



Feeling coerced during psychiatric hospitalization: Impact of perceived status of admission and perceived usefulness of hospitalization



Philippe Golay^{a,b,*}, Stéphane Morandi^{a,c}, Benedetta Silva^{a,c}, Célia Devas^a, Charles Bonsack^a

^a Service of Community Psychiatry, Department of Psychiatry, Lausanne University Hospital and University of Lausanne, Switzerland

^b Service of General Psychiatry, Department of Psychiatry, Lausanne University Hospital and University of Lausanne, Switzerland

^c Cantonal Medical Office, Directorate General for Health of Canton of Vaud, Department of Health and Social Action (DSAS), Avenue des Casernes 2, 1014 Lausanne, Switzerland

ARTICLE INFO

Keywords:

Perceived coercion

Compulsion

Psychiatric hospitalization

Involuntary admission

ABSTRACT

Introduction: Perceived coercion is not exclusively related to the patient's legal status at admission. Patients are not always aware of their correct status and voluntary patients often report having felt coerced. Moreover, involuntary patients commonly report that their hospitalization was justified. The first goal was to disentangle the contribution of the legal and of the perceived status of admission in predicting perceived coercion. The second goal of this study was to investigate to which extent perception of the usefulness of the hospitalization affected perceived coercion.

Material and methods: 152 inpatients were interviewed about their knowledge of their legal status of admission, perceived need for hospitalization and subjective improvement. They completed the MacArthur's Admission Experience Survey and the Coercion Experience Scale.

Results: 6.6% of voluntarily admitted patients and 30.4% of involuntarily admitted patients reported an erroneous status of admission. 88.2% of voluntarily admitted patients and 44.7% of involuntarily admitted patients felt that they needed hospitalization during their stay. Levels of perceived coercion at admission and during hospitalization were mostly predicted by their perceived legal status. While involuntary patients frequently perceived the need for hospitalization and reported subjective improvement after admission, their perception of coercion markedly differed from voluntary patients.

Conclusions: Perceived coercion was marginally related to the legal admission status, which leaves room for interventions that reduce the patients' feeling of being coerced and avoid its negative effects. If many patients revised their belief on the need for and benefits of hospitalization during their stay, their perception of coercion was left partially unchanged.

1. Introduction

Psychiatric hospitalization and coercion are still often associated. The rationale behind coercion is to protect people with mental disorders and improve their health even against their will (Szmukler, 2008). Studies have suggested that patients' feeling of being coerced, also named perceived coercion, could negatively influence their prognoses, because it may negatively influence the patient's cooperation during treatment (Pawłowski, Kiejna, & Rymaszewska, 2005). While robust findings are scarce, perceived coercion may or could have long lasting negative effects on patients, such as disengagement from services and negative therapeutic relationships (Katsakou et al., 2011; Lidz et al., 1998; Theodoridou, Schlatter, Ajdacic, Rössler, & Jäger, 2012),

reduced satisfaction with care (Nyttingnes, Ruud, & Rugkåsa, 2016) and it may potentially cause trauma (Kinner et al., 2017). The patients' perception of being treated unfairly, coercively and not effectively could have a strong negative impact on treatment adherence and may represent a barrier to mental health service use (Jaeger & Rossler, 2010; Swartz, Swanson, & Hannon, 2003). A recent study showed that perceived coercion during hospital admission was associated with an increased risk of suicide attempts after discharge (Jordan & McNiel, 2019).

Being compulsorily admitted, being male, being older and less satisfied with received treatments have been identified to predict higher levels of perceived coercion (Sampogna et al., 2019). However, a systematic review has shown that no demographic factor has been

* Corresponding author at: Department of Psychiatry, Lausanne University Hospital, Consultations de Chauderon, Place Chauderon 18, 1003 Lausanne, Switzerland.

E-mail address: Philippe.Golay@chuv.ch (P. Golay).

<https://doi.org/10.1016/j.ijlp.2019.101512>

Received 11 September 2019; Received in revised form 22 October 2019; Accepted 22 October 2019

Available online 04 November 2019

0160-2527/ © 2019 Elsevier Ltd. All rights reserved.

consistently found to be associated with perceived coercion (Newton-Howes & Mullen, 2011). In the latter study age and gender provided mixed results.

In Switzerland, involuntary admissions are regulated by the Article 426 and 427 of the Swiss Civil Code (CC), which states that “a person suffering from mental disorder, mental disability or serious neglect may be committed to an appropriate institution if the required treatment cannot be provided otherwise. A person suffering from a mental disorder who has entered an institution voluntarily and wishes to leave, may be detained by the institution's medical team for a maximum of 3 days in case of risk to their own life or to the life or the physical integrity of others. At the end of the 3 days period, the patient may leave the institution unless an enforceable hospitalisation is ordered” (Silva, Golay, & Morandi, 2018). By law, patients must be informed of the involuntary status of their admission and their legal rights.

