DISSERTATION

Coercive measures in psychiatry

Predictors and times of use

Zwangsmaßnahmen in der Psychiatrie

Prädiktoren und Zeitpunkte der Anwendung

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CM   Coercive measures

PUK SHK   Psychiatrisches Universitätskrankenhaus der Charité im St. Hedwig Krankenhaus

UN CRPD   United Nations Declaration on the Rights of Persons with Disabilities

WHO   World Health Organization

Abstract

Coercive measures and involuntary admissions severely restrict patients' fundamental rights and may lead to different negative consequences for patients and staff. Yet, they remain regularly used interventions in psychiatry. The body of research surrounding coercive measures shows that different factors influence their use in psychiatric care including certain clinical, treatment and admission-related factors. Furthermore, past research suggests that the acute admission situation and mental health crisis intervention are times where patients are at a high risk of experiencing coercive measures. The studies presented in this dissertation aim at contributing to a better understanding of predictors and times of use of coercive measures in psychiatry. In a sample of N = 1556 cases, the first study by Cole & Klotz et al. (2022) examines the association between patients' communication ability at admission (perfect; limited due to language or other reasons; impossible due to language or other reasons) and the use of coercive measures and involuntary admissions to psychiatric care. Controlling for potentially confounding variables, the results show a significant association between limited or impossible communication ability due to language or other reasons and involuntary admission. Furthermore, limited communication ability due to language as well as limited and impossible communication ability due to other reasons were found to be significant predictors for the use of coercive measures.

The second study by Cole et al. (2023) focusses on the times of use of coercive measures in psychiatry and examined in detail the times during which patients are at highest risk of experiencing coercive measures and whether certain patient characteristics can serve as predictors for coercive measures depending on their time of use during hospitalization. The results show that patients are at highest risk of experiencing coercion within the first hours of hospitalization and acute intoxication, aggression, male gender, and limited communication ability are significantly associated with the earlier use of coercion.

The results of both studies suggest that when it comes to the prevention of coercive measures and involuntary treatment, a stronger focus needs to be placed on the acute admission situation and on implementing targeted interventions for the patient groups identified to be at highest risk of experiencing coercion and involuntary hospitalization. Practical implications and derived interventions are discussed.

Zusammenfassung

Zwangsmaßnahmen und unfreiwillige Unterbringungen in psychiatrische Kliniken stellen eine Einschränkung verschiedener Grundrechte von Patient*innen dar und führen zu unterschiedlichen negativen Folgen für Patient*innen und Personal. Dennoch werden sie nach wie vor regelmäßig in der Psychiatrie eingesetzt. Die bisherige Forschung zu Zwangsmaßnahmen zeigt, dass verschiedene Faktoren ihren Einsatz in der psychiatrischen Versorgung beeinflussen, darunter bestimmte klinische, behandlungs- und aufnahmebezogene Faktoren. Darüber hinaus deuten frühere Forschungsergebnisse darauf hin, dass Patient*innen in der akuten Aufnahmesituation und während der psychiatrischen Krisenintervention einem hohen Risiko ausgesetzt sind, Zwangsmaßnahmen zu erfahren. Die in dieser Dissertation eingebundenen Studien sollen zu einem besseren Verständnis von Prädiktoren und Einsatzzeiten von Zwangsmaßnahmen in der Psychiatrie beitragen. Die erste Studie von Cole & Klotz et al. (2022) untersucht in einer Stichprobe von N = 1556 Fällen den Zusammenhang zwischen der Kommunikationsfähigkeit von Patient*innen bei Aufnahme (perfekt; aus sprachlichen oder anderen Gründen eingeschränkt; aus sprachlichen oder anderen Gründen unmöglich) und dem Einsatz von Zwangsmaßnahmen und unfreiwilligen Einweisungen. Unter Kontrolle potenziell konfundierender Variablen zeigen die Ergebnisse einen signifikanten Zusammenhang zwischen eingeschränkter oder unmöglicher Kommunikation aufgrund von Sprachbarrieren oder anderen krankheitsbezogenen Gründen und unfreiwilliger Aufnahme. Darüber hinaus erwiesen sich eine eingeschränkte Kommunikation aufgrund von Sprachbarriere sowie eine eingeschränkte oder unmögliche Kommunikation aufgrund anderer Gründe als signifikante Prädiktoren für den Einsatz von Zwangsmaßnahmen.

Die zweite Studie von Cole et al. (2023) konzentriert sich auf die Zeitpunkte des Einsatzes von Zwangsmaßnahmen in der Psychiatrie und untersucht detailliert, zu welchen Zeitpunkten das Risiko Zwangsmaßnahmen zu erfahren für Patient*innen am höchsten ist. Weiterhin wird untersucht, ob bestimmte Patientencharakteristika je nach Einsatzzeitpunkt als Prädiktoren für Zwangsmaßnahmen identifiziert werden können. Die Ergebnisse zeigen, dass innerhalb der ersten Stunden nach Aufnahme das Risiko Zwang zu erfahren am höchsten ist und dass akute Intoxikation, Aggressivität, männliches

Geschlecht und eingeschränkte Kommunikationsfähigkeit signifikant mit der zeitlich früheren Anwendung von Zwang assoziiert sind.

Die Ergebnisse beider Studien legen nahe, dass bei der Prävention von Zwangsmaßnahmen und unfreiwilligen Unterbringungen ein stärkerer Fokus auf die akute Aufnahmesituation und auf die Entwicklung und Implementierung zielgerichteter Interventionen für Patientengruppen mit dem höchsten Risiko für Zwangsmaßnahmen gelegt werden sollte. Implikationen für die klinische Praxis und abgeleitete Interventionen werden diskutiert.

1. Introduction

1.1. Coercive measures in psychiatry: background and current developments

Coercive measures in psychiatric care can be defined as "any measure applied against the patient's will or in spite of his or her opposition" (Chieze et al., 2021) and include restraint, seclusion, forced medication and involuntary hospitalization. In many countries worldwide, including most European countries, the use of coercive measures is strictly regulated by national laws, only allowing their application as a last resort if all other alternatives have been exhausted and only if there is imminent danger to the self or others (DGPPN, 2014; Hirsch & Steinert, 2019). Nonetheless, the legitimacy of using coercive measures in psychiatric care remains one of the most controversial issues among policy makers, practitioners, and the scientific community in the field of psychiatry to date. Not least because any coercive measure that is applied severely infringes on different fundamental human rights set forth in the Universal Declaration of Human Rights (1948), the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD) (2006) and the national constitutional laws of many countries. These include the rights to legal capacity, autonomy, liberty and security of the person and freedom of movement (Chieze et al., 2021). Particularly since the adoption of the UN CRPD in 2006 and its ratification by 185 member states to date, countries worldwide are under the obligation to implement alternatives to coercion, ensure that the rights of persons with mental health conditions or psychosocial disabilities are respected and that national mental health policies and laws are fully aligned with international human rights standards. There is ongoing debate between different stakeholders including international bodies such as the World Health Organization (WHO), practitioners, policy makers and psychiatric associations about if and how this ambitious vision can be achieved, and controversial opinions exist on whether it is ethically justifiable to completely eliminate the use of coercion.

In addition to international human rights standards demanding the implementation of alternatives to coercion, the body of research surrounding coercive measures, their use and clinical outcomes also shows that coercion can lead to severe adverse effects for both patients and staff in psychiatric settings and thus further emphasizes the importance of preventing coercive measures in clinical practice. For patients these negative effects

include higher levels of shame and self-stigma after having experienced coercion leading to lower levels of treatment satisfaction, poor recovery outcomes and an overall lower life satisfaction (Link, Castille, & Stuber, 2008; Rüsch et al., 2014; Xu et al., 2019). Furthermore, the experience of coercion has been associated with high levels of emotional distress and symptoms of post-traumatic stress (Fugger at al., 2016; Frueh et al., 2005; Sailas & Fenton, 2000). In addition to these negative consequences for patients, staff also report experiencing high levels of distress and emotional strain after administering a coercive measure (Moran et al., 2009) and that using these interventions contradicts their role as caregivers (Theodoridou et al., 2012). Furthermore, although a few studies indicate that the use of coercive measures can reduce the severity of symptoms, a comprehensive review by Luciano et al. (2014) emphasizes that coercive measure only have limited impact on clinical and social outcomes and that the negative effects of coercion on patients clearly outweigh the potential benefits. These findings stress the need for scaling up efforts to prevent coercive measures and implement alternatives to these interventions in clinical practice. In this regard it is crucially important to thoroughly understand the reasons and underlying factors for the use of coercion as well as the specific times during treatment when these measures are most frequently used. This way, interventions could be specifically tailored to address these factors and prevent coercion efficiently and successfully going forward.

