Psychiatry Research 237 (2016) 60–66

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

A nationwide study of why and how acute adolescent psychiatric units use restraint

Astrid Furre [a,d,*], Leiv Sandvik [b], Svein Friis [c], Maria Knutzen [a], Ketil Hanssen-Bauer [d]

[a] Centre for Research and Education in Forensic Psychiatry, Oslo University Hospital, Norway
[b] Unit of Epidemiology and Biostatistics, Oslo University Hospital, Oslo, Norway
[c] Department of Research and Development, Clinic of Mental Health and Addiction, Oslo University Hospital, Oslo, Norway
[d] Centre for Child and Adolescent Mental Health, Eastern and Southern Norway, Oslo, Norway

ARTICLE INFO

Article history:
Received 18 June 2015
Received in revised form
20 November 2015
Accepted 27 January 2016
Available online 28 January 2016

Keywords:
Restraint
Adolescents
Inpatient units
Acute psychiatry

ABSTRACT

The purpose of this study was to examine the type, reason, and duration of restraint episodes in acute adolescent psychiatric units. In a retrospective design we included data from paper-based protocols on all episodes of restraint and data from electronic patient records during 2008–2010 in all acute adolescent psychiatric in-patient units in Norway ($N=16$). The episodes of restraint included mechanical and pharmacological restraint, seclusion and physical holding that was not part of the implementation of forced feeding. Six-and-a-half per cent of all 4099 adolescents admitted to the acute units experienced restraint. Of the 2277 episodes, 13.4% were mechanical restraint, 1.6% were pharmacological restraint, 5.9% were seclusion and 78.7% were physical holding. The median number of restraint episodes per patient was two, the range was 1–171 and 47 patients (18%) experienced ≥ 10 episodes. The most common reason for using restraint was harming others. The median duration of the mechanical restraint episodes was 3.5 h. The median duration of seclusion was 30 min and the median duration of physical holding was 10 min.

1. Introduction

Most acute psychiatric units for adolescents use restraint, including mechanical and pharmacological restraint, seclusion and physical holding. However, there is little empirical research on why and how the clinicians working in these units use restraint (Delaney and Fogg, 2005). The clinicians need to balance the requirement to maintain a safe and secure milieu against the requirement to respect the dignity and well-being of the patients (Crocker et al., 2010). It is controversial to which extent the use of restraint violates respect for the patients and has harmful effects (Bergk et al., 2011). Few argue that there are therapeutic benefits from the use of restraint, but some argue that there are such benefits from physical holding (Steckley, 2010). Nevertheless, there seems to be a growing consensus that physical holding is without therapeutic benefits, poses unacceptable risks, and should be reduced drastically, if not eliminated (Steckley, 2010). During the last 15 years, inpatient units have raised concerns about the dangers of restraint and have developed strategies to reduce its use (Greene et al., 2006). However Delaney (2006) found in their review from children and adolescent psychiatric treatment claim that limited evidence exists for the effectiveness of aggression management measures and training in de-escalation techniques. In a later open study, Martin et al. (2008) implemented a program for aggression management to reduce restraint. It is promising that they found a 37.6-fold reduction in number of restraint episodes and a large reduction in mean duration of the restraint episodes. In Norway, there are both a lack of studies and a lack of available national registration of the use of restraint among adolescents. Clinicians, managers and the health authorities are asking for information about how frequently, why and how acute adolescent psychiatric units use restraint. Among the Nordic countries, Finland is the only country that has published several research studies on the use of restraint among children and adolescents.

A systematic review from 2010 reported that 29% of the patients in psychiatric in-patient units for children and adolescents experienced at least one episode of physical holding or mechanical restraint and 26% experienced at least one seclusion episode. Pharmacological restraint was not mentioned in this review (De Hert et al., 2011). A study from Finland found regional variations in the use of restraint in adolescent in-patient units, which could not be explained by regional differences in the prevalence of

* Corresponding author at: Centre for Research and Education in Forensic Psychiatry, Oslo University Hospital, Norway.
E-mail addresses: asfurr@ous-hf.no, astrid.furre@r-bup.no (A. Furre).

http://dx.doi.org/10.1016/j.psychres.2016.01.067
0165-1781/

psychiatric disorders (Siponen et al., 2012). The reported large variations in the reason for, and type and duration of restraint, both within and between countries, has raised concerns that the use of restraint is strongly associated with culture, traditions and policies (Keski-Valkama et al., 2007). It is difficult to know the extent to which the use of restraint in such units is related to the characteristics of a country's policy, the particular unit, or the patient.

We know little about the attitudes or general rationales that guide the use of the different restraint methods in children and adolescents (Hottinen et al., 2012). Preference for a specific type of restraint seems largely to be determined by whether it was considered (1) safe for the patient, (2) effective in preventing the patient from injuring others and (3) able to calm the patient quickly (Bowers et al., 2007). A study of adults concluded that pharmacological restraint is effective in improving a patient's clinical status and should be the first choice when restraint is unavoidable (Georgieva et al., 2012). There is no similar study of restraint in children and adolescents.