In order to presumably offer a “least restrictive” alternative to involuntary hospitalization and to reduce the “revolving-door” phenomenon (Hiday & Goodman, 1982), Community treatment orders (CTOs) were introduced on the 1st January 2013 in Switzerland. CTO are legal procedures that authorise compulsory community mental health care to people affected by severe mental disorders. A recent study showed that CTOs prevalence in our area was low but increasing rapidly despite the lack of evidence on positive outcomes (Silva, Golay, Boubaker, Bonsack, & Morandi, 2019). Psychiatric hospitalization are therefore still the most common compulsorily pathway to care.

Several studies have shown that perceived coercion was not exclusively related to the patient's legal status at admission. Even voluntary patients can report high levels of perceived coercion (Bonsack & Borgeat, 2005; O'Donoghue et al., 2014). In Ireland, the ‘Service Users' Perspective of their Admission’ study found that 22% of voluntarily admitted patients reported levels of perceived coercion similar to the involuntarily admitted ones (O'Donoghue, Roche, Lyne, Madigan, & Feeney, 2017). In a study conducted in Switzerland 12% of the patients were mistaken and thought that they were admitted voluntarily whereas they were forced to go to hospital or the reverse (Bonsack & Borgeat, 2005). Informal coercion, such as leverage, can also influence the level of perceived coercion (Burns et al., 2011). In the Swiss study, 74% of patients felt they had been under pressure to be hospitalized, whether or not they were involuntarily admitted. Moreover, 40% of involuntary and 86% of voluntary patients reported that their hospitalization was justified afterward (Bonsack & Borgeat, 2005). It is known that patients revise the belief that they did not need hospitalization after discharge (Gardner et al., 1999). Nevertheless, the perception of coercion did not change. Patients made a clear distinction between need for hospitalization and feeling of coercion (Bonsack & Borgeat, 2005). This suggests that patients are affected in some way or another by their hospitalization even if they recognise that they needed it (Bonsack & Borgeat, 2005; Gardner et al., 1999). In order to better understand the impact of the perceived usefulness of hospitalization and the perceived status of admission on perceived coercion we conducted this observational study. The first goal was to disentangle the contribution of the legal and of the perceived status of admission in predicting perceived coercion at admission and during hospitalization. The second goal was to investigate to which extent perception of the usefulness of the hospitalization affected perceived coercion.

2. Material and methods

2.1. Participants

Patients were recruited during their hospitalization in Lausanne University Hospital's Department of Psychiatry. Patients were approached by a research assistant in the presence of their attending doctor or nurse. After a period of consideration, people who agreed to participate signed the consent form and were interviewed individually. Written informed consent was obtained from all participants. Approval

for this study was granted by the Human Research Ethics Committee of the Canton Vaud (protocol #2016-00768). In order to evaluate potential selection bias linked to informed consent and voluntary participation, we were also allowed to record socio-economic data and diagnostic of patients who were approached but refused to participate. This information was provided by the staff. All methods were carried out in accordance with the recommendations of the Human Research Ethics Committee of the Canton Vaud and the Declaration of Helsinki.

Patients were interviewed about their knowledge of their legal status of admission (voluntary/involuntary/do not know), perceived need for hospitalization (necessary/unnecessary/ do not know) and subjective improvement (much improved/slightly improved/unchanged/worsened). The legal status of admission was also recorded from the staff. The patients also completed several scales for the purpose of a psychometric validation study (Golay et al., 2017).

2.2. Measures

2.2.1. MacArthur Admission Experience Survey short form

The Admission Experience Survey (AES) short form developed for the MacArthur Coercion Study was derived from a structured interview (the *MacArthur Admission Experience Interview*) so that patients' perceptions of psychiatric hospital admission could be obtained rapidly using a paper and pencil. The AES was translated and validated into French (Golay et al., 2017). This 16 items questionnaire allows the computation of three subscales and a total score. The *Perceived Coercion* score focuses on freedom, choice, initiative, control and influence over coming into hospital; the *Negative Pressures* score focuses on being forced, threatened or physically forced to come into hospital; and the *Voice* score focuses on having a chance to voice an opinion about coming into hospital. Although easy to use and very short, the AES does not cover all aspects of coercion. The AES only refers to the hospital admission process and is therefore not suitable to measure the impact of other coercive interventions (Bergk, Flammer, & Steinert, 2010).

