Department of Research and Education, Oslo University Hospital, Ullevål, P.O. Box 4956, Nydalen, N-0424 Oslo, Norway
[c] Molde University College, P.O. Box 2110, 6402 Molde, Norway
[d] Division of Mental Health and Addiction, Vestre Viken Hospital Trust, 3004 Drammen, Norway
[e] Institute of Clinical Medicine, University of Oslo, P.O. Box 1039, N-0315, Norway
[f] Unit for Biostatistics and Epidemiology, Oslo University Hospital, Ullevål, P.O. Box 4956, Nydalen, N-0424 Oslo, Norway

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ABSTRACT

Restraint use has been reported to be common in acute psychiatry, but empirical research is scarce concerning why and how restraints are used. This study analysed data from patients' first episodes of restraint in three acute psychiatric wards during a 2-year study period. Logistic regression analyses were used to identify predictors for type and duration of restraint. The distribution of restraint categories for the 371 restrained patients was as follows: mechanical restraint, 47.2%; mechanical and pharmacological restraint together, 35.3%; and pharmacological restraint, 17.5%. The most commonly reported reason for restraint was assault (occurred or imminent). It increased the likelihood of resulting in concomitant pharmacological restraint. Female patients had shorter duration of mechanical restraint than men. Age above 49 and female gender increased the likelihood of pharmacological versus mechanical restraint, whereas being restrained due to assault weakened this association. Episodes with mechanical restraint and coinciding pharmacological restraint lasted longer than mechanical restraint used separately, and were less common among patients with a personality disorder. Diagnoses, age and reason for restraint independently increased the likelihood for being subjected to specific types of restraint. Female gender predicted type of restraint and duration of episodes.

1. Introduction

Safety issues have top priority in mental health services, and without safety, no treatment is possible (Sharfstein, 2008). Staff members are committed to preventing patients from injuring themselves, assaulting others or damaging buildings and physical objects (The Mental Health Care Act, 1999). Patient violence on psychiatric wards causes serious problems relating to treatment, other patients and staff. Thus, it is not surprising that a commonly reported reason for using restraint in acute psychiatric wards is violence or imminent violence (Cannon et al., 2001; Tunde-Ayinmode and Little, 2004).

Though both mechanical and pharmacological forms of restraint might have deleterious physical and psychological effects on both patients (Hatta et al., 2007; Mohr et al., 2003; Wynn, 2004) and staff (Fisher, 1994), they are commonly used in acute psychiatric wards (Bak and Aggernæs, 2011; Cannon et al., 2001; Downey et al., 2007; Knutzen et al., 2007) and in many countries in Europe, Australia, Africa, America and Asia (Huf et al., 2011). At the same time, there is a lack of empirical studies to guide clinical decisions regarding seclusion and restraint, and there are no data about the appropriate mix of seclusion, restraint, and medication for various kinds of patients (Mohr and Lukas, 2010). Allen (2007) suggests that most patients agitated enough to require physical restraint should also receive medications, as a means of improving the patient's underlying state and shortening the time in restraints. However, differences between countries, both in definition of restraints and in legal requirements to use them, often make it unclear whether forced medication is used as treatment or as pharmacological restraint.

* Corresponding author at: Centre for Research and Education in Forensic Psychiatry, Oslo University Hospital, P.O. Box 4956, Nydalen, N-0424 Oslo, Norway. Tel.: +47 22 02 92 42; fax: +47 22 02 21.
E-mail address: maria.knutzen@kompetanse-senteret.no (M. Knutzen).

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Despite the recurrent suggestion that studying clinical and patient characteristics associated with restraint could convey a better understanding of the impact of these variables on the use of restraint (Mayoral and Torres, 2005), there is still a paucity of empirical research. In a 2-year study of an emergency psychiatry department, we found that mechanical restraint used separately was most common for native-born patients but that immigrant patients had more often been subjected to both mechanical and pharmacological restraint (either alternating or in combination) (Knutzen et al., 2007). However, this study did not incorporate variables other than gender, age and immigrant background and did not explore the reasons either for restraint use or for the durations of restraint-use episodes.

Searches in the Embase, Medline and Psych Info databases (up to November 2011) on Anglophonic literature failed to identify empirical research from acute psychiatric wards that explored predictors of types and combinations of restraint or reported reasons for their use and duration of episodes. In view of the limitations of the extant literature, the aim of our research was to explore four principal research questions:

1.1. Aims of study

1. What were the frequencies of mechanical and pharmacological restraints used separately or in combination?
2. How long did mechanical restraint episodes last and were there any associations between patient characteristics and duration of restraint?
3. What were the main reasons for the use of mechanical and pharmacological restraints?
4. Were there any associations between patient characteristics and reasons for restraining and types of restraint?

2. Methods

The Norwegian Directorate of Health, the Regional Ethical Committee, and the Data Inspectorate approved the study. As the study was retrospective and based on register data only, the Norwegian Directorate of Health waived the need for informed consent.

2.1. Definition of restraint

The Mental Health Care Act (1999) regulates the use of restraint that is implemented to prevent patients from injuring themselves, assaulting others or damaging buildings and physical objects, and can be used regardless of the patient's legal status when admitted to mental health care. Less restrictive interventions must first have proven unsuccessful. The "restraint procedures" in the Act were mechanical restraint, pharmacological restraint and seclusion (locked). *Mechanical restraint* refers to different types of belts (for restraint in bed or used outside bed for arms and feet only). *Pharmacological restraint* refers to single doses of medications with an antipsychotic or sedative effect that are given by injection or taken orally. *Locked seclusion* refers to detention for a short period (up to 2 h) behind locked or closed doors without a staff member present. According to the Mental Health Care Act, Norwegian psychiatric institutions are required to document each episode of seclusion and restraint and to describe the reason, type and duration of restraint. Staff should continuously support patients subjected to mechanical restraint. If the episode lasts longer than 8 h, less restrictive measures should be considered.