1.2. Reasons and predictors of coercive measures

Past research shows that a multitude of different factors can have an impact on the use of coercive measures on psychiatric units. These include structural and institutional, interpersonal, attitudinal as well as patient-level factors such as clinical, sociodemographic, and admission-related characteristics (Bowers et al., 2010; Vandamme et al., 2021; Cole et al., 2020; Steinert et al., 2007; Suen et al., 2006).
On the structural level, overcrowding on the unit, lack of privacy, bigger institutions with high numbers of patients as well as a low staff to patient ratio have been found to increase the likelihood of conflict and aggression and hence the risk for coercive measures (van der Schaaf et al., 2013; Lang et al., 2016; Nienaber et al., 2018; Mielau et al., 2017). Furthermore, the risk of seclusion and restraint has been found to be higher on units where more involuntarily hospitalized patients are treated (Bowers et al., 2009).

On an interpersonal level, studies examining patient perspectives on causes of coercive measures describe the interpersonal dynamics between staff and patients as well as the therapeutic relationship as important perceived contributing factors (Papadopoulos et al., 2012; Whittington & Richter, 2006).

The few studies examining the association between staff attitudes towards coercion and the frequency of use of these measures further indicate that a more positive attitude and higher acceptance towards using coercion is significantly associated with a higher number of coercive measures (Khalil et al., 2017; Özcen et al., 2015). While the studies by Khalil et al. (2017) and Özcen et al. (2015) are based on self-report methods only and thus potentially affected by social-desirability bias, a recent study by Vandamme et al. (2021) examined both explicit and implicit staff attitudes towards coercion and their association with rates of coercive measures. However, in this study no significant association between either explicit or implicit attitudes and numbers of seclusion and restraint was found.

On the individual patient level, different sociodemographic, clinical, and admission-related characteristics were found to be significantly associated with the use of coercive measures. However, as concluded in a systematic review by Sailas and Fenton (2000), the studies on patient level characteristics potentially serving as predictors for coercive measures yield ambiguous results and characteristics found to be significantly associated with coercion differ widely between studies. Among the admission-related variables, involuntary admission, referral by the police and aggressive behavior prior to admission have been found to be significant predictors for experiencing coercive measures in numerous studies (Cole et al., 2020; Knutzen et al., 2011; Maharaj and Andrew, 2011; Georgieva et al., 2012; Tunde-Ayinmode and Little, 2004). Some research further suggests that certain diagnoses including psychotic disorders, bipolar disorder and substance use disorders can be associated with a higher risk of experiencing coercion (Beghi et al., 2013; Flammer et al., 2013; Knutzen et al., 2011; Hendryx et al., 2009). However, other studies into the subject matter could not find significant associations between these diagnoses and the use of coercive measures (El-Badri & Mellsop, 2002; Cole et al., 2020).

Among the sociodemographic patient characteristics, younger age and male gender have repeatedly been associated with a higher risk for coercive measures (Cole et al., 2020; Knutzen et al., 2014; Beghi et al., 2013; Georgieva et al., 2012; Knutzen et al., 2011;

Keski-Valkama et al., 2010). Other studies have found that patients with a migration background more often experience coercive measures and involuntary hospitalization compared with native populations (Norredam et al., 2010; Norredam, Kastrup & Helweg-Larsen, 2011). One important factor that has not yet been included in past research into the subject matter is the impact of communication ability on the use of coercive measures. The medical field in general, but particularly psychiatric care strongly relies on effective communication between clinicians and patients for exploring a patient's experience of their symptoms and condition and gaining an understanding of their personal reality, background and biography which forms the basis for a strong therapeutic relationship and finding the right treatment option for that individual (Riedl & Schüßler, 2017). Furthermore, in the context of acute and emergency psychiatric care and crisis intervention where clinicians are oftentimes faced with patients exhibiting agitated and/or verbally or physically aggressive behaviors, a lack of effective communication between clinician and patient can undermine efforts to verbally de-escalate a tense situation and potentially lead to violent escalations (Lavelle et al., 2016). This, in turn, could increase the risk of resorting to coercive measures more easily in these situations.

1.3. Times of use of coercive measures

One other factor that has not been extensively studied to date is the time of use of coercive measures during psychiatric inpatient treatment. The limited number of studies that included an analysis of the times during which coercion most frequently occurs suggest that most seclusion and restraint is used during the first days of hospitalization (Kirkpatrick, 1989; El-Badri & Mellsop, 2002; Binder, 2006; Georgieva et al., 2012; Lorenzo, 2014). A recent study by Cole et al. (2020) further found that patients are at highest risk of experiencing coercive measures within the first 24 hours of hospitalization. In this study, 81.2% of patients who were subjected to coercion during hospitalization, experienced a coercive measure within the first 24 hours after admission and notably, 56.9% of those affected did not experience any coercive measure after this timeframe. These results highlight that the time of use of coercive measures in psychiatry is an important factor to take into consideration for further research and preventative interventions in this area. A critical question that arises in this regard and that has not been analyzed in any previous studies is whether there is an association between certain

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patient characteristics and an earlier use of coercive measures. Observations from clinical practice indicate that acutely intoxicated persons as well as those who show aggressive behavior prior to admission to acute psychiatric care are often subjected to coercion early on, i.e. during or shortly after admission (Cole et al., 2023).

1.4. Efforts to prevent coercive measures

In addition to research on reasons and predictors, increasing scholarly and political attention and commitment has been directed towards researching different aspects contributing to prevention and reduced levels of coercion on psychiatric units. Factors identified in this regard include room for privacy on the unit (van der Schaaf et al., 2013), comfort rooms or multisensory rooms (Champagne & Stromberg, 2004; Champagne & Sayer, 2003; Gooding et al., 2018), spacious facilities (Dresler et al., 2015) and open-door policies (Cibis et al., 2017) as well as specific interventions such as thorough de-escalation and aggression management trainings for all staff (Hirsch & Steinert, 2019) and the development of joint crisis plans and advance directives. These plans and directives are developed by patients and members of staff to determine preferred modalities for future psychiatric treatments including individualized strategies on how to prevent coercive measures going forward (Steinert & Hirsch, 2020; de Jong et al., 2016). Several empirical studies have found that the number of involuntary hospitalizations and coercive measures including seclusion and restraint were significantly reduced for patients who had an advance directive in place (Henderson et al., 2004; Swanson et al., 2008) and that developing a crisis plan or advance directive can increase trust and lead to an improved therapeutic relationship (Dietz, 1998; Steinert & Hirsch, 2020). Developing a crisis plan or advance directive can be integrated into a standardized post-coercion debriefing where the affected patient together with a member of staff and a neutral moderator reflect on the situation leading to the coercive measure, on what could have been done differently to prevent coercion and on what should be done differently in the future to prevent coercion (Mahler, Wullschleger & Oster, 2022; Steinert & Hirsch, 2020; Steinert & Hirsch, 2019). Research on standardized post-coercion debriefings shows that they are perceived as helpful by patients and staff and lead to a strengthened therapeutic relationship. Furthermore, the debriefings were found to prevent the development of

symptoms of post-traumatic stress in patients after receiving a coercive measure (Mahler, Wullschleger & Oster, 2022; Wullschleger et al., 2020).

Other studies by Aberhalden et al. (2008) and van de Sande et al. (2011) showed that using instruments for structured risk assessment such as the Brøset Violence Checklist (Almvik, Woods & Rasmussen, 2000) on psychiatric units can lead to decreased numbers of seclusion and restraint and a decreased cumulative duration of these measures and therefore are promising tools to prevent coercion in psychiatry inpatient care.

German national guidelines for the prevention of seclusion and restraint furthermore recommend strengthening peer support work in psychiatric settings although there is no empirical evidence to date explicitly linking peer support with decreased numbers of coercive measures on psychiatric inpatient units (Steinert & Hirsch, 2019). Nonetheless there is broad consensus among practitioners, academics, and other relevant stakeholders that peer support is a valuable asset to psychiatric care that could potentially lead to reduced levels of coercion and several studies have found that the presence of peer support workers can have a positive impact for both patients and staff. Patients working with peer supporters for example report higher levels of hope, motivation, self-esteem and social connections and experience peer support as helpful for their recovery and in de-stigmatizing mental health conditions (Walker & Bryant, 2013; Mahlke et al., 2014). Staff members report an increased empathy and greater sense of understanding toward patients as a result of engaging with peer support workers on their unit (Walker & Bryant, 2013). While these results are promising, an influence of peer support work on reduced levels of aggressive incidents and coercive measures on psychiatric units can only be assumed and is yet to be proven by future research.