National legislation and clinical guidelines regulate the use of restraint in most countries. The Norwegian Mental Health Care Act (Sosial- og helsedepartementet, 1999) considers that a limited and specific set of situations justify the use of restraint: to prevent the adolescent from injuring himself or herself, assaulting others or damaging buildings and physical objects. We know little about the different rationales given by the clinicians for the use of restraint in acute adolescent psychiatric units in Norway and whether these rationales are congruent with the Norwegian Mental Health Care Act. A Finnish study found that, for a quarter of the restraint episodes, the rationales for the use of restraint were not in accordance with the Finnish Mental Health Act (Hottinen et al., 2012). Restraint includes intrusive interventions and carries the risk of injury to both the patient and staff members. Service users, managers and the health authorities demand that restraint is used with respect, and that staff members constantly care for patients subjected to restraint and protect them from being harmed (Green-Hennessy and Hennessy, 2015).

Given the potential harmful effects of restraint, its duration should be as short as possible. A US study of female adolescents in a psychiatric in-patient unit reported that the length of restraint ranged from 1 min to 1 h 38 min, with the average being 11 min (Leidy et al., 2006). In Finnish adolescent psychiatry, the duration of 161 mechanical restraint episodes ranged from 15 h to 40 h 27 min (Hottinen et al., 2012). A Norwegian study of adults in acute psychiatric in-patient units found that median duration of mechanical restraint was 5.6 h, ranging from 3 min to 16 days (Knutzen et al., 2013). Large differences in the duration of restraint between countries have been found (De Hert et al., 2011). Direct comparisons are complicated because studies may include different types of units. In addition, there are differences in legislation and psychiatric practice. There is a need for more studies of both the reasons for the use of restraint and its duration. However, to obtain reliable estimates of restraint use within a country, we need studies of representative samples. We therefore studied all Norwegian acute adolescent psychiatric units. In a previous paper (Furre et al., 2014) we investigated the characteristics of adolescents subjected to restraint in a case-control design. We reported that several social characteristics (immigrant background, live in institution or foster care, child protection service involved), mental health characteristics (psychotic disorder, eating disorder, externalizing disorders, lower general functioning) and treatment characteristics (multiple admissions, longer stays and involuntary referred) predicted the use of restraint in an unadjusted model. In an adjusted model, we found that immigrant background, low general functioning and all the treatment characteristics predicted the use of restraint. In the present study, we describe the type, frequency and duration of restraint use, as well as the reasons for restraining in-patient adolescents. Specifically we investigated the following questions:

1. What were the proportion of adolescents experiencing restraint (episodes) in adolescent acute psychiatric units in Norway?
2. What were the frequencies of mechanical and pharmacological restraint, seclusion and physical holding?
3. How many restraint episodes and restraint types did each patient experience?
4. How many patients experienced one or more types of restraint?
5. What was the frequency of different types of reasons for restraining?
6. How long did mechanical restraint, seclusion and physical holding last?
7. Is duration of restraint associated with patient characteristics, type of restraint, or reasons for restraining?
8. At what time of the day did restraint episodes occurs?

2. Methods

2.1. Setting

All Norwegian adolescent acute psychiatric in-patient units approved for involuntary admissions ($N=16$) were included in the study. These had a total of 126 beds (mean $\pm$ SD $= 7.4 \pm 2.9$). These units mainly provide care for adolescents aged 13–17 years, but accept admission of younger patients if needed, and some patients may be 18 years old at the time of discharge. All units accepted around-the-clock emergency admissions throughout the study period. Each unit had a defined and unique catchment area, and together they cover all parts of Norway. Restraint can be used against voluntary and involuntary admitted adolescents. Drug addicted adolescents are cared for by the child protection services. Thirteen out of the 16 acute psychiatric in-patient units are permanently locked, and the others are locked when needed.

The Regional Committee for Medical and Health Research Ethics South and East and the Privacy Protection Officer at Oslo University Hospital approved the study.

2.2. Data collection

The study included all in-patients who experienced restraint from 1 January 2008 through 31 December 2010. The data were collected retrospectively from paper-based protocols and electronic patient records during a nine-month period from August 2011 to May 2012. The first author visited all the institutions and collected demographic and clinical data. All data about restraint episodes (number, reason and duration) were collected from routinely used handwritten restraint protocols from the three-year period. The other routine data were collected from the electronic patient records. For patients with more than one admission in the three-year period, data were collected from the most recent admission. The total number of admitted patients during the study period was retrieved from the electronic patient administrative system at each unit.

2.3. Definitions of restraint in The Norwegian Mental Health Care Act

The Norwegian Mental Health Care Act § 4–8 regulates the legal types of restraint used during hospitalization: mechanical and pharmacological restraint, seclusion, and physical holding. Mechanical restraint refers to strapping a patient to a bed with mechanical devices. Pharmacological restraint refers to single doses of medications with the intention of calming or sedating a