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Perceived Intrusiveness of Coercive Measures: A Danish Survey of Mental Health Service Users

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Abstract

INTRODUCTION: Coercive measures (CM) are commonly used in mental health care. From a mental health service user perspective, CM are often associated with physical and psychological harm and a serious infringement on personal autonomy. Danish health legislation, therefore, adheres to principles requiring the use of the least intrusive CM. However, limited knowledge exists about service users' perceptions of what constitutes the least intrusive CM.

PURPOSE: To survey mental health service users' perceptions of intrusiveness related to various CM and to identify which interventions they consider least intrusive.

METHODS: A cross-sectional survey was conducted. The survey was developed in consultation with mental health service users and inspired by previous international research. Perceived intrusiveness was rated on a 0–10 visual analogue scale (VAS). Data were analysed descriptively and statistically using non-parametric tests.

RESULTS: Of 8,250 eligible participants, 1,367 (16.6%) completed the survey. Ratings revealed two clusters: constant observation, time-out, and chemical restraint were perceived as less intrusive, while seclusion and mechanical restraint (belt alone or with straps) were rated as more intrusive. Female, younger participants and those with prior CM experience consistently rated all interventions as more intrusive.

CONCLUSION: Rather than identifying a single most or least intrusive CM, the findings suggest a broader distinction between types of CM. Two clusters emerged—those generally perceived as more intrusive and those perceived as less so. This pattern may inform future clinical decision-making and policy development, highlighting the need for further research into subjective, modifiable factors that shape service users' lived experiences.

Keywords: coercion, mental health patients; restrictive interventions; psychiatry; least restrictive alternative

Introduction

Coercive measures (CM) are commonly used in mental health care across Europe (Birkeland et al., 2016; Gildberg et al., 2015; Linkhorst et al., 2022; Savage et al., 2024) despite an increased political focus aimed at reducing the use of coercion (Berring et al., 2023; WHO, 2023). From the service users' perspective, CM often represent a significant insult, challenging core ethical principles such as autonomy and informed consent (Birkeland et al., 2016; Gildberg et al., 2015). Although CM are legally restricted to acute situations involving risk of harm to self or other, and must follow the principle of the Least Restrictive Alternative (LRA) (Johnston et al., 1993), CM use remains controversial due to the potential physical and psychological harm to both service users and staff (Beames et al., 2022; Chieze et al., 2019; Cusack et al., 2018; Kersting et al., 2019).

In most countries, including Denmark, the use of CM are regulated by law. Danish health legislation aligns with general health law principles regarding the necessity of obtaining informed consent in health care provision (Danish Ministry of Health, 2024a). It emphasizes that CM cannot be used unless proper efforts have been applied to obtain patient participation (Danish Ministry of Health, 2024b). In addition, the Danish Psychiatry Act was revised in August 2020, as it now suggests that service users are always asked how coercion might be prevented during the admission and which coercive treatment they would prefer if the application of one should be considered necessary at some point during treatment (Danish Ministry of Health, 2024a). This legal provision reflects the broader concept of advance directives (Birkeland et al., 2016)Informed consent and the notion of service user involvement are rooted in the bioethical principle of respecting patient autonomy (Chieze et al., 2021). These principles acknowledge the rights of mental health patients to actively participate in decisions about their care with appropriate opportunity to consider, agree, or refuse proposed treatment actions (Birkeland et al., 2016; Elwyn et al., 2014; Mueser et al., 2015).

Both in the legislation and empirical literature, there is relatively little guidance available on how to bring the abovementioned requirements into practice, e.g., how to assess and who decides which CM are the least restrictive or intrusive. A recent review by Lindekilde et al (2024) found that mechanical restraint appears to be the least preferred CM, however the review underlines the difficulty in comparing results across cultures and legislation. The fact that professional standards and previous research often fail to address the ethical and practical differences between physical restraints (incl. seclusion) and chemical restraints, (Crutchfield et al., 2024), also makes it difficult to examine variations in service users' perceptions of specific types of CM. Among researchers, recent debates further underscore disagreements and the absence of consensus regarding the conceptual and moral definitions of intrusiveness and liberty (De Marco et al., 2024; Hempeler et al., 2024). This is further reflected in the great variance of surveys developed to investigate service users' perceptions of coercion (Lessard-Deschênes et al., 2025; Lindekilde et al., 2024). The most applied surveys are the U.S. MacArthur Perceives Coercion Scales (MPCS) (Gardner et al., 1993), the British Attitudes to Containment Method Questionnaire (ACMQ) (Bowers et al., 2004) and the German Coercive Experience Scale (CES) (Bergk et al., 2010). These instruments differ in their focus on the coercion experience.
The MPCS focus on perceptions related specifically to the admission situation (Gardner et al., 1993).