The fact that such a myriad of different factors can contribute to the prevention of coercion highlights the complexity of the issue at hand and shows that it is paramount to tackle the prevention of coercive measures from different angles to sustainably and effectively achieve a reduction in clinical practice. In this regard, the recent years have seen the development of different innovative concepts of psychiatric care combining several interventions into complex, holistic and person-centred models of psychiatric care. These include the Weddinger Modell (Mahler et al., 2013), Safewards (Bowers et al., 2015) and the Six Core Strategies (Huckshorn, 2006). Key components of these complex, multimodal interventions include changing attitudes and mindsets of staff towards a more participatory and recovery-oriented approach to psychiatric care and aiming to prevent

incidents of aggression and coercive measures on psychiatric inpatient units. Studies evaluating the implementation of these models in Europe and the United States have already shown promising results regarding the reduction of frequency and duration of different forms of coercion to an absolute minimum (Czernin et al., 2021; Czernin et al., 2020; Bowers et al., 2015; Baumgardt et al., 2019; Guzman-Parra et al., 2016; Wieman et al., 2014; Riahi et al., 2016).

However, despite these hopeful developments, coercive measures remain routinely used interventions in psychiatry in most countries worldwide (World Health Organization, 2021; Mahomed et al., 2018) raising the question of what can further be done to prevent coercion. Considering the past research results around times of use of coercion and the fact that patients seem to be at a higher risk of experiencing coercion early on during hospitalization, a stronger focus should be placed on starting preventative efforts against coercive measures not only when patients are already treated on a psychiatric unit but already before hospitalization and during acute mental health crisis intervention and admission. Explicitly focusing on this critical time where coercion is often used could potentially lead to a further reduction of coercive measures in psychiatric care.

1.5. Scope and aim of this research

The studies included in this dissertation aim to contribute to the body of research around predictors and the time of use of coercive measures in psychiatric inpatient treatment. The first study *'Patient communication ability as predictor of involuntary admission and coercive measures in psychiatric inpatient treatment'* by Cole & Klotz et al. (2022) focusses on examining the association between communication ability at admission and the use of coercive measures and involuntary admission. As discussed above, this variable has not yet been taken into account in previous studies on predictors of coercive measures although it is of crucial importance for understanding the dynamics between patients and staff that could lead to the use of coercion. For this study, the authors hypothesized that patients who are impaired in their ability to communicate during admission, i.e. where an exploration of symptoms or case history is limited or impossible, are at a higher risk of experiencing involuntary admission and coercive measures.

The second study *'Coercive measures in psychiatry – When do they occur and who is at risk?'* by Cole et al. (2023) aims to replicate and build on the results by Cole et al. (2020)

and focusses on the times of use of coercion and on predictors of coercion depending on the time of use. It examines the critical question of whether certain patient characteristics could specifically predict coercive measures depending on the time of use. For this study, it was hypothesized that the risk of experiencing any CM is highest within the first 24 hours of hospitalization and that certain patient and admission-related variables are associated with a higher risk of experiencing coercion early on during hospitalization.

2. Method

2.1. Study design and data collection

Both studies included in this dissertation are quantitative, cross-sectional, retrospective studies and were conducted at the Department of Psychiatry of the Charité at St. Hedwig Hospital (PUK SHK) in Berlin, Germany, a hospital with an urban catchment area comprising approximately 389.000 inhabitants (Amt für Statistik Berlin-Brandenburg, 2023). The same dataset was used for both studies. To compile the dataset, data was retrospectively gathered from medical records using the hospital's digital clinical documentation system (ORBIS KIS) and coded using a data collection form specifically created for the purpose of the studies. All cases admitted via the emergency department at PUK SHK and subsequently treated on one of the hospital's three general psychiatric units and the substance use unit in the year of 2019 were included in the dataset. When an individual accounted for multiple admissions during the study period, each admission was counted as a separate case.

The data collected for each case included sociodemographic characteristics, clinical- and admission related data and data on the use of coercive measures. Sociodemographic characteristics gathered in the dataset include gender (male/female/other), age, nationality, migration background (yes/no), living situation (alone/cohabiting/homeless/other), and job status (employed or in education/jobless or job-seeking/retired). The clinical variables in the dataset comprise main diagnoses (F-Code) and indication of acute intoxication (yes/no).

Communication ability at admission, the main independent variable of Study 1, was defined as "a patient's ability or willingness to communicate with hospital staff at time of

admission, either due to language barriers or to other factors" (Cole & Klotz et al., 2022). Other factors included illness-related reasons such as mutism or sub-mutism as a consequence of a psychiatric condition. The variable was coded using the standard categories documented in each patient's medical record by the physician taking the case history at admission. The following categories were used: perfect, limited due to language, impossible due to language, limited due to other reasons, impossible due to other reasons. If the communication ability was unclearly documented in the medical record, the research team discussed and deliberated on the case and a decision on how to code the specific case was jointly made.

The admission-related data further include the mode of referral to the hospital (police/emergency services/alone/family or friends/legal guardian), the reason for referral to the hospital (general mental health problems/suicidal thoughts or self-harm/suicide attempt/danger to self/physical or verbal aggression against persons or objects/disorganization or helplessness/exhibitionism), and voluntary vs. involuntary admission. It was furthermore coded in the dataset whether a case was subjected to a coercive measure (seclusion or mechanical restraint) during hospitalization and the exact times and duration of these measures during the course of hospitalization. The use of chemical restraints was not coded in the dataset for the studies as these are not digitally documented in patients' medical records.

2.2. Ethics

Permission for both studies including for the retrospective data collection and subsequent data analysis was obtained prior to the study by the Ethical Committee of Charité Berlin (EA1/153/21).

2.3. Definitions of coercive measures

For the purpose of both studies, the following definitions of coercive measures and involuntary admission were used: coercive measures as coded in the dataset for this study include (a) seclusion – the isolation of a person in a designated locked isolation room in which the person can move freely. The isolation room is under constant supervision by unit staff through a glass window; and b) restraint – the mechanical restraint of a person by restricting their freedom of movement using special straps to

fixate them to their bed. A patient in restraints is continuously supervised by a designated 1:1 supervisor during the entire duration of the measure.

In Germany there exist different legal provisions under which a person can be admitted to psychiatric inpatient treatment against their will. Firstly, involuntary admissions can be initiated by court order under the Mental Health Law of the State of Berlin (§§ 15-41 Berliner PsychKG) in case of imminent danger to self or others and as a "last resort" if all other treatment options are considered insufficient. Secondly, involuntary admission of a person under legal guardianship according to §1814 of the German Civil Code (Bürgerliches Gesetzbuch (BGB)) can be initiated by the legal guardian after consultation with a medical professional.

2.4. Statistical Analyses

All statistical analyses for both studies were performed using Microsoft Excel for Mac (Version 16.3) and R Version 3.6.1.

2.4.1. Study 1 (Cole & Klotz et al., 2022)

In addition to descriptive statistical analyses comparing patients with differing communication abilities at admission regarding sociodemographic, clinical, and admission-related variables, multivariate associations between communication ability, the use of coercive measures, and involuntary admission were calculated using logistic regression analyses. Logistic regression analyses are used to determine the unique predictive power of the independent variable(s) and other potentially confounding variables on the dependent variable(s). In the case of Study 1, this type of analysis was used to identify whether the independent variable *communication ability* is significantly associated with the dependent variables *use of coercive measures* and *involuntary admission*. The p-value for this study was set to $p < 0.05$.