2.2.2. Coercion Experience Scale (CES)

The Coercion Experience Scale (CES) was based on the observation that there were only very few instruments that could be used in trials in order to evaluate the patients' subjective experience of coercive interventions in psychiatry during hospitalization (Bergk et al., 2010). The CES was translated and validated into French (Golay, Favrod, Morandi, & Bonsack, 2019). The French version of the CES includes 31 items and allows the computation of five subscores: a *Humiliation/coercion* score, a *Physical adverse effects* score, an *Interpersonal separation* score, a *Negative environmental influences* score and a *Fear* score.

2.3. Statistical analysis

For categorical variables, comparisons between groups were performed with Fisher Exact tests. To verify whether the duration between admission and the time of the interview was related to perceived status of admission, perceived need for hospitalization or perceived improvement, we used the Kruskal-Wallis test. Patients' answers were introduced as the independent variable and current duration of hospitalization as the dependent variable.

Several linear regressions were used to predict the perceived coercion scores. AES and CES scores were used as the dependent variable and hence nine models were estimated. Legal and perceived status were introduced each time as the two independent variables. Predictors were checked for multicollinearity.

To investigate to which extent perception of the usefulness of the hospitalization affected perceived coercion, three subgroups were defined: 1) patients who reported a voluntary admission 2) patients who reported an involuntary admission but perceived need for hospitalization and reported subjective improvement and 3) patients who reported an involuntary admission and did not perceived need for hospitalization

and reported no subjective improvement. Nine patients who reported an involuntary admission were not included because they had mixed feelings about their stay (hospitalization deemed necessary but no subjective improvement (n = 3) or hospitalization deemed unnecessary but subjective improvement (n = 6)). To compare these three groups we used a Bayesian approach which represent an elegant alternative to the classic problem of multiple comparison (Gelman, Hill, & Yajima, 2012; Noël, 2015). All five possible Gaussian (μ , σ) models were estimated. The first model was the homogeneous model (i.e. the model that states that the scores from the three groups do not differ and are issued from the same distribution). This model was referred as “(1, 2, 3)” and corresponded to the null hypothesis in the classical statistical testing framework. Another model was the heterogeneous model “(1) (2) (3)” that states that the scores from the three groups differ from each other and are issued from three different distributions. Models “(1) (2, 3)”, “(1, 2) (3)” and “(1, 3) (2)” were also estimated and indicate than one of the three groups differ from the two other groups. The best model was determined using the BIC (Bayesian Information Criterion) (Schwarz, 1978). The BIC balance model fit with its complexity (i.e. number of parameters). By adopting a Bayesian perspective, the BIC coefficients were used to calculate the Bayes factor (Kass & Raftery, 1995). The Bayes factor allowed us to compare the best model with the homogenous model. A Bayes factor of 4 would indicate that the best model is four time more likely than the homogenous model. Values over 3 are generally considered as sufficiently important to favour one model over another (Jeffreys, 1961; Wagenmakers, Wetzels, Borsboom, & Van Der Maas, 2011). The posterior probability of the best model was also estimated on the basis of the BIC (Noël, 2015). An equal prior probability of 1/5 was assumed for all models. All statistical analyses were performed with IBM-SPSS 25 and the AtelieR package for R (Noël, 2013).

3. Results

A total of 152 patients were included. Mean age was 41.7 (SD = 12.7) years old, and 52.6% (80) of participants were women. 30.3% (46) of patients were admitted involuntarily and 69.7% (106) were admitted voluntarily. 79.6% (121) of the patients had previous psychiatric hospitalisations and 38.2% (58) a past history of coercion. The majority of patients (69.1%; 105) were born in Switzerland or had the Swiss citizenship (74.3%; 113). Only 3.9% (6) lacked basic education and 13.2% (20) had university degree. 9.2% (14) were in training, 17.8% (27) were working part or full time, 17.8% (27) were unemployed, 41.4% (63) benefitted from a disability annuity and 13.8% (21) had a nonprofessional occupation. 64.5% (98) had no legal representative. Primary diagnoses based on the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) were: 36.2% (55) schizophrenia, 31.6% (48) depression, 11.2% (17) personality disorder, 6.6% (10) mania, 5.3% (8) anxiety and stress-related disorders, 5.3% (8) drug use and 3.9% (6) alcohol use. The average general functioning (GAF) was 41.8. The median number of days between admission and the assessment was nine days. This duration was shorter than 41 days for 90% of the patients. Patients who refused to participate (N = 28) did not differ significantly on the following variables: age, gender, diagnostic, general functioning, being born in Switzerland, having Swiss citizenship, legal status, education, occupation, legal representative, legal status of hospitalization, previous hospitalizations and past coercive measures. However, they were more likely to live in a pension or a care home (32.1% (9) vs 9.2% (14), p = .016) and were less likely to be married (14.8% (4) vs 23.0% (35), p = .020).