The ACMQ examines attitudes toward different CM from both staff and service users (Bowers et al., 2004), and the CES includes a psychological perspective (Bergk et al., 2010). To the best of our knowledge, studies employing these specific measures have not yet adopted a web-based approach. However, web-based methodologies have been successfully applied in a Danish study, exploring mental health service users' experiences (Kølbæk et al., 2022). This suggests that such an approach may be feasible in the context of the present investigation.

Despite national guidelines promoting the LRA, and former research on service users' preferences (kilder her?), there exists no evidence on how Danish mental health service users perceive the intrusiveness of specific CM. This gap highlights the importance to explore service user perspectives to inform clinical decision-making and policy development. Therefore, we explored mental health service users' perceived intrusiveness of CM,

understood as the felt impact of CM, which may arise from direct physical involvement or from indirect experiences such as being aware of such measures within the mental health care setting.

Aim and research questions

This study aims to investigate mental health service users' perceptions of the intrusiveness of various CM. Further, we aimed to investigate if perceptions vary with different service user characteristics.

The study objectives are to determine the degree to which mental health service users perceive the intrusiveness of various CM, and to assess whether these perceptions differ based on demographic and clinical factors such as gender, age, diagnosis, and prior experience with CM.

Methods

Design

This study was conducted as a cross-sectional, nationwide web-based survey targeting individuals with a psychiatric diagnosis who had previously been hospitalised. Participants were identified through national health registers (Birkeland et al., 2020).

Participants

A random sample of 10,000 adults (≥18 years), residents of Denmark, with a main diagnosis of either ICD-10 F10-F19, F20-F29, F30-F39, F43.0-F43.9, F50.0-F50.9, or F60-F69 was drawn from the Danish National Patient Registry (DNPR). The DNPR contains nationwide data on all somatic and mental health hospital contacts in Denmark, including admissions, outpatient visits, and emergency department visits. It records diagnostic codes, procedures, and dates of service for each patient. Eligible individuals had been admitted minimum once between 1st September 2020 and 31st March 2023 with a stay of a minimum of 48 hours.

Survey procedure

Participants were invited via a secure digital mailing system used by the Danish authorities (E-Boks) (Birkeland et al., 2020). Of the 10,000 randomly drawn, 8,274 had access to E-boks. In addition to relevant information on the study and formal legal information on data security, the invitations included a personal link to the web-based survey accessible via REDCap (Research Electronic Data Capture ©). The 8,274 invitations were distributed between December 2023 and March 2024 with reminders sent to non-responders two weeks after the initial invitation.

Survey development

The survey was developed drawing on knowledge from previous research (Bergk et al., 2010; Bowers et al., 2004; Gardner et al., 1993) and in collaboration with mental health research experts and mental health service users by experience. Service users were invited through Danish user organisations and mental health outpatient residence, however only two people expressed their interest and participated in the survey development. Mental health service users by experience participated in the development of the survey as well as the accompanying information materials at several stages. E.g. one service user was involved from the outset in shaping the information materials, including determining the content and providing suggestions for the wording of items. At later stages, another service user contributed by testing the questionnaire in its REDCap format. The survey was designed to measure perceived intrusiveness of seven CM as presented in Table 1. Mechanical restraint was divided into two categories to reflect clinical distinctions in Danish psychiatric practice.

Table 1. Definition of CMs investigated in the survey.

A brief description accompanied each CM. The questionnaire consisted of three parts: 1) prior experience with CM, aimed to identify background of CM experience, 2) ratings of perceptions of intrusiveness measured on a 0-10 Visual Analogue Scale (VAS) (Streiner et al., 2008), and 3) type of latest hospital admission. Supplementary demographic and clinical data (sex, age, ethnicity, civil status, geographical region, and diagnosis) were provided by the DNPR.

