



Implementation of the safewards model to reduce the use of coercive measures in adult psychiatric inpatient units: An interrupted time-series analysis



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ABSTRACT

The aim of this study was to investigate whether the implementation of the Safewards model reduces the frequency of coercive measures in adult psychiatric inpatient units. Data on all coercive measures performed in psychiatric hospitals in the Region of Southern Denmark 1/1/2012–31/3/2017 were collected retrospectively through The Register of Coercive Measures in Psychiatric Treatment. Interrupted time series analysis by segmented regressions with poisson models were performed on overall coercive measures ($n = 12,660$), mechanical restraint ($n = 2948$) and forced sedation ($n = 4373$). A 2% (95% CI: 1%–4%, $p < 0.001$) decrease per quarter in the frequency of coercive measures and an 11% (95% CI: 8%–13%, $p < 0.001$) decrease per quarter in the frequency of forced sedation were found after the implementation of the Safewards model. In conclusion, the implementation of the Safewards model in adult psychiatric inpatient units was associated with a decrease in forced sedation and potentially the overall use of coercive measures.

1. Introduction

The use of coercion in clinical psychiatry is controversial as it represents a conflict between care and control (Norvoll, 2006). The use of coercion can lead to violent events that are potentially harmful to patients and staff (Langsrud et al., 2007) and can arouse staff ambivalence and spoil cooperative staff-patient relationships (Bowers, 2014). Despite the difficult ethical and clinical aspects coercive measures are still used in psychiatric care even though coercion is only applied when other less restrictive approaches have not worked (Luciano et al., 2014; Kalisova et al., 2014). While rates vary between individual units and across countries, a previous study suggests that coercive measures are used with between 21 and 59% of individuals admitted to psychiatric hospitals across various European countries (Kalisova et al., 2014). The type of coercive measures used varies between countries depending on the national health/psychiatric legislations (Steinert and Lepping, 2009; Bak and Aggernaes, 2012). Due to discussion of the ethicality and clinical appropriateness of the use of coercion it is a political and clinical priority to reduce the use of coercion in mental healthcare (Sundhedsstyrelsen. Monito, 2017).

One systematic review identified combined interventions (programs including several interventions) as one of the types of interventions

most likely to reduce the use of mechanical restraint with an average reduction of coercion of 76% among the included studies (Bak et al., 2012). This result is supported by a review which found that reducing the use of isolation in psychiatric facilities requires the implementation of multiple interventions targeting leader, staff and patient level at the same time (Gaskin et al., 2007). Another systematic review identified strong leadership from local management, broad-based staff training and program changes at a local level as the most effective program elements in reducing the use of seclusion and restraint in inpatient psychiatric settings (Scanlan, 2010).

These reviews have all pinpointed the lack of high quality and effective intervention studies (Bak et al., 2012; Gaskin et al., 2007; Scanlan, 2010) which leaves healthcare professionals and administrators with uncertainty of which interventions to choose in the attempt to prevent the use of coercive measures (Bak et al., 2012).

A method aiming to reduce the use of coercive measures in inpatient psychiatric wards is The Safewards model. The Safewards model identifies staff modifiers which are aspects of staff actions that can impact the likelihood of *conflict* and *containment*. Conflict are events that threaten staff or patient safety, including verbal abuse, physical aggression, self-harm, suicide, etc. Containment are actions undertaken by the staff in order to prevent conflict events from occurring or

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minimizing the harmful outcomes, including coercive measures as seclusion, forced sedation, restraint, and special observation. The Safewards model identifies ten interventions aiming to improve the relationship between staff and patients to reduce the frequency of conflict and containment in psychiatric wards (Bowers et al., 2015). The effect of the Safewards model was tested on staff and patients in 31 psychiatric wards at 15 hospitals in England in The Safewards cluster randomized controlled trial (Bowers et al., 2015). The results showed that the rate of conflict events was reduced by 15.0% in the intervention group compared to the control group. Similarly, the rate of containment events was reduced with 23.2% (Bowers et al., 2015).

1.1. Aims of the study

On this basis, the aim of this study was to investigate whether the implementation of the Safewards model reduced the frequency of coercive measures in adult psychiatric inpatient units in the Region of Southern Denmark.

2. Methods

Descriptive statistics were performed to examine the characteristics of the dataset. For the categorical variable in the dataset (sex and type of coercive measure) chi-square test was performed and for the numerical variables in the dataset (age, duration of mechanical and restraint duration of hospitalization) Mann-Whitney tests were performed.

An interrupted time-series analysis (ITS) was used to compare the frequency of coercive measures before and after the implementation of the Safewards model in adult psychiatric inpatient units in the Region of Southern Denmark to see if there has been any change in the underlying trend in coercive measures associated with implementation of the Safewards model.