2.4.2. Study 2 (Cole et al., 2023)

As a first step, descriptive statistical analyses were calculated to identify the numbers and percentages of cases in the sample who experienced any coercive measure during hospitalization and, more specifically, the numbers and percentages of cases who were

subjected to a coercive measure within the first 24 hours after admission. Secondly, a Cox regression model was used to identify whether certain patient characteristics can be associated with a higher risk of experiencing coercive measures during treatment and, further, whether certain characteristics can serve as predictors for the earlier use of coercive measures during hospitalization. Cox regression analyses are based on an estimation of hazard ratios (HRs) and are used to identifying the effect of different variables on the time an event takes to happen. An HR >1 indicates that a certain variable increases the risk and shortens the time to the onset of the event. An HR < 1 indicates a lower risk and longer time to onset of the event. In the case of our study, the model was therefore used to predict which patient characteristics can be associated with a higher risk of coercive measures and a shorter time to onset of a coercive measure. A variable with an HR > 1 indicates an increased risk and shorter time to onset of a coercive measure, a variable with an HR < 1 indicates the opposite. The multivariable prediction model used in this study included different sociodemographic, clinical and admission-related characteristics (age, gender, communication ability, repeated admission, acute intoxication at time of admission, aggression prior to admission, and diagnosis of psychosis or mania) with the time to onset of a coercive measure as outcome variable. In addition to the Cox regression model, Kaplan-Meier survival curves were used to graphically display the onset of coercive measures after admission. The p-value for this study was set to p<0.05.

3. Results

3.1. Sample population

During the study period of 2019, a total of 1091 persons were admitted via the psychiatric emergency room at PUK SHK. These 1091 individuals accounted for 1556 cases due to multiple admissions of some patients during the study period. All 1556 cases were included in the statistical analyses of both studies. A detailed overview of the distribution of all sociodemographic, clinical, and admission-related variables among the sample population is provided in Table 1 (modified after Cole et al., 2023).

Table 1. Sample characteristics (N = 1556) (modified after Cole et al., 2023).

	n	%
Sociodemographic characteristics		
Male	983	63.2 %
Female	573	36.8 %
Age (M(SD))	41.5 (14.2)	
German nationality	1307	83.9 %
Migration background	742	48.1 %
Living situation[a]		
Alone	582	38.3 %
Cohabiting	466	30.6 %
Homeless	262	17.1 %
Other	214	13.9 %
Employment status[a]		
Employed/in education	338	22.5 %
Jobless/job-seeking	927	61.7 %
Retired	238	15.8 %
Communication ability at admission		
Perfect	1085	70%
Limited due to language	45	3%
Limited due to other reasons	291	19%
Not possible due to language	28	2%
Not possible due to other reasons	107	7%
Clinical and admission-related characteristics		
Involuntary admission	363	23.2%
Acute intoxication	462	29.7%
Coercive measures	261	16.8%
Main diagnosis		
F1 – 19 (substance use disorders)	572	36.7%
F2 – 29 (psychotic disorders)	483	31.0%
Other	501	32.2%
Presentation at emergency room		
Police	483	31.0%
Alone	473	30.4%
Emergency services	371	23.8%

Family/Friends	216	13.9%
Legal guardian	13	0.8%
Reason for referral		
General mental health problems	581	37.3%
Suicidal thoughts or self-harm	349	22.4%
Physical or verbal aggression against persons or objects	297	19.0%
Disorganization/Helplessness	164	10.5%
Suicide attempt	83	5.3%
Danger to self	78	5.0%
Exhibitionism	10	0.6%
Treatment length in days (M(SD))	19 (30.7)	

[a] For this variable data was missing for some cases

3.2. Study 1 (Cole & Klotz et al., 2022)

In the majority of cases included in the study sample, patients were able and willing to communicate, and an exploration of psychiatric symptoms and case history was possible (n = 1085; 70%). In n = 291 cases (19%) communication was limited due to other reasons other than language barriers and in n = 45 cases (3%), communication was limited due to language. Communication and exploration were not possible due to reasons other than language in 107 cases (7%) and due to language barriers in 28 cases (2%).

A total of n = 363 cases (23%) were admitted involuntarily during the study period and n = 261 cases (16.8%) experienced at least one coercive measure during hospitalization. The results of the logistic regression analysis performed for Study 1, controlling for all possibly confounding sociodemographic and clinical variables, confirmed the hypothesis that an impairment in communication ability is significantly associated with involuntary admission. Patients who exhibited a limited communication ability due to language barriers (OR = 3.08; 95% CI [1.41, 6.46]; p = .004) or other reasons (OR = 3.10; 95% CI [2.20, 4.37]; p = .003) had a significantly higher risk of being admitted to psychiatric inpatient treatment involuntarily. Equally, an increased risk of involuntary hospitalization was found for individuals with whom communication was entirely impossible due to language barriers (OR = 4.02; 95% CI [1.57, 9.94]; p = .003) or other reasons (OR =

13.71; 95% CI [8.10, 24.04]; p <.000). The hypothesis regarding the significant association of limited or impossible communication ability with the use of coercive measures was partly confirmed. Controlling for all other variables, both limited communication ability due to language (OR = 4.53; 95% CI [1.98, 10.01]; p = .000) and other reasons (OR = 1.58; 95% CI [1.03, 2.41]; p = .034) were significantly associated with an increased risk for coercive measures, i.e. seclusion or restraint. Furthermore, the results show a significantly elevated risk of experiencing coercion for patients with no communication ability due to reasons other than language barriers (OR = 3.55; 95% CI [1.98, 6.40]; p < .000). In contradiction to the study's hypothesis, no significant association was found between a higher risk for coercive measures and no communication ability due language barriers (OR = 1.88; 95% CI [0.58, 5.88]; p = .286).

3.3. Study 2 (Cole et al., 2023)

The descriptive analyses calculated for Study 2, show that coercive measures were used in n = 261 cases (16.8%) of the study population. 71.6% of these cases (n = 187) experienced a coercive measure within the first 24 hours of hospitalization and, remarkably, 54.4% (n = 142) of cases did not receive any coercive measure after this timeframe. The Kaplan-Meier survival curves (Figures 1 - 3) illustrate for any given point in time post-admission the share of cases who have not yet experienced a coercive measure yet. Figure 1 shows this distribution for the whole sub-sample of cases who experienced any coercive measure during the study period and clearly demonstrates that most patients experience coercion for the first time during the first five hours after admission to the hospital. In addition, marked differences were found for cases who were or were not acutely intoxicated at the time of admission and cases who have or have not exhibited aggressive behavior prior to admission. As illustrated in Figures 2 and 3, acutely intoxicated cases as well as cases showing aggressive behavior are subjected to coercive measures significantly earlier during hospitalization than the rest of the sub-sample.

The results of the Cox regression model calculated to determine the association between the different independent variables and the time to onset of a coercive measure as outcome are depicted in Table 2 (from Cole et al., 2023). Acute intoxication (HR = 1.47;

95% CI [1.07, 2.02]; p = .02), male gender (HR = 1.57; 95% CI [1.18, 2.09]; p = .002), aggression prior to admission (HR = 1.37; 95% CI [1.05, 1.78]; p = .02), and limited (HR = 1.54; 95% CI [1.14, 2.07]; p = .005), or no (HR = 1.37; 95% CI [1.06, 1.68]; p = .04) communication ability show,   an HR > 1 and thus indicate that these variables are significantly associated with a higher risk of experiencing CM in general during treatment and, additionally, can serve as predictors for an early onset of coercive measures after admission.