2.2. Setting

The study included all restrained patients admitted to the acute psychiatric wards of three Norwegian hospitals during a 2-year period from January 1, 2004, through December 31, 2005. The treatment system for all patients was catchment-area based and publicly funded. The catchment area of one of the acute wards was in Oslo, the capital city, whereas the two others covered both urban and rural areas. Altogether, the three catchment areas had 570,000 inhabitants.

2.3. Procedure

This study was based on routinely collected data from patients' files and from hand-written restraint protocols. Data were first coded into a data form at each of the three psychiatric departments and then merged into one common data form (Knutzen et al., 2011). From this database, we extracted data from a patient's first episode of restraint during the study period. The first episode of restraint for all patients was the unit of analysis.

2.4. Measures

The following data were collected from electronic patient files: age, gender, admission date, length of stay, legal status by referral (voluntary or involuntary), diagnoses (ICD–10. Classification of Mental and Behavioural Disorders, 1993), residence in the catchment area (yes or no), number of admissions during the study period and immigrant status (both parents of non-Norwegian origin). The data concerning the variables length of stay, legal status by referral and diagnoses were all collected from the first admission during which a patient had been subjected to restraint during the 2-year study period. Length of stay was merged into three categories: 4 days or fewer, 5–15 days, and 16–279 days. Number of admissions was categorised as one, two, and three or more. Data concerning date/time for initiation of restraint and date/time for release from restraint were retrieved from the restraint protocols for each patient's first episode of restraint. The duration of an episode of mechanical restraint was defined as the period between initiation time and release time. The time for termination was not reported in six episodes of restraint.

Pharmacological restraint has no defined duration. Types of restraint were classified into three groups: mechanical restraint only, mechanical restraint with concomitant pharmacological restraint and pharmacological restraint only. Three episodes of restraint had insufficient information to link them to individual patients and were therefore excluded from the study.

The reasons reported for the first episode of restraint were categorized by two of the authors, according to the definitions in the Norwegian Mental Health Act (1999): (1) self-injury (occurred or imminent); (2) assault (occurred or imminent physical assault towards others); (3) damage (occurred or imminent damage to buildings/physical objects). Some of the reported reasons did not directly match any of these three categories from the Mental Health Care Act. Therefore we constructed a residual category, (4) miscellaneous reasons, which included agitation (restlessness, loss of control) and somatic conditions or vaguely described reasons.

2.5. Study population

During the study period, 3365 patients were admitted to the three psychiatric acute wards. A total of 375 patients (11.1%) were restrained during the 2-year study period. Four patients were only subject to locked seclusion and were excluded from the study due to the low number. For the remaining 371 patients, the reasons for restraint were as follows: assault, 275; self-injury, 61; damage, 74; and miscellaneous reasons, 41 (32, agitation, and 9, somatic disorder or vaguely described). In three episodes with pharmacological restraint and one episode with mechanical restraint, the reasons were not reported. An episode of restraint could be legitimised by one, two or all three of the specific categories above. The total number of reasons is therefore higher than the total number of episodes of restraint.

Of the 371 patients, 44.5% were female, 22.9% had an immigrant background, (41.1% from Asia; Africa: 32.2%; Southern Europe: 14.9%; Northern Europe outside Scandinavia: 6.8%, Scandinavia: 3.5%, and Canada: 1.1%). Around 64% of the samples were residents in the catchments area of the acute psychiatric wards, 41.3% had one admission, 26.2% had two admissions and 32.5% had 3–23 admissions during the study period. Only 9% were voluntarily referred, and 26.8% had a 0–4 days length of stay; 26.2%, 5–15 days; and 47%, 16–279 days.

The distribution of primary ICD-10 diagnoses was as follows: substance use disorder and psychosis (F10–19), 17.8%; Schizophrenia spectrum disorder (F20–29), 36.1%; manic or bipolar disorder (F30–31), 15.6%; non-psychotic disorders, comprising non-psychotic mood disorders (F32–39) and neurotic, stress-related, and somatoform disorders (F40–49), 6.7%; disorder of adult personality and behaviour (F60–69), 9.7%; 'other' diagnosis, 10.8%. Of the 'other' diagnosis, 4% were organic including symptomatic mental disorders (F00–09), and 3% were unspecified mental disorder (NOS) (F99). The remaining diagnoses (4%) included behavioural syndromes associated with physiological disturbances and physical factors (F90–98), intellectual disability (or mental retardation) (70–79), disorders of psychological development (F90–98), behavioural and emotional disorders with onset usually in childhood/adolescence (F90–98), neurological disorder (G04) and Observatio (Z03, Z72), and missing diagnoses 3.2%. The restrained patients were compared to a random sample of non-restrained patients. The restrained patients differed from non-restrained patients by being significantly younger, more likely to be men, to reside outside the wards' catchment areas, to have immigrant background, to have had more admissions and longer inpatient stays, to be involuntarily referred and to have one of the following ICD-10 diagnoses: substance use disorder (F10–19), schizophrenia or a related psychotic disorder (F20–29) or bipolar disorder (F30–31) (Knutzen et al., 2011).

2.6. Statistics

For comparisons of patient characteristics with type/combination of restraint, duration and reasons for restraining, we used cross-tabulation with chi-square