Legal and ethical considerations

This study was approved by the Region of Southern Denmark legal department (journal no.: 21/61394). Data were processed and stored according to EU's General Rata Protection Regulations (Directive 95/45/EC (GDPR) 2016/679). Approval from the Danish Research Ethics Committee system is not required for survey studies conducted in Denmark. The invitation letter clearly outlined the study's focus, that participation was entirely voluntary and provided detailed information on participants' data protection rights, including procedures for withdrawal. Contact information for the principal investigator and relevant data protection authorities was provided to support participants in case of concerns or questions.

Analysis

Descriptive statistics were used to summarise participant characteristics and ratings of perceived intrusiveness across seven CMs. Given the non-normal distribution of the data, non-parametric tests were applied. Age, gender and prior experience with CM were presented as counts and percentages. VAS scores were reported using means (M) and standard deviations (SD).

A chi-square test was used to compare differences in sociodemographic variables between respondents and non-respondents. To examine differences in perceived intrusiveness between gender and prior experience with CMs, the Mann–Whitney U test was employed. For comparisons across age and diagnosis categories, the Kruskal–Wallis test was used. To address multiple testing and avoid type 1 errors, a significance level of $p < 0.01$ was applied throughout. The dependent variable in all analyses was the VAS score measuring perceived intrusiveness. The independent variables were the CM and the covariates was age, gender, diagnosis and prior experience. To test whether CM modifies the effects of each covariate on VAS, linear regression analyses were conducted using robust standard errors to account for potential deviations from model assumptions on homoscedasticity and normality of residuals.

Due to a pronounced skewness in the distribution of VAS scores towards zero, secondary analysis was conducted by excluding participants who rated all CM as zero (N = 315 observations, 70,3 % of all zero scores). This approach aimed to assess whether the inclusion of zero values—potentially reflecting either genuine low perceived intrusiveness or measurement artefacts—significantly influenced the mean scores and overall ratings of CM. All analyses were conducted using STATA version 19.5 2025 (StataCorp LLC, College Station, TX, USA).

Results

Sample characteristics

The sampling procedure is illustrated in Figure 1. A total of 1,367 individuals responded to the survey (response rate of 16.6%). As presented in Table 2, significant differences existed between responders and non-responders. Compared to non-responders, responders were more likely to be female (59.5%, $p < 0.001$) aged >60 years (27.2%, $p < 0.001$), diagnosed with affective disorders (44.6%, $p < 0.001$), married (26.0%, $p < 0.001$), and a native-national (91.5%, $p < 0.001$). Responders were geographically well-distributed, with only minor differences across regions. Among responders, 1.2% reported their most recent admission was to a forensic psychiatric facility, while 34.4% had prior experience with CM. Of those with prior experience 53.0% had experienced $\geq$2 CM. Service users experience with CM is presented in Table 3.

Figure 1. Flowchart illustrating the sampling process and eligibility assessment.

Table 2. Demographic and clinical characteristics of responders and non-responders (N=8,262), n (%).

Table 3. Proportion of participants reporting prior exposure to each type of coercive measure.

Perceived general intrusiveness

The data revealed a distinct pattern, with three CMs consistently rated as more intrusive and three as less intrusive. Mechanical restraint - belt and straps (M = 7.72, SD = 3.32), seclusion (M = 7.35, SD = 3.22), and mechanical restraint - belt only (M = 7.01, SD = 3.38) suggest a clustering of these measures at the upper end of the intrusiveness spectrum (see Figure 2). In contrast, constant observation (M = 4.05, SD = 3.42), time-out (M = 4.14 SD = 3.22), and chemical restraint (M = 4.39 SD = 3.70) were rated as less intrusive. Manual restraint was positioned at a mid-scale level, with a mean score of 5.81. Secondary analyses confirmed the robustness of this pattern, showing consistent mean ratings and group differences. Notably, the secondary analysis also indicated greater agreement among participants, reflected in reduced SD across VAS scores (see Table 4). The following analyses are presented without secondary analyses adjustments.

Figure 2. Mean Visual Analogue Scale (VAS) scores illustrating service users' overall perceived intrusiveness.