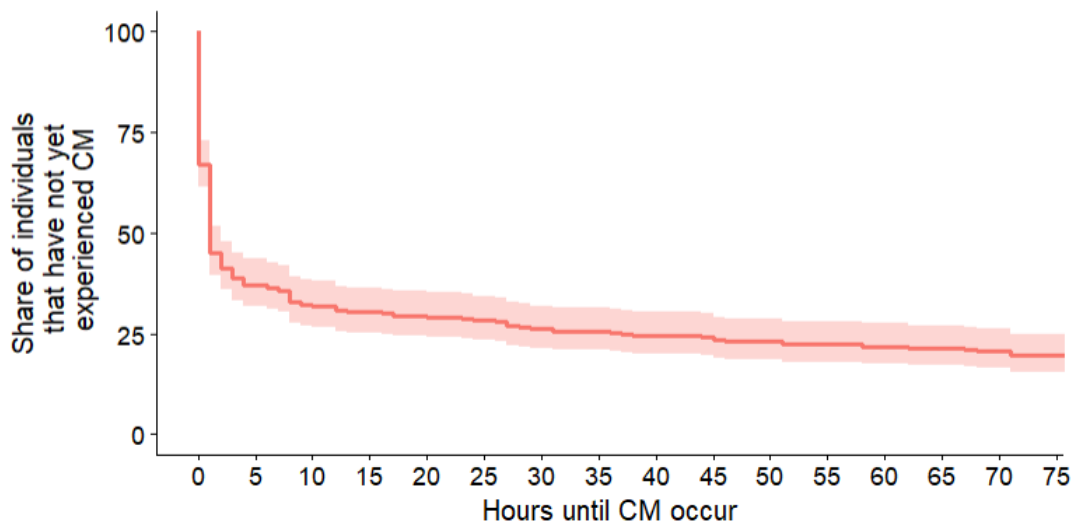
Figure 1. Kaplan-Meier survival curve for cases who experienced CM (N = 261)
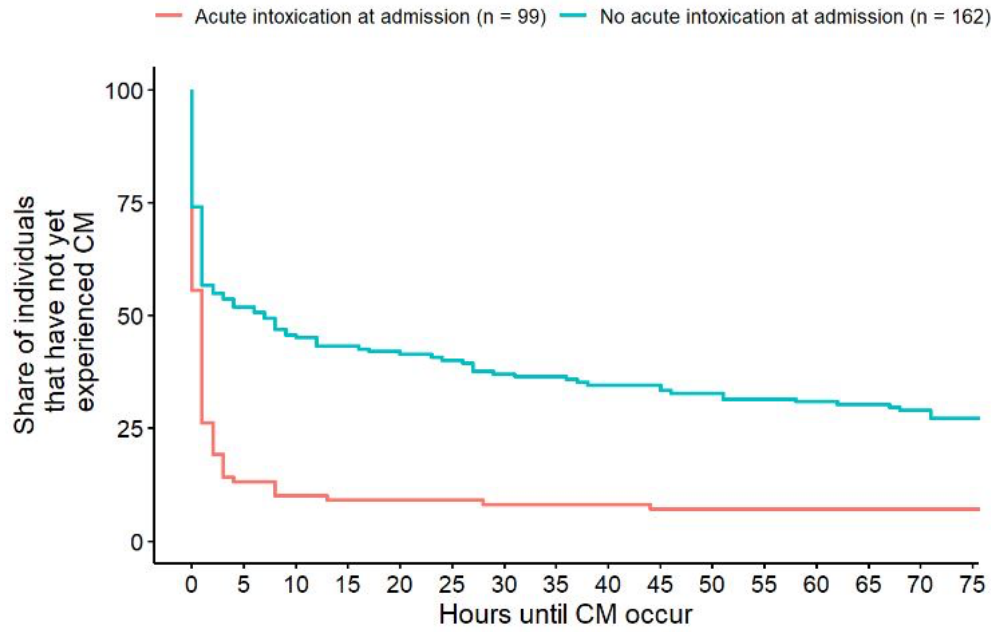
(from Cole et al., 2023).

Figure 2. Kaplan-Meier survival curve for cases with and without acute intoxication who experienced CM
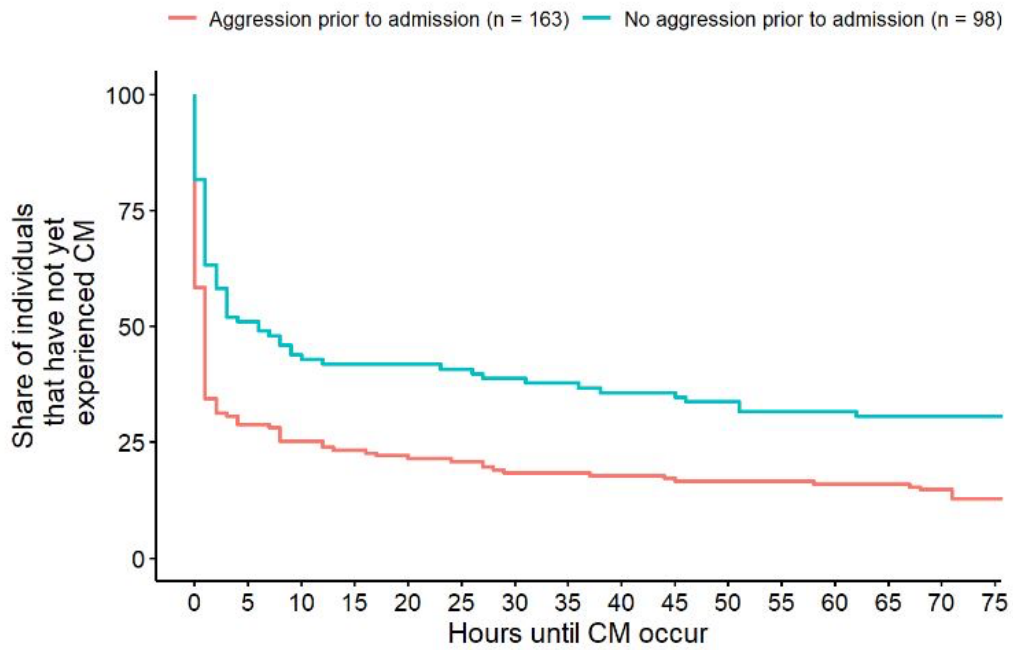
(from Cole et al., 2023).

Figure 3. Kaplan-Meier survival curve for patients with and without aggressive behavior prior to admission who experienced CM

(from Cole et al., 2023).

Table 2. Cox regression model for risk of CM generally and early during hospitalization (modified after Cole et al., 2023).

	Hazard ratios (Exp(B)) for the use of CM (95% CIs in brackets)	Regression coefficients (B) for the use of CM (95% CIs in brackets)	Exact p-values
Acute intoxication at admission	1.470* (1.068; 2.023)	0.385 (0.066; 0.705)	.018
Age	0.995 (0.985; 1.006)	-0.005 (-0.015; 0.006)	.036
Male gender	1.568** (1.178; 2.087)	0.450 (0.163; 0.736)	.002
Psychotic syndrome	0.637** (0.473; 0.857)	-0.451 (-0.748; -0.155)	.003
Manic syndrome	1.120 (0.819; 1.531)	0.113 (-0.2; 0.426)	.478
Aggression prior to admission	1.371* (1.045; 1.799)	0.316 (0.044; 0.587)	.023
Limited communication ability at admission	1.538** (1.141; 2.072)	0.430 (0.132; 0.728)	.005
No communication ability at admission	1.372* (1.063; 1.677)	0.317 (0.048; 0.612)	.043
Patient known to the hospital	0.996 (0.768; 1.293)	-0.004 (-0.264; 0.257)	.978
Observations		261	
Log Likelihood		-1,155.826	

Note: *p<.05; **p<.01; ***p<.001; The models include dummies for the four wards included in the sample, to remove any unobserved heterogeneity in the use of CM between wards.

4. Discussion

4.1. Summary and interpretation of results

4.1.1. Communication ability and coercive measures

The outcomes of Cole & Klotz et al. (2022) show that communication ability is significantly linked with the risk of involuntary admission and the experience of coercive measures. In line with the hypotheses, the results show that individuals with limited or no communication ability at admission, either due to language barriers or other, illness related factors, were at a higher risk of involuntary admission to psychiatric inpatient treatment. As mentioned above, the admission of a person to psychiatric inpatient treatment against their will is only permitted by law as a last resort and if all other treatment options are deemed insufficient. Furthermore, it must be assessed whether a person poses an acute danger to the self or others. The decision whether to admit a person involuntarily thus requires a careful assessment of the individual's condition and behavior by mental health professionals in the emergency room to evaluate the risk of self-harm or aggression towards others. However, one can assume that behavioral cues are often not sufficient or evident enough to make a proper assessment and to determine whether the legal requirements for involuntary admission are given in a certain case. In these cases, being able to verbally communicate with the patient and explore the situation can be key for a clinician's assessment regarding involuntary admission. If such communication is not possible due to language barriers or other reasons, the results of this study suggest that a clinician might be inclined to choose the more cautious route and rather admit a person against their will than to risk discharging a person who might pose a danger to themselves or other individuals. In addition, experience from clinical practice at the psychiatric emergency room indicates that in many cases where the legal requirements for involuntary admission are given, the involuntary admission can still be avoided, and patients often agree to hospitalization voluntarily for a period of time after having a conversation with a mental health professional. Being able to talk to an individual and explain what treatment and support options are available at the hospital and being transparent regarding what they can expect from psychiatric inpatient treatment can have an immensely calming and de-escalating effect. However, with limited or impossible verbal communication between patient and staff, this cannot be achieved.