6.6% of voluntarily admitted patients and 30.4% of involuntarily admitted patients reported an erroneous status of admission (Table 1). This difference in proportion was statistically significant (Fisher's exact test, p < .001). The duration of hospitalization and the perceived status of admission (voluntary/involuntary/do not know) were not related (H(2) = 3.627, p = .163).

Table 1
Perceived and legal status of admission.

	Perceived status		
	Voluntary	Involuntary	Do not know
Legal status, % (n)			
Voluntary	90.6% (96)	6.6% (7)	2.8% (3)
Involuntary	30.4% (14)	67.4% (31)	2.2% (1)

Table 2
Perceived need for hospitalization and perceived status of admission.

	Perceived need for hospitalization		
	Necessary	Unnecessary	Do not know
Perceived status, % (n)			
Voluntary	88.2% (97)	5.5% (6)	6.4% (7)
Involuntary	44.7% (17)	42.1% (16)	13.2% (5)
Do not know	75.0% (3)	0.0% (0)	25.0% (1)

The perceived need for hospitalization was higher for patients who perceived their hospitalization as voluntary than for those who perceived it as involuntary (Fisher's exact test, p < .001), even if 44.7% of the latter perceived that their hospitalization was necessary (Table 2). The duration of hospitalization and the perceived need for hospitalization were not related (H(2) = 0.960, p = .619). Subgroup analysis revealed the same pattern of results for patients who perceived their hospitalization either as voluntary or involuntary.

Most patients reported much or slightly improved state (Table 3), independently of their perceived status of admission (Fisher's exact test, p = .096). The duration of hospitalization and the perceived improvement were not related (H(3) = 5.102, p = .164).

To disentangle the impact of the perceived status versus the legal status of admission on the perceived coercion at admission and during hospitalization, a series of regression models were estimated (Table 4). Levels of perceived coercion at admission were largely predicted by the perceived admission status and, to a lesser extent, by the legal status of admission. The percentage of explained variance was high. Perceived humiliation/coercion and negative environmental influences during hospitalization were only related to perceived admission status. Percentage of explained variance were moderate. Physical adverse effects, Interpersonal separation and Fear were not related to perceived or legal status of admission.

To investigate to which extent perception of the usefulness of the hospitalization affected perceived coercion and related constructs, the level of perceived coercion, negative pressure and voice at admission (AES) and the level of humiliation/coercion, physical adverse effects, interpersonal separation, negative environmental influences and ear during hospitalization (CES) were compared across these three groups. Mean scores broken down according to the best model are presented in Table 5. At admission, self-perceived voluntary patients reported lower coercion scores than self-perceived involuntary patients, independently of their perception of the usefulness of the hospitalization. During hospitalization, self-perceived voluntary patients reported lower

Table 3
Subjective improvement and perceived status of admission.

	Subjective improvement			
	Much improved	Slightly improved	Unchanged	Worsened
Perceived status, % (n)				
Voluntary	28.2% (31)	50.0% (55)	17.3% (19)	4.5% (5)
Involuntary	32.4% (12)	27.0% (10)	27.0% (10)	13.5% (5)
Do not know	50.0% (2)	50.0% (2)	0.0% (0)	0.0% (0)

Table 4
Perceived coercion and related constructs as predicted by legal and perceived hospitalization status.

Perceived coercion	Legal status	Perceived status	R ²
	β	β	
At admission (AES)			
Perceived coercion score	0.167	0.498*	0.387
Negative pressure score	0.149	0.551*	0.433
Voice score	-0.093	-0.576*	0.409
Total score	0.172*	0.594*	0.518
During hospitalization (CES)			
Humiliation/coercion score	-0.015	0.490*	0.219
Physical adverse effects score	-0.001	-0.030	0.001
Interpersonal separation score	0.178	0.113	0.071
Negative environmental influences score	-0.149	0.258*	0.038
Fear score	0.094	-0.159	0.015

* p < .05.

humiliation and coercion scores than self-perceived involuntary patients, whether or not they perceived the usefulness for hospitalization and reported subjective improvement. However, patients from the three groups reported similar Physical adverse effects scores, Negative environmental influences scores and Fear scores. Finally, self-perceived voluntary patients and involuntary patients who perceived the need for hospitalization and reported subjective improvement reported lower Interpersonal separation scores than self-perceived involuntary patients who reported that the hospitalization was unnecessary. However the Bayes factor (1.16) indicated that the evidence in favour of this model over the homogeneous model was anecdotal.