2.1. Dataset

The Register of Coercive Measures in Psychiatric Treatment contains information on coercive measures recorded during admission or stay at a psychiatric ward for patients admitted in Denmark since January 1, 1999 as it is legally mandated to report all coercive measures in psychiatric inpatient facilities in Denmark (Register, 2016).

Using The National Register of Coercive Measures in Psychiatric Treatment data on all commenced incidents of coercive measures in the Region of Southern Denmark were obtained retrospectively for the period January 1, 2012–March 31, 2017. The applied dataset contained observations on coercive measures including the following variables: sex, type of coercive measure, age, hospital admission date, hospital discharge date, start time of mechanical restraint, release time of mechanical restraint. The variables duration of mechanical restraint and duration of hospitalization were calculated by extracting the corresponding timevariables. Patients admitted to children's wards and wards which had not implemented the model at the time of the study were excluded. After exclusion 26 wards with 12,660 observations on coercive measures were eligible for analysis.

2.2. Intervention

The Safewards model is a British model that aims to reduce the use of coercion in psychiatric inpatient wards. The Safewards model summarizes factors influencing conflict and containment rates and proposes ten concrete interventions aiming to improve the relationship between staff and patients to reduce the frequency of conflicts and use of coercion in psychiatric wards (Bowers et al., 2015). The ten interventions are as follows (Norvoll, 2006): Clarifying expectations between staff and patients (Clear Mutual Expectations) (Langsrud et al., 2007), The staff's use of respectful and friendly formulations for the patients (Soft

Words) (Bowers, 2014), de-escalation in everyday practice (Talk Down) (Luciano et al., 2014), a requirement that the staff says something good about each patient at nursing shift handover (Positive Words) (Kalisova et al., 2014), when the staff have to give the patient bad news it should be in a caring, empathetic and acknowledging manner (Bad News Mitigation) (Steinert and Lepping, 2009), the staff must be involved in dialogue with the patients about who they are, so they can know each other (Know Each Other) (Bak and Aggernaes, 2012), Daily meetings between patients and the staff (Mutual Help Meeting) (Sundhedsstyrelsen. Monito, 2017), a crate of distraction and sensory modulation tools that the staff can use with agitated patients (Calm Down Methods) (Bak et al., 2012), If there has been a violent episode on the department, the staff holds a meeting with all patients (Reassurance) and (Gaskin et al., 2007) When the patient is discharged he/she will be asked if they want to write a message to newly arrived patients to give hope and believe that everything is getting better. (Discharge Messages). Full descriptions of these interventions are available at www.safewards.net.

The Safewards model was continuously implemented in the adult psychiatric inpatient units in the Region of Southern Denmark beginning in 2015. The implementation strategy included meetings with local unit management and the project manager responsible for the implementation, designation of local key persons responsible for the ongoing implementation of the interventions in each psychiatric inpatient unit and regional networking events for staff with inspiration and knowledge sharing on the use of Safewards.

All adult psychiatric wards in the region of Southern Denmark were contacted to confirm the time of implementation of the Safewards Model. Due to different dates of implementation at the psychiatric units a common cut-point for the implementation of the Safewards model was made. The cut-point was set in the quarterly time interval where 15 wards (63%) (one unit or more at every ward) had started the implementation.

2.3. Outcome

The frequency of coercive measures was used as the outcome of the analysis. Mechanical restraint and forced sedation are the most frequently used types of coercive measures in Danish psychiatry (Årflig). On this basis three outcomes of coercive measures were analyzed: overall use of coercive measures, mechanical restraint and forced sedation. Seclusion is not permitted under Danish law.

Coercive measures which could not be affected by the implementation of Safewards Model of natural courses were excluded from the analysis including involuntary hospitalization and protective measures.

Coercive measures commenced before the cut-point of the Safewards model (pre-implementation period) were categorized as unexposed. Coercive measures commenced after cut-point of the Safewards model (post-implementation period) were categorized as exposed.

2.4. Statistical analysis

Interrupted Time Series (ITS) analysis was used to compare the frequency of coercive measures before and after implementation of the Safewards model. The ITS-analysis uses time-series (a continuous sequence of observations on a population-level taken repeatedly at equal intervals over time) for a specific outcome to establish an underlying trend which is "interrupted" by an intervention at a specific point of time. The analysis is based on the hypothetical situation where the intervention did not take place and the expected trend in the absence of the intervention given the pre-existing trend creates a counterfactual scenario. Hereby the model provides a comparison for evaluation of the impact of the intervention in the post intervention period (Lopez Bernal et al., 2016).

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