With regards to the association between limited or no communication ability and the use of coercive measures, the results of Cole & Klotz et al. (2022) further suggest that individuals who exhibit limitations in their communication ability at admission due to language barriers and other reasons, are at an increased risk of being subjected to coercive measures. As mentioned above, if verbal communication with a patient is limited, particularly in tense situations at the emergency room, possibilities of medical staff to use verbal de-escalation and aggression management techniques are profoundly limited, potentially leading to more coercive measures in these situations. Furthermore, impaired verbal communication can easily lead to misunderstandings regarding the interpretation of a patient's behavior and expression. For example, certain behavioral cues or expressions might seem or be interpreted as aggressive or threatening when in fact they are not meant as such. On the other hand, one can also assume that not being able to properly communicate with emergency responders and medical staff during a mental health crisis can lead to high levels of frustration and desperation and might, in some cases, in fact exacerbate the crisis and potentially self-harming behavior or aggression against others which, in turn, increases the risk of experiencing coercion.

The results regarding the association between coercive measures and the complete inability to communicate partly confirm the hypotheses of this study. As assumed by the authors, the complete inability to communicate due to reasons other than language barriers increases the risk of being subjected to coercive measures. However, the results did not confirm a significant association between the complete inability to communicate due to language barriers and the use of coercive measures. Taking into consideration experience from clinical practice at the psychiatric emergency room, a possible explanation for these outcomes might be a higher likelihood of emergency room staff to directly call in interpretation services if communication is entirely impossible due to a language barrier since not being able to communicate with a patient at all significantly hinders the initiation of treatment and forming a therapeutic relationship. This could potentially lead to less coercion in this patient group since ambiguous or tense situations could more easily be resolved with the support of an interpreter. When communication is only limited but not entirely impossible, emergency room personnel might not feel the immediate need to call in interpretation services, potentially leading to an increased risk of experiencing coercion in this sub-group due to difficulties in communication.

4.1.2. Times of use

In line with the hypotheses, Cole et al. (2023) was firstly able to replicate the results by Cole et al. (2020) showing that individuals are at an increased risk of experiencing coercive measures within the first 24 hours after admission. The outcomes show that a total of n = 261 cases experienced any coercive measure during the study period. Among these cases, 71.6% (n = 187) were subjected to a coercive measure within the first 24 hours after admission and, similar to Cole et al. (2020), a substantial part (54.4% (n = 142)) of cases did not experience any coercive measure after this timeframe. These findings further support the outcomes of previous research that indicates a high risk for coercive measures within the first days of hospitalization on a psychiatric unit (Kirkpatrick, 1989; El-Badri & Mellsop, 2002; Binder, 2006; Georgieva et al., 2012; Lorenzo, 2014).

In addition to the descriptive analyses described above, Cole et al. (2023) furthermore used Kaplan-Meyer survival curves to graphically depict the times during which coercive measures are most frequently used. Using these curves, the study was able to show in even more detail that the first five hours after admission are in fact the time where patients are at highest risk of experiencing coercive measures. Interestingly, the graphs further show that certain groups of patients, namely acutely intoxicated individuals and persons exhibiting aggression prior to admission are at a particularly high risk of experiencing coercion early on during hospitalization. The Cox regression analysis further identified different sociodemographic, clinical, and admission-related characteristics serving as predictors for the use of coercion in general as well as predictors for the early use of coercive measures. These include male gender, acute intoxication, aggression against persons or objects prior to admission as well as limited or no communication ability at admission. These findings are in line with the authors' observations and experience from clinical practice at the psychiatric emergency room. They furthermore support outcomes from previous research into predictors for coercive measures (Cole et al., 2020; Knutzen et al., 2011; Maharaj and Andrew, 2011; Georgieva et al., 2012; Tunde-Ayinmode and Little, 2004).

4.2. Practical implications and derived interventions

The results of both studies included in this dissertation contribute to a better understanding and yield important insights regarding predictors and times of use of coercive measures in psychiatry. Different practical implications and innovative ideas for tailored interventions can be derived from the findings.

Firstly, in light of the results of Cole & Klotz et al. (2022), it becomes evident that efforts to prevent coercive measures in psychiatry need to specifically take into consideration the communication ability of patients at admission and that interventions must be developed and put in place that are tailored to individuals who are impaired in their ability to communicate due to language barriers or other, illness related factors. It is important in this regard to consider the different reasons why individuals can be impaired in their ability to communicate, and different interventions and strategies should be developed to address the needs of persons with language barriers and persons who are impaired in their communication ability due to other factors.

When it comes to the prevention of involuntary admission and coercive measures among persons with a language barrier it is firstly crucial to ensure good-quality interpretation services at psychiatric emergency rooms and there is ongoing debate among clinicians, politicians, and other stakeholders on how to achieve this. One major issue in this regard is the lack of standardized training, consistency, and explicit quality standards when it comes to interpretation services in the mental health field and the question arises what qualifications should be required for an individual acting as an interpreter in the psychiatric setting. Working as an interpreter in these settings is challenging and, in addition to language and general interpretation skills, requires a high level of professional responsibility, cultural sensitivity as well as a working knowledge of signs and symptoms of mental health conditions and the health and mental health system of the respective country or region (DGPPN, 2022; Martin, 2022). Furthermore, particularly interpreters working in the context of acute psychiatric care and mental health crisis intervention, should be trained in verbal de-escalation techniques, and handling tense situations with individuals exhibiting agitated or aggressive behavior. If not properly prepared and trained regarding these challenging situations interpreters might feel overwhelmed, not act appropriately and potentially feel reluctant or unwilling to keep working in these settings.

In routine clinical psychiatric practice however, standardized regulations and quality assurance for interpretation services are mostly lacking and interpretation services are often provided by untrained volunteers or internally by hospital staff speaking the respective language (Martin, 2022). This bears the risk of improper interpretation and thus, provision of improper treatment and support for the individuals concerned. In addition to concerns about standardized training and lack of quality standards when it comes to interpretation services in the mental health field, there is ongoing debate about how to ensure comprehensive financing schemes for these services in psychiatric hospitals. In this regard it is crucial that adequate financing and budgets for interpretation services are embedded in national mental health policies so that hospitals and other mental health services do not have to take on an additional financial burden in this regard. Another key aspect that needs to be included in budgeting and financing considerations is ensuring an adequate remuneration of individuals providing interpretation services in psychiatric settings that reflects the highly challenging and responsible nature of the job as well as ensuring adequate remuneration and compensation for mental health professionals for extra time spent and administrative tasks associated with initiating interpretation services (DGPPN, 2022). Furthermore, entitlements to and financing of interpretation services in psychiatric settings should under no circumstances be tied to the legal status an individual has in the country where they are receiving treatment, i.e., interpretation services should be financed by the mental health system for everyone regardless of status including refugees and asylum seekers (DGPPN, 2022). Hospitals should further be equipped with all technical requirements including proper internet connection and required software, to allow for remote tele- and video interpretation services in cases where face-to-face contact is not feasible, for example for hospitals in remote rural areas where access to interpretation services might be limited.

Considering the potential for the prevention of involuntary admissions and coercive measures, the health sectors of countries worldwide are strongly urged to invest in proper interpretation services for psychiatric settings including adequate budgets and financing for interpretation services as well as the development and implementation of standardized training and quality assurance for interpreters working in the field of mental health.

To further prevent involuntary admission and coercive measures for both, persons with limited or no communication ability due to language barriers and those with limited or no communication ability due to other, illness related reasons one should consider including

the individual's support network in mental health crisis response and the provision of care. In some cases, individuals experiencing acute emotional distress, or a mental health crisis might be overwhelmed by their symptoms and not able or willing to express themselves and report openly what they are experiencing. The presence of a trusted person, for example a family member, relative, friend or caregiver, who knows the person and the individual case history well and who is familiar with their particular personal and cultural background has the potential to make the person feel safer and to facilitate communication between staff and the patient and thus mitigate tense situations that might arise from difficulties in communication. To facilitate the bringing-in of a person's support network, advance directives or mental health crisis plans can be a useful instrument. If a person who was unable to communicate at admission is admitted to psychiatric inpatient treatment involuntary and/or experienced coercion, it is therefore crucial to offer a standardized post-coercion review session once the individual regained their ability to communicate verbally or, in cases of language barriers as soon as interpretation services are available. These review sessions provide the opportunity for an open dialogue between patient and staff to jointly discuss the situation that led to the use of coercion and what could be done differently during future mental health crises to avoid any further incidents of involuntary admission and/or coercive measures. Research shows that these post-coercion review sessions have an immensely positive effect on the therapeutic relationship and have the potential to reduce symptoms of post-traumatic stress (Wullschleger et al., 2021). The implementation of innovative models of care that are recovery-oriented and participatory such as the *Weddinger Modell* can be an effective way to embed standardized review sessions as well as advance directives and crisis plans in acute psychiatric care after incidents of involuntary admission and coercive measures (Mahler et al., 2021, Mahler et al., 2022).