4. Discussion

About one patient out of seven reported an erroneous status of admission. This is remarkably similar to a study conducted in the same hospital in 2002 who reported a 12% rate (Bonsack & Borgeat, 2005). The fact that involuntary patients were more often mistaken could be easily explained by their lower level of functioning or by the fact that, even if that was mandatory according to the legal framework, not all

the patients have been informed by doctors of the coercive nature of their admission. However, it may also suggest that involuntary hospitalizations are not always perceived as coercive moments by patients, especially when associated with the perception of being included in a fair decision-making process (Lidz et al., 1995). In this sample, the voice scale was negatively correlated with the perceived coercion scores, adding support to this hypothesis (Golay et al., 2017).

On the one hand, the legal status of admission only contributed slightly to the perceived coercion at admission, but on the other hand the perceived status strongly influenced perceived coercion at admission and to a lesser degree the related constructs during hospitalization. The fact that perceived coercion was only marginally related to the legal admission status leaves possibilities for interventions that reduce perceived coercion regardless of legal status. Indeed, despite the desire to make psychiatric treatment more humane, it is difficult, or even impossible to completely avoid coercion. Several approaches have recently been developed and could limit perceived coercion among psychiatric patients: patient empowerment, cooperation with professionals (Danzer & Wilkus-Stone, 2015), patient centered care and respect of users' preferences (Barry & Edgman-Levitan, 2012), a moral approach to coercion (Lore, Hem, & Molewijk, 2015), and respect for patients' freedom of choice and values (Valenti et al., 2015). However, we must also highlight the fact that the first point of contact during the process of admission could greatly influence the level of perceived coercion or procedural justice. In a post-hoc analysis, we found that patients that were brought to the hospital by the police reported higher coercion throughout the admission. Therefore, future interventions should also consider alternative pathways to admission.

The rates of voluntary and involuntary patients who perceived that their hospitalization was necessary when interviewed was substantial. Involuntary patients were still more doubtful about the usefulness of their hospitalization than voluntary patients and only less than half of them perceived its usefulness. While these rates are likely to be underestimated because patients were still benefiting from the hospital treatment when interviewed, they were almost identical to those reported more than one decade ago (Bonsack & Borgeat, 2005). Even though this could be to some extent expected because of the regression towards the mean, most patients reported much or slightly improved state, independently of perceived status of admission. The duration of

Table 5
Perceived coercion: comparison between patients who reported a voluntary admission and patients who reported an involuntary admission and perceived/did not perceived need for hospitalization and reported/did not reported subjective improvement.

	(1) Perceived voluntary status N = 110	Perceived involuntary status		Best model ^a	Bayes Factor against null hypothesis ^b	Probability of the model to be true ^c
	(2) Perceived need and improvement N = 13	(3) Did not perceived need and improvement N = 10				
Perceived coercion, Mean (SD)						
At admission (AES scale)						
Perceived coercion score (0-5)	1.92 (1.64)	4.38 (0.87)	4.88 (0.40)	(1) (2,3)	4.38 * 10 ⁹	0.895
Negative pressure score (0-6)	1.07 (1.61)	3.77 (1.36)	4.44 (0.98)	(1) (2,3)	2.24 * 10 ¹¹	0.871
Voice score (0-3)	2.47 (0.90)	1.15 (1.07)	0.45 (0.76)	(1) (2,3)	5.60 * 10 ⁹	0.677
Total score (0-14)	3.53 (3.40)	10.00 (2.65)	11.87 (1.16)	(1) (2,3)	5.62 * 10 ¹⁴	0.815
During hospitalization (CES scale)						
Humiliation/coercion score (0-64)	17.32 (15.96)	34.92 (15.92)	41.89 (13.32)	(1) (2,3)	8.52 * 10 ⁴	0.867
Physical adverse effects score (0-12)	1.85 (2.90)	1.46 (2.22)	1.44 (3.36)	(1, 2, 3)	1.00	0.763
Interpersonal separation score (0-8)	1.41 (2.14)	1.92 (2.50)	3.10 (2.23)	(1,2) (3)	1.16	0.374
Negative environmental influences score (0-16)	3.02 (3.38)	3.38 (4.09)	4.67 (4.77)	(1, 2, 3)	1.00	0.674
Fear score (0-8)	1.22 (2.15)	0.42 (0.79)	2.00 (2.45)	(1, 2, 3)	1.00	0.646

^a On the basis of the BIC coefficient.