Table 4. Results from secondary analysis. Total perceived intrusiveness mean VAS scores 0-10 and SD without participants rating all coercive measures 0.

Perceived intrusiveness and participant characteristics

Table 5 presents participants' mean VAS scores and standard deviation (SD) of perceived intrusiveness. Female participants consistently rated CM higher than male participants. These differences however were not statistically significant for constant observation (p = 0.20, SD = 3.42) and chemical restraint (p = 0.08, SD = 3.70). In terms of perceptions of intrusiveness males identified the time-out least intrusive and females found constant observation least intrusive.

Age-related differences were observed for younger participants (18–39 years) who consistently rated CM more intrusive compared to older participants (40-60+ years). However, these were not statistically significant for mechanical restraint belt only (p = 0.080, SD = 3.38) and seclusion (p = 0.57, SD = 3.22).

With seclusion as the one exception, participants with substance abuse disorders rated all CM lower on the VAS scale than participants with other diagnosis. Statistical significance was found across all diagnosis for constant observation, time-out, chemical restraint, and seclusion (p<0.01). For more details see Table 5.

Table 5. Perceived intrusiveness mean scores VAS 0-10 and standard deviation (SD), based on demographic and clinical characteristics.

The results of mean VAS scores of perceived intrusiveness show that participants with prior experience consistently rated CM as more intrusive than those without such experience statistically significant across all CM (p<0.01). Despite this difference in perceived level of intrusiveness, the relative ranking of the CM remained stable across both groups as presented, except for chemical restraint, which was rated as less intrusive than time-out, however, this difference was not statistically significant. Descriptive findings regarding prior experience and rating of intrusiveness are illustrated in Figure 3.

Figure 3: Mean Visual Analogue Scale (VAS) scores illustrating service users' overall perceived intrusiveness and differences across prior experience with coercive measures.

Discussion

Overall ratings of intrusiveness

This is the first national-level survey capturing mental health service users' perspectives on perceived intrusiveness of specific CMs. To the best of our knowledge, this is among the extensive studies of its kind to have attempted broader recruitment using the Danish national digital mailing system.

In this cross-sectional survey among Danish mental healthcare service users, we found CMs could be grouped into a highly intrusive cluster (seclusion and mechanical restraint (belt only or with straps)), and a cluster in the lower end of the intrusiveness scale (constant observation, time-out, and chemical restraint). Generally, female, younger participants and those with prior CM experience rated all interventions as more intrusive. Our study thereby contributes to the existing body of empirical research indicating that mechanical restraint is perceived as one of the most intrusive and least acceptable forms of CM by adult patients (Guzman-Parra et al., 2019; Hui, 2015; Krieger et al., 2018; Steinert et al., 2013), underaged patients (Hottinen et al., 2012), staff members (Birkeland, 2025; Laukkanen et al., 2019), and relatives (Hotzy et al., 2019; Reisch et al., 2018). This perception is consistent even across countries where mechanical restraint is not in use (Bowers et al., 2004; Whittington et al., 2009). Surprisingly, chemical restraint was rated as one of the least intrusive CM, whereas previous research has found it to be perceived as more intrusive than manual restraint among service users (Lindekilde et al., 2024). Variations in how chemical restraint is administered, whether orally or by injection (Brink et al., 2016; Völlm et al., 2016), together with the occurrence of adverse effects (Haw et al., 2011; Muir-Cochrane et al., 2021; Naber et al., 1996) are likely to influence service users' individual perceptions. Furthermore, there is an ethical and moral debate concerning which types of medication are used and the degree to which they affect consciousness, a discussion that would require more space than is available here. For a more detailed exploration of this issue, see Crutchfield et al. (2024).

Similar to our findings, previous research based on mental health staff and governmental authorities respectively, has shown that constant observation and time-out is often viewed as two of the least intrusive CM (Bak et al., 2012; Birkeland, 2025). Given the distinct nature of the two methods, it could be hypothesised that individuals with a preference for solitude would be more inclined towards time-out, while those appreciating interpersonal contact with staff would be more likely to prefer constant observation. However, it appears that no empirical studies within mental health settings or in relation to CM have yet provided evidence to confirm or refute this assumption. Personal reflections regarding autonomy and dignity may further shape participant perceptions (Chieze et al., 2021).