In addition to the positive effects of standardized review sessions, different studies show that through the implementation of the *Weddinger Modell* at the study hospital PUK SHK, a reduction of coercive measures to an absolute minimum was achieved on all psychiatric units (Czernin et al., 2020; Czernin et al., 2021). However, coercive measures still occur and the results of Cole et al., 2023 contribute to a better understanding of the situations in which these measures are applied. Namely, the results of the study suggest that many escalations that lead to the use of coercive measures in psychiatry occur during

admission or even before an individual is admitted to the psychiatric emergency room. Particularly, individuals who are acutely intoxicated and individuals exhibiting aggressive behavior prior to admission seem to be at a heightened risk of experiencing coercive measures within the first hours of hospitalization. These results highlight the importance of putting a stronger focus on acute admission and mental health crisis intervention when it comes to the prevention of coercive measures and to tailor interventions to specific groups at high risk of experiencing coercion.

Generally, it is crucial to consider the working conditions as well as the human and financial resources of emergency departments at general and psychiatric hospitals. It is widely known that emergency departments are chronically understaffed, especially during night shifts, and that there is a shortage of psychiatrically trained staff in emergency rooms (Riessen et al., 2015). This lack of human resources can contribute to a more frequent use of coercive measures during the admission situation since there are merely not enough trained professionals available for the often time-consuming task of verbally de-escalating a tense situation. In addition to more incidents of coercion, this issue of limited resources can lead to significant frustration and emotional distress among staff who might sometimes feel that there is no other way than using coercive measures merely because they are overwhelmed by their caseloads and have limited time available to try and de-escalate a tense situation. In addition to psychiatrically trained staff in emergency rooms, i.e. psychiatrists, psychologists and psychiatric nurses, it is important that all other staff in emergency rooms is provided with basic good-quality and rights-based training on mental health crisis response including verbal and non-verbal de-escalation techniques and aggression management. The employment of non-medical staff to de-escalate or manage tense situations including security services in psychiatric emergency rooms is highly objectionable (Muir-Cochrane & Musker, 2015) and countries should rather focus on investing in adequate human resources and training of all emergency room staff so that they feel adequately equipped to handle difficult situations and manage mental health crises in a calm and de-escalating manner. In addition to adequate staffing and training, different interventions have been developed and implemented to facilitate psychiatric crisis response in emergency rooms including multiprofessional response teams and peer support workers at the emergency room. These interventions yield promising results and are considered highly valuable and helpful by patients in crises (Brasier et al., 2022; Minshall et al., 2020; Cheng, 2014).

Furthermore, the results of Cole et al. (2023) show that particularly persons who are acutely intoxicated and persons who show aggressive behavior prior to admission are at an increased risk of experiencing coercion shortly after admission. A key question of significant societal importance that arises when considering these findings is whether psychiatry is the right place for acutely intoxicated individuals and individuals showing aggressive behavior. There is a growing trend in society that has been widely observed in clinical psychiatric practice and supported by research (Mahler & Oster, in prep.) that psychiatric hospitals are frequently utilized to contain aggressive behavior and that oftentimes the police or emergency services take aggressive individuals to the psychiatric emergency department who, in fact, do not have an indication for psychiatric treatment. This can lead to a dilemma for staff at the psychiatric emergency room where they are required to use coercion to contain aggressive behavior of a person with no psychiatric treatment indication, which goes beyond the scope of responsibility of a psychiatric hospital (Cole et al., 2023; Mahler & Oster, in prep.). Similarly, differing opinions exist regarding the question whether acutely intoxicated individuals should be brought to psychiatric emergency services or whether they should be brought elsewhere for detoxification under close medical supervision until it can be established whether a psychiatric treatment indication is given. In this regard, research that is further building on Cole et al., 2023 has identified that among the subgroup of cases experiencing coercion only within the first 24 hours after admission, 50.7% are discharged again within these first 24 hours and that 76.4% of cases within this group were acutely intoxicated and aggressive prior to admission (Cole et al., 2024). These results further highlight and support the observation that many coercive measures are used on individuals who are brought to the psychiatric emergency room with no indication for psychiatric treatment merely to contain aggressive behavior and to be discharged shortly after. The use of psychiatric services as a means of managing violent escalations and aggressive behavior of individuals with no treatment indication is highly problematic and alarming in many regards. The experience of frequently being exposed to violent escalations and having to apply coercive measures is not only potentially dangerous but also greatly challenging and emotionally stressful for psychiatric emergency staff. This particularly holds true for situations where psychiatrically trained staff might feel limited and helpless in their ability to intervene and de-escalate in situations where aggression and escalation occurs without a connection to a psychiatric condition and their only task is to contain the

aggression with coercion. Among staff this might lead to confusion regarding their self-conception as caregivers and consequently to frustration and decreased job satisfaction contributing to the high levels of staff turnover and difficulties in recruiting and retaining psychiatric staff (Mahler & Oster, 2023). Further, this role of psychiatry as a, so to say, 'societal aggression manager' comes with a burden for the whole health care system as it ties human and financial resources to tasks that should in fact be beyond the scope of psychiatric care.

Practically speaking, it is crucial to consider the development and implementation of interventions that could be able to more effectively manage violent escalations and provide more adequate support to these subgroups of acutely intoxicated and aggressive individuals without treatment indication. One could for example consider specific crisis rooms within or outside the hospital setting where individuals can be brought after an initial assessment and supervised by law enforcement and medical staff to safely detoxify and/or manage aggressive behavior. If psychiatric treatment indication is determined in the aftermath, the individual could consequently be admitted to a psychiatric unit. Evidently, a clear differentiation and determination of whether a violent escalation is happening within the context of psychiatric exacerbation, for example during a psychotic or manic episode, or without any connection to a mental health condition is challenging and not always clearly distinguishable. In this regard it is important that law enforcement and medical professionals have immediate access to all information available from patient records and that all information gathered during the initial crisis response is considered for the assessment (e.g. reports by family members, friends, caregivers or others). It is unquestionably crucial to provide immediate good-quality psychiatric support and treatment to those individuals exhibiting aggressive behavior in the context of a mental health crisis and to take decisions in this regard with utmost care and diligence.

4.3. Strengths and limitations

The dataset used for both studies included in this dissertation comprised a relatively large and representative sample (N = 1556), comprising all cases admitted via the emergency department at PUK SHK in Berlin, Germany during an entire year. To the knowledge of the authors, both studies examined research questions that had not yet been explicitly studied before. The dataset used for the studies included a wide range of

sociodemographic, clinical, and admission-related data that were controlled for in the statistical analyses and thus allows for the conclusion that the results exist independently from potentially confounding variables.

Because both studies were retrospective and the data collection relied on patients' medical records, some information that would have been of interest could not be recorded in the dataset. For example, for Cole & Klotz et al. (2022) it would have been insightful to include more nuanced measures of the variable communication ability besides limited and impossible. In addition, collecting and including more detailed information of the other reasons for impaired communication ability besides language barriers would have been interesting. Future research on the association between communication ability and coercion using prospective study designs should take these more detailed measures into consideration. Furthermore, the sub-sample of persons with limited or no communication ability was relatively small in the dataset used for the studies. Replicating the analyses conducted in Cole & Klotz et al. (2022) with an even larger sample and a stronger representation of these groups would therefore be interesting for future research.

Similarly, for Cole et al. (2023) more detailed information on, for example, patients' history of psychiatric treatment and patients' lifetime history of experiencing coercive measures would have been interesting to include and analyze in the study. Another aspect to consider in future studies is the inclusion of chemical restraints and forced medication in addition to seclusion and mechanical restraint to enable an exploration of the times of use of these forms of coercion and their association with communication ability. These variables could not be included in the present study due to difficulties in accessing proper documentation on forced medication retrospectively in patients' medical records.

To determine whether the results of both studies are representative for other samples and catchment areas in Germany and other countries, future large-scale research using data from psychiatric hospitals in different urban and rural catchment is needed and of considerable interest and practical relevance.