^b Bayes factor comparing the best model with the homogeneous model (1, 2, 3).

^c Among all possible models ((1, 2, 3) / (1, 2) (3) / (1) (2, 3) / (1, 3) (2) / (1) (2) (3)).

hospitalization at the time of the interview was not related to the perceived usefulness of the hospitalization either. All these findings reinforces the fact that feelings of coercion, legal status and need for hospitalization definitively interplay but should not be confused (Bonsack & Borgeat, 2005).

While patients who reported an involuntary admission frequently reported subjective improvement during their stay, their perception of coercion markedly differed from patients who thought they were admitted on a voluntary basis. The perception of the usefulness of the hospitalization did not change their perception of coercion at admission. This is not limited to the admission process itself. During hospitalization patients who reported a voluntary admission also reported lower humiliation and coercion scores than patients who reported an involuntary admission even when they perceived the need for hospitalization and reported subjective improvement. This is a cause of concern given that the level of perceived coercion could negatively influence the patient's cooperation during treatment (Pawłowski et al., 2005) and may represent a barrier to mental health service use (Jaeger & Rossler, 2010; Swartz et al., 2003). It is therefore important to take some time to explain and negotiate hospitalization with a reluctant patient. For some subgroups of patients, even though criteria for a psychiatric admission exist, choices for alternatives could be proposed. Models of care such as "crisis intervention team" (Paton et al., 2016), "early intervention for psychosis" (Randall et al., 2015), "assertive community treatment" (Clausen et al., 2016) or "housing first" (Leyla, Ana, Marybeth, Sam, & N., 2003) could in some instances represent less coercive valid alternatives to hospitalization, or give at least some room for negotiation with patient. Shared treatment decision-making also appears to have small beneficial effects on indices of treatment-related empowerment (Stovell, Morrison, Panayiotou, & Hutton, 2016). However, during hospitalization, several domains (physical adverse effects, negative environmental influences and fear) were apparently unaffected and may represent a part of perceived coercion that was not related to the perceived status of admission or the perceived usefulness of hospitalization. Nevertheless, perception of need for hospitalization and subjective improvement potentially had an effect on interpersonal separation. Voluntary patients and involuntary patients who felt that the hospitalization was necessary possibly reported lower scores than other patients. Because the homogeneous model was almost as likely, we should be cautious before suggesting that interpersonal separation with staff is evident only when the necessity of hospitalization is considered doubtful.

Our study has several limitations that could be the focus of future studies. First, the design is mainly cross-sectional and a longitudinal study may be used to examine perceived coercion at different moments during hospitalization and after discharge. Patients are expected to be allocated to coercion/voluntary care based on severity and function, so they could be expected to be rather different and subjected to different care components and restrictions. Second, our study did not take diagnostics into account. Thirdly, we cannot exclude that the proportion of patients who reported much or slightly improved state could be overestimated because of regression towards the mean. Fourth, it is not possible to exclude that selection bias occurred to some extent because participation was voluntary. However, on the basis of socio-demographic data and diagnosis, patients who refused to participate did not differ markedly from patients who took part in this study.

4.1. Conclusion

If many patients revised their beliefs on the need for and benefits of hospitalization during their stay, their perception of coercion was unfortunately left partially unchanged. Perceived coercion was only marginally related to the legal admission status, which highlights the need for the development of psychosocial interventions designed to specifically reduce perceived coercion and avoid its negative effects.

Role of the funding source

This study was based on institutional funding.

Declaration of competing interest

The authors declare no conflict of interest in relation to the subject of the study.

Acknowledgment

The authors would like to thank Imane Semlali, H el ene Beuchat and Oriane Gauthier-Jaques for their contribution to data acquisition and Laurent Loutrel, Jacques Thonney and Sylfa Fassasi Gallo for their help with the patients' recruitment.