Other research, however, has pointed to additional factors influencing service users' perceptions of CM. Evidence has shown that the perception of CM is influenced not only by interpersonal and emotional factors (Hotzy et al., 2016; Norvoll et al., 2016; Silva et al., 2024) but also by staff behaviour and competence, as perceptions of arbitrariness or incompetence have been linked to higher levels of perceived coercion (Wullschleger et al., 2023). In this context, advance directives offer a practical approach to reduce staff-driven influences on perceived coercion by ensuring that service users' preferences are documented, respected, and integrated into clinical decision-making. .

Fixed individual characteristics

The nuanced differences in perceived intrusiveness across gender, age, diagnosis, and prior experience highlight the complexity of how CM are experienced in mental health care. While some of the characteristics did reach statistical significance, these patterns suggest that some personal and clinical background factors may shape how CM is perceived.

Gender-based differences, for example, have been inconsistently reported in the literature, with some studies identifying significant variation in preferences (Mayers et al., 2010; Veltkamp et al., 2008), while others

found no association (Guzman-Parra et al., 2019; Krieger et al., 2018). Our findings, though not uniformly significant, align with the notion that female service users may perceive certain measures as more intrusive, potentially reflecting broader gendered experiences of vulnerability, especially for service users with a history of sexual abuse (Frieh, 2020).

Regarding age-related patterns, younger participants in this study tended to rate CM as more intrusive. This trend was not consistently supported by prior research. For example, Whittington and colleagues (Whittington et al., 2009) found that older service users expressed greater general approval to manual restraint, seclusion and constant observation, whereas Bindman et al., (Bindman et al., 2005) found that perceived coercion was higher among older participants. However the majority of previous research found no association between age and various perceptions with CM (Lessard-Deschênes et al., 2025). While some previous studies have examined overall perceptions of coercion, often encompassing both formal and informal aspects during admission or in the community, this study focuses specifically on perceived intrusiveness of distinct CM (Lessard-Deschênes et al., 2025). The association between diagnosis and perception of intrusiveness also reveals inconsistencies across findings from previous research, with the majority finding no association (Lessard-Deschênes et al., 2025).

In summary, the association between fixed individual characteristics and perceived intrusiveness may be more reflected in broader relational and subjective factors, such as trust in staff or previous experiences with coercion (Griffin et al., 2025; Theodoridou et al., 2012). Though these nuances can be more difficult to capture fully using only quantitative designs to measure perceived coercion. It has also been suggested it is important to focus less on clinical characteristics and instead give more attention to modifiable factors that affect service users lived experiences (Lessard-Deschênes et al., 2025).

Most notably, prior experience with coercion emerged as a consistent predictor of higher perceived intrusiveness. This aligns with several studies indicating that exposure to CM can heighten sensitivity and reduce acceptability (Mielau et al., 2015; Reisch et al., 2018), though exceptions exist (Hottinen et al., 2012). The stability in how CM are relatively ranked across participants with and without prior experience as found in the present study, suggests that while lived experience might intensify perception intrusiveness, it does not fundamentally alter the ranking of CM from most to least intrusive.

While national and international policy and legislation provides the overarching framework for practice, there is growing consensus that the perceptions of intrusiveness are mostly subjective underscored by the inherently physical and psychological impacts on the individual as well as external factors relating to relational experience (Griffin et al., 2025) including communication with and changes in the environmental factors as pointed out by Lindekilde et al., (Lindekilde et al., 2024). These insights imply that policy and legislation should balance standardisation with individualised approaches.

Survey method

Several studies prior to this have used a survey method to assess mental health service users' perceptions of CM. Two recent reviews have elaborated on the use of surveys to capture perceptions (Lessard-Deschênes et al., 2025; Lindekilde et al., 2024). The surveys explored in the reviews cover various conceptual categories like preferences, psychological and physical impact and effect (Lindekilde et al., 2024) and represents a mix of individual, relational or structural factors, among others (Lessard-Deschênes et al., 2025). This wide range of surveys used to assess mental health service users' perceptions of CM reflects the complexity of the topic and underscores the need for context-specific approaches to capture the multifaceted nature of CM perceptions. A one-size-fits-all approach to CM application will overlook the subjective and context-dependent nature of these experiences, that affects both therapeutic alliance, treatment outcomes, and patient trust (Griffin et al., 2025; Lessard-Deschênes et al., 2025).