5. Conclusion

The results of the two studies included in this dissertation contribute to a better understanding of predictors and times of use of coercion during psychiatric hospitalization. The findings are of great societal importance and can be used to develop

more effective and targeted interventions to prevent coercion in psychiatric inpatient care. The first study clearly demonstrates that language barriers are associated with a higher risk for experiencing coercion and involuntary admission highlighting the need for policies in the area of mental health to include solid planning and budgets for effective, efficient, and good-quality interpretation services in all areas of psychiatric services including the emergency room. In addition, difficulties in communication due to other reasons than language need to be addressed through suitable interventions including the consultation of support networks and considered more thoroughly in future research. The second study by Cole et al. (2023) was able to demonstrate in considerable detail that the risk for coercive measures is particularly high within the first hours of hospitalization and that certain characteristics including acute intoxication and aggression prior to admission serve as predictors for the early use of coercion. The results encourage a rethinking of psychiatric crisis response and the development of alternative models of managing and containing acute intoxication and aggressive behavior apart from psychiatry.

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Eidesstattliche Versicherung

Ich, Celline Cole, versichere an Eides statt durch meine eigenhändige Unterschrift, dass ich die vorgelegte Dissertation mit dem Thema: „Coercive measures in psychiatry – predictors and times of use/Zwangsmaßnahmen in der Psychiatrie – Prädiktoren und Zeitpunkte der Anwendung" selbstständig und ohne nicht offengelegte Hilfe Dritter verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel genutzt habe. Alle Stellen, die wörtlich oder dem Sinne nach auf Publikationen oder Vorträgen anderer Autoren/innen beruhen, sind als solche in korrekter Zitierung kenntlich gemacht. Die Abschnitte zu Methodik (insbesondere praktische Arbeiten, Laborbestimmungen, statistische Aufarbeitung) und Resultaten (insbesondere Abbildungen, Graphiken und Tabellen) werden von mir verantwortet. Ich versichere ferner, dass ich die in Zusammenarbeit mit anderen Personen generierten Daten, Datenauswertungen und Schlussfolgerungen korrekt gekennzeichnet und meinen eigenen Beitrag sowie die Beiträge anderer Personen korrekt kenntlich gemacht habe (siehe Anteilserklärung). Texte oder Textteile, die gemeinsam mit anderen erstellt oder verwendet wurden, habe ich korrekt kenntlich gemacht. Meine Anteile an etwaigen Publikationen zu dieser Dissertation entsprechen denen, die in der untenstehenden gemeinsamen Erklärung mit dem Erstbetreuer, angegeben sind. Für sämtliche im Rahmen der Dissertation entstandenen Publikationen wurden die Richtlinien des ICMJE (International Committee of Medical Journal Editors; www.icmje.og) zur Autorenschaft eingehalten. Ich erkläre ferner, dass ich mich zur Einhaltung der Satzung der Charité – Universitätsmedizin Berlin zur Sicherung Guter Wissenschaftlicher Praxis verpflichte. Weiterhin versichere ich, dass ich diese Dissertation weder in gleicher noch in ähnlicher Form bereits an einer anderen Fakultät eingereicht habe. Die Bedeutung dieser eidesstattlichen Versicherung und die strafrechtlichen Folgen einer unwahren eidesstattlichen Versicherung (§§156, 161 des Strafgesetzbuches) sind mir bekannt und bewusst.

Anteilserklärung

Celline Cole hatte folgenden Anteil an den folgenden Publikationen:

Publikation 1: Celline Cole, **Eva Klotz**, Julia Junghanss, Anna Oster, Felix Bermpohl, Angelika Vandamme & Lieselotte Mahler (2022). Patient communication ability as predictor of involuntary admission and coercive measures in psychiatric inpatient treatment, *Journal of Psychiatric Research, 153*, 11-17. https://doi.org/10.1016/j.jpsychires.2022.06.048

Beitrag im Einzelnen: Entscheidender Beitrag an Konzeptualisierung und Design der Studie, sowie Entwicklung bzw. Auswahl der Erhebungsinstrumente, hauptverantwortlich für die Datenerhebung, Datenanalyse und statistische Auswertung (alle Tabellen wurden unter Mithilfe von Eva Klotz von mir erstellt), hauptverantwortlich bei der Erstellung des ersten Entwurfs des Manuskriptes in Zusammenarbeit mit Eva Klotz (Einleitung, Diskussion und Fazit wurden von mir erstellt) und überwiegender Anteil an den nachfolgenden Überarbeitungen, korrespondierende Autorin bei der Einreichung.

Publikation 2: Celline Cole, Eva Klotz, Julia Junghanss, Anna Oster, Angelika Vandamme, Felix Bermpohl & Lieselotte Mahler (2023). Coercive measures in psychiatry – When do they occur and who is at risk? *Journal of Psychiatric Research*, *164*, 315-321. https://doi.org/10.1016/j.jpsychires.2023.06.026

Beitrag im Einzelnen: Entscheidender Beitrag an Konzeptualisierung und Design der Studie, sowie Entwicklung bzw. Auswahl der Erhebungsinstrumente, hauptverantwortlich für die Datenerhebung, Datenanalyse und statistische Auswertung (alle Tabellen und Abbildungen wurden unter Mithilfe einer psychologischen Kollegin von mir erstellt), hauptverantwortlich bei der Erstellung des ersten Entwurfs des gesamten Manuskriptes (Einleitung, Methoden, Ergebnisse, Diskussion und Fazit wurden von mir erstellt) und überwiegender Anteil an den nachfolgenden Überarbeitungen, korrespondierende Autorin bei der Einreichung.

Publikation 1: Cole & Klotz et al. (2022)

Cole, C., Klotz, E., Junghanss, J., Oster, A., Bermpohl, F., Vandamme, A., & Mahler, L. (2022). Patient communication ability as predictor of involuntary admission and coercive measures in psychiatric inpatient treatment. *Journal of Psychiatric Research, 153*, 11-17. https://doi.org/10.1016/j.jpsychires.2022.06.048

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Publikation 2: Cole et al. (2023)

Cole, C., Klotz, E., Junghanss, J., Oster, A., Vandamme, A., Bermpohl, F., & Mahler, L. (2023). Coercive measures in psychiatry – When do they occur and who is at risk? *Journal of Psychiatric Research*, *164*, 315-321. https://doi.org/10.1016/j.jpsychires.2023.06.026

Cole, C., Klotz, E., Junghanss, J., Oster, A., Vandamme, A., Bermpohl, F., & Mahler, L. (2023). Coercive measures in psychiatry – When do they occur and who is at risk? *Journal of Psychiatric Research, 164*, 315-321. https://doi.org/10.1016/j.jpsychires.2023.06.026

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Lebenslauf

Mein Lebenslauf wird aus datenschutzrechtlichen Gründen in der elektronischen Version meiner Arbeit nicht veröffentlicht.

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Vollständige Publikationsliste

Veröffentlichungen mit Peer-Review Verfahren:

1. Steinert, T., Baumgardt, J., Bechdolf, A., Bühling-Schindowski, F., **Cole, C.,** Flammer, E., Jäger, S. Junghanss, J., Kampmann, M., Mahler, L., Muche, R., Sauter, D., Vandamme, A. & Hirsch, S. (2023). Implementation of guidelines on prevention of coercion and violence (PreVCo) in psychiatry: a multicentre randomised controlled trial. *The Lancet Regional Health-Europe*, *35*, 100770. https://doi.org/10. 1016/j.lanepe.2023.100770 **IF 2023 20.9**

2. **Cole, C.**, Klotz, E., Junghanss, J., Oster, A., Vandamme, A., Bermpohl, F., & Mahler, L. (2023). Coercive measures in psychiatry – When do they occur and who is at risk? *Journal of Psychiatric Research, 164,* 315–321. https://doi.org/10.1016/j.jpsychires.2023.06.026 **IF 2023 5.3**

3. Harden, B., Gyimah, L., Funk, M., Drew-Bold, N., Orrell, M., Moro, M.F., **Cole, C**., Ohene, S. Baingana, F., Amissah, C., Ansong, J., Tawiah, P.E., Brobbey, K., Carta, M.G. & Osei, A. (2023). Attitudes towards persons with mental health conditions and psychosocial disabilities as rights holders in Ghana: a World Health Organization study. BMC Psychiatry 23, 142. https://doi.org/10.1186/s12888-023-04620-3 **IF 2023 4.4**

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1. **Cole, C.**, Oster, A. & Mahler, L. (2022). Zusammenhänge zwischen Kommunikationsfähigkeit und Eskalationen in der Psychiatrie. Sozialpsychiatrische Informationen SI 3/22. https://doi.org/10.5771/0171-4538-2022-3

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