References

- Barry, M. J., & Edgman-Levitan, S. (2012). Shared decision making-the pinnacle of patient-centered care. *The New England Journal of Medicine*, 366(9), 780–781. <https://doi.org/10.1056/NEJMp1109283>.
- Bergk, J., Flammer, E., & Steinert, T. (2010). "Coercion Experience Scale" (CES)-validation of a questionnaire on coercive measures. *BMC Psychiatry*, 10(1), 5.
- Bonsack, C., & Borgeat, F. (2005). Perceived coercion and need for hospitalization related to psychiatric admission. *International Journal of Law and Psychiatry*, 28(4), 342–347.
- Burns, T., Yeeles, K., Molodynski, A., Nightingale, H., Vazquez-Montes, M., Sheehan, K., & Linsell, L. (2011). Pressures to adhere to treatment ('leverage') in English mental healthcare. *The British Journal of Psychiatry*, 199(2), 145–150.
- Clausen, H., Landheim, A., Odden, S., Šaltytė Benth, J., Heiervang, K. S., Stuen, H. K., ... Ruud, T. (2016). Hospitalization of high and low inpatient service users before and after enrollment into Assertive Community Treatment teams: A naturalistic observational study. *International Journal of Mental Health Systems*, 10(1), 14. <https://doi.org/10.1186/s13033-016-0052-z>.
- Danzer, G., & Wilkus-Stone, A. (2015). The give and take of freedom: The role of involuntary hospitalization and treatment in recovery from mental illness. *Bulletin of the Menninger Clinic*, 79(3), 255–280.
- Gardner, W., Lidz, C. W., Hoge, S. K., Monahan, J., Eisenberg, M. M., Bennett, N. S., ... Roth, L. H. (1999). Patients' revisions of their beliefs about the need for hospitalization. *American Journal of Psychiatry*, 156(9), 1385–1391.
- Gelman, A., Hill, J., & Yajima, M. (2012). Why we (usually) don't have to worry about multiple comparisons. *Journal of Research on Educational Effectiveness*, 5(2), 189–211. <https://doi.org/10.1080/19345747.2011.618213>.
- Golay, P., Favrod, J., Morandi, S., & Bonsack, C. (2019). Psychometric properties of the French-language version of the Coercion Experience Scale (CES). *Annals of General Psychiatry*, 18(1), 4.
- Golay, P., Semlali, I., Beuchat, H., Pomini, V., Silva, B., Loutrel, L., ... Bonsack, C. (2017). Perceived coercion in psychiatric hospital admission: Validation of the French-language version of the MacArthur Admission Experience Survey. *BMC Psychiatry*, 17(1), 357.
- Hiday, V. A., & Goodman, R. R. (1982). The least restrictive alternative to involuntary hospitalization, outpatient commitment - Its use and effectiveness. *Journal of Psychiatry & Law*, 10(1), 81–96.
- Jaeger, M., & Rossler, W. (2010). Enhancement of outpatient treatment adherence: Patients' perceptions of coercion, fairness and effectiveness. *Psychiatry Research*, 180(1), 48–53.
- Jeffreys, H. (1961). *Theory of probability* (3rd ed.). Clarendon: In. Oxford.
- Jordan, J. T., & McNeil, D. E. (2019). Perceived coercion during admission into psychiatric hospitalization increases risk of suicide attempts after discharge. *Suicide & Life-Threatening Behavior*. <https://doi.org/10.1111/sltb.12560>.
- Kass, R. E., & Raftery, A. E. (1995). Bayes factors. *Journal of the American Statistical Association*, 90(430), 773–795.
- Katsakou, C., Marougka, S., Garabette, J., Rost, F., Yeeles, K., & Priebe, S. (2011). Why do some voluntary patients feel coerced into hospitalisation? A mixed-methods study. *Psychiatry Research*, 187(1–2), 275–282.
- Kinner, S., Harvey, C., Hamilton, B., Brophy, L., Roper, C., McSherry, B., & Young, J. (2017). Attitudes towards seclusion and restraint in mental health settings: Findings from a large, community-based survey of consumers, carers and mental health professionals. *Epidemiology and Psychiatric Sciences*, 26(5), 535–544.
- Leyla, G., Ana, S., Marybeth, S., Sam, T., & N. F. S. (2003). Housing, hospitalization, and cost outcomes for homeless individuals with psychiatric disabilities participating in continuum of care and housing first programmes. *Journal of Community & Applied Social Psychology*, 13(2), 171–186. <https://doi.org/10.1002/casp.723>.
- Lidz, C., Hoge, S. K., Gardner, W., Bennett, N. S., Monahan, J., Mulvey, E. P., & Roth, L. H. (1995). Perceived coercion in mental hospital admission: Pressures and process. *Archives of General Psychiatry*, 52(12), 1034–1039.
- Lidz, C., Mulvey, E. P., Hoge, S. K., Kirsch, B. L., Monahan, J., Eisenberg, M., ... Roth, L. H. (1998). Factual sources of psychiatric patients' perceptions of coercion in the hospital admission process. *American Journal of Psychiatry*, 155(9), 1254–1260.
- Lorem, G. F., Hem, M. H., & Molewijk, B. (2015). Good coercion: Patients' moral evaluation of coercion in mental health care. *International Journal of Mental Health*