Limitations

While the study provides valuable insights into service users' perceptions of CM, certain limitations must be acknowledged. Regarding survey development, the definitions of certain CMs presented in the survey could have been more precisely articulated. For instance, the chemical restraint description did not specify whether this referred to administration via injection or oral medication. Similarly, the item on manual restraint was open to broad interpretation, ranging from gentle physical guidance to forceful immobilization involving multiple staff members. This lack of explicit descriptions might have resulted in divergent interpretations among participants and partly accounts for the observed ambiguity and variation in participants' ratings. The survey could have benefitted from more detailed descriptions of the CM presented e.g., using case vignettes. Although case vignettes help contextualise the measures, they rely on participants' imagination and prior experiences, which may vary widely and affect responses. However, the need to minimise the amount of text in the survey was a key consideration, to ensure accessibility.

Additionally, it is important to note that chemical restraint and manual restraint are often used simultaneously as well as in conjunction with mechanical restraint. The questionnaire did not explicitly differentiate between isolated and combined use. This overlap may have influenced how participants evaluated the intrusiveness of each CM, as their experiences could have been confounded by the simultaneous use of more intrusive intervention. Former research has shown that combined CM adds to patients' perceptions of physical and psychological distress (Gallop et al., 1999; Georgieva et al., 2012). Future studies should consider disentangling these perceptions by assessing CM both individually and in combination.

Moreover, there were possible limitations in terms of generalisability since the sample differs significantly from the background population on all demographic and clinical parameters except geographical location. While the findings offer valuable insights into perceptions of coercion, they should be interpreted with caution and not assumed to reflect the views of the wider population of mental health service users.

Several technical issues encountered during the development of the survey that may have affected data quality. For instance, each question regarding perceived intrusiveness required a response to proceed, and no option of "do not wish to answer" or similar were possible. Participants who did not wish or did not know what to answer might have provided arbitrary answers simply to continue with the survey. Specifically, this limitation resulted in a large proportion of responses clustering as outliers at either 0 or 10. Consequently, skewed data may affect the interpretation of the overall level of perceived intrusiveness and limit the validity of comparisons across subgroups or CM types. The only distinct characteristic identified among respondents who answered in this manner was no prior experience. Further technical limitations relate to the use of a 0–10 visual analogue scale (VAS) rather than a 0–100 scale. This decision was based on compatibility issues with mobile devices, where a slider function was not supported. While the 0–10 scale ensured accessibility across platforms, it may have reduced the sensitivity of the data, potentially limiting the ability to detect subtle differences in perceived intrusiveness across CM.

Respecting participants' autonomy and protecting their rights are essential in conducting research in a sensitive area that is coercion and mental health. Particular attention was given to ensuring that both the information material and the survey design accounted for participants' potential vulnerability. Efforts were made to communicate issues of privacy and confidentiality in a clear and accessible manner, while balancing that the information remained concise and comprehensible. To ensure clarity and accessibility mental health service users by experience participated in the process of developing the invitation materials and testing the survey. This participatory approach enhances the contextual relevance of the study and aligns with the principle of user-involvement in mental health research (Werner et al., 2025). However, despite efforts to reach out through multiple organisations, only two individuals signed up to participate. This highlights the

potential challenges associated with recruiting individuals with lived experience for user involvement in the development of research projects targeting mental health population.

Conclusion

Consistent with previous international research, mechanical restraint and seclusion were perceived as the most intrusive CM. This pattern was evident across age, gender, and prior experience with CM. However, being female, younger, or having previous exposure to coercion was associated with higher overall ratings of intrusiveness.

The study also highlights a broader methodological challenge in researching service users' perceptions of coercion. While consistency in measurement tools is essential for cross-study comparison, the findings underscore the importance of individualised assessments and the integration of service user history and preferences into clinical decision-making. This dual need reflects a tension between standardisation and personalisation in coercion research and practice.

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Declaration of interest statement

All authors declare that there is no conflict of interest.

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