- Nursing*, 24(3), 231–240.
- Newton-Howes, G., & Mullen, R. (2011). Coercion in psychiatric care: Systematic review of correlates and themes. *Psychiatric Services*, 62(5), 465–470.
- Noël, Y. (2013). *AtelierR: A GTK GUI for teaching basic concepts in statistical inference, and doing elementary bayesian tests. R package version 0.24*.
- Noël, Y. (2015). *Psychologie statistique avec R*. EDP Sciences.
- Nyttingnes, O., Ruud, T., & Rugkåsa, J. (2016). 'It's unbelievably humiliating'—Patients' expressions of negative effects of coercion in mental health care. *International Journal of Law and Psychiatry*, 49, 147–153.
- O'Donoghue, B., Roche, E., Lyne, J., Madigan, K., & Feeney, L. (2017). Service users' perspective of their admission: A report of study findings. *Irish Journal of Psychological Medicine*, 34(4), 251–260.
- O'Donoghue, B., Roche, E., Shannon, S., Lyne, J., Madigan, K., & Feeney, L. (2014). Perceived coercion in voluntary hospital admission. *Psychiatry Research*, 215(1), 120–126.
- Paton, F., Wright, K., Ayre, N., Dare, C., Johnson, S., Lloyd-Evans, B., ... Meader, N. (2016). Improving outcomes for people in mental health crisis: A rapid synthesis of the evidence for available models of care. *Health Technology Assessment*, 20(3), 1–162. <https://doi.org/10.3310/hta20030>.
- Pawłowski, T., Kiejna, A., & Rymaszewska, J. (2005). Involuntary commitment as a source of perceived coercion. *Psychiatria Polska*, 39(1), 151–159.
- Randall, J. R., Vokey, S., Loewen, H., Martens, P. J., Brownell, M., Katz, A., ... Chateau, D. (2015). A systematic review of the effect of early interventions for psychosis on the usage of inpatient services. *Schizophrenia Bulletin*, 41(6), 1379–1386. <https://doi.org/10.1093/schbul/sbv016>.
- Sampogna, G., Luciano, M., Del Vecchio, V., Poci, B., Palumbo, C., Fico, G., ... Fiorillo, A. (2019). Perceived coercion among patients admitted in psychiatric wards: Italian results of the EUNOMIA study. *Frontiers in Psychiatry*, 10(316), <https://doi.org/10.3389/fpsy.2019.00316>.
- Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, 6(2), 461–464.
- Silva, B., Golay, P., Boubaker, K., Bonsack, C., & Morandi, S. (2019). Community treatment orders in Western Switzerland: A retrospective epidemiological study. *International Journal of Law and Psychiatry*, 67. <https://doi.org/10.1016/j.ijlp.2019.101509>.
- Silva, B., Golay, P., & Morandi, S. (2018). Factors associated with involuntary hospitalisation for psychiatric patients in Switzerland: A retrospective study. *BMC Psychiatry*, 18(1), 401.
- Stovell, D., Morrison, A. P., Panayiotou, M., & Hutton, P. (2016). Shared treatment decision-making and empowerment related outcomes in psychosis: Systematic review and meta-analysis. *The British Journal of Psychiatry*, 209(1), 23–28.
- Swartz, M. S., Swanson, J. W., & Hannon, M. J. (2003). Does fear of coercion keep people away from mental health treatment? Evidence from a survey of persons with schizophrenia and mental health professionals. *Behavioral Sciences & the Law*, 21(4), 459–472.
- Szmukler, G. (2008). Treatment pressures, coercion and compulsion in mental health care. *Journal of Mental Health*, 17(3), 229–231. <https://doi.org/10.1080/09638230802156731>.
- Theodoridou, A., Schlatter, F., Ajdacic, V., Rössler, W., & Jäger, M. (2012). Therapeutic relationship in the context of perceived coercion in a psychiatric population. *Psychiatry Research*, 200(2–3), 939–944.
- Valenti, E., Banks, C., Calcedo-Barba, A., Bensimon, C. M., Hoffmann, K.-M., Pelto-Piri, V., ... Rugkåsa, J. (2015). Informal coercion in psychiatry: A focus group study of attitudes and experiences of mental health professionals in ten countries. *Social Psychiatry and Psychiatric Epidemiology*, 50(8), 1297–1308.
- Wagenmakers, E. J., Wetzels, R., Borsboom, D., & Van Der Maas, H. L. (2011). Why psychologists must change the way they analyze their data: The case of psi: Comment on Bem (2011). *Journal of Personality and Social Psychology*, 100(3).