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Conference paper
Review

COERCION AND COMPULSORY TREATMENT IN ANOREXIA NERVOSA: A SYSTEMATIC REVIEW ON LEGAL AND ETHICAL ISSUES

Agnese Minuti*, Sara Bianchi*, Grazia Pula, Andreina Perlangeli, Martina Tardani, Lorenzo Cuzzucoli, Laura Pastorino, Giulia Menculini & Patrizia Moretti

Section of Psychiatry, Department of Medicine and Surgery, University of Perugia, Perugia, Italy

**authors contributed equally*

SUMMARY

Background: *The aim of this systematic review is to critically summarize current literature concerning ethical and legal issues related compulsory treatment (CT) in patients with anorexia nervosa (AN).*

Subjects and methods: *Relevant articles were identified following the PRISMA guidelines after performing title/abstract screening and full text screening. We built the search string using the following terms: "coercion", "compulsory/involuntary treatment", "eating disorders", "anorexia nervosa", "mental capacity", "ethical/legal issues". Research was conducted on original articles published from any time until June 2023.*

Results: *Out of 302 articles retrieved, seven were included for the analysis, including five studies on mental health practitioners, and two on hospital records. The results show that mental health practitioners a) favor the use of CT, but the support is weaker in AN vs other psychiatric conditions (i.e., schizophrenia or depression); b) support of mental capacity is controversial and some variability was found between different categories of psychiatrists; in particular, both ED-treating and CT experienced mental health practitioners support higher use of CT and lack of capacity of AN patients vs. general psychiatrists; c) use of CT is more supported in the early vs. chronic AN, when chances of success are lower. The analysis of hospital records identified 1) comorbidities, previous admissions and current health risk as CT predictors in 96 Australian patients; 2) family conflicts association with longer hospitalizations in 70 UK patients.*

Conclusion: *CT is usually intended for patients with AN at the onset of disease, mainly to prevent risk of death and self-injury. However, there is some variability in the attitude to perform CT among psychiatrists working in different setting, also related to the concept of mental capacity. There are also cross-national variabilities regarding CT. We can conclude that forcing patients to treatment is a conceivable option, but the balance between protection respect for patient's autonomy should be evaluated on individual bases.*

Key words: *anorexia nervosa – coercion - involuntary treatment – ethics - international law*

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INTRODUCTION

Anorexia nervosa (AN) is a serious psychiatric disorder, characterized by a chronic course and often leading to high levels of disability and mortality (Chesney et al. 2014). The misrepresentation of body image and intense fear of being obese cause cognitive distortions gathered on food and weight control and subsequent dysfunctional behaviors aimed at weight loss (Attia & Walsh 2009, Rigaud et al. 2011, Schreyer et al. 2016). Eating disorders (ED), including AN, appear to be the 12th global cause of disability and this ranking remained stable in recent decades among high-income countries, while it is increasing in low-income and middle-income countries (Hoek 2016). The overall incidence rate of AN is fairly stable, while it is increasing among youths, reaching up to 4% of females and 0.3% of males (Van Eeden et al. 2021). The mortality of AN was estimated around 4% per decade of follow-up, with a standardized mortality ratio of 5.35, due to the consequences of prolonged starvation and suicide (Fichter & Quadflieg 2016, Signorini et al. 2007). The treatment of AN remains an open challenge, since it requires a complex approach in consideration of the frequent psychiatric comorbidities and the medical risks associated with the secondary effects of the disorder (Bulik et al. 2007, Keski-Rahkonen & Mustelin 2016, Steinhausen 2002). Furthermore, the management of patients with AN is made very difficult by their frequent treatment refusal, which is a recurrent clinical feature of AN, often related to lack of insight (Schreyer et al. 2016). In fact, these patients perceive the treatments as a form of coercion and from a legislative perspective this generates controversies (Takimoto 2022b). Treatment against the patient's will includes different forms of compulsion and coercion. The removal of the possibility of choice about being treated is named as compulsion and can be exercised through legal measures (Tan et al. 2010). Compulsory treatment (CT) of AN usually involves involuntary hospitalization and procedures such as referral to a locked ward, forced feeding and physical restraint (Clausen & Jones 2014). The term coercion, on the other hand, is used to express the negative perception of loss of freedom by the patient, without the need of categorizing the treatment as formally compulsory (Guarda 2008, Tan et al. 2010). Forms of strong clinical management, despite non adopting legal measures, can anyway refer to the context of coercion, being experimented by patients as a restriction of their autonomy (Carney et al. 2007). Furthermore, clinicians

and family members often exercise pressure on patients, persuading them to cooperate, i.e. employing the threat of involuntary commitment orders (Guarda et al. 2007). As a consequence, even though CT refers to a minority of cases, the perception of high levels of coercion by AN patients is frequent and goes beyond formal measures of forced commitment, representing a complex and debated issue (Clausen & Jones 2014, Guarda 2008, Schreyer et al. 2016). The ethical and legal aspects of coercitive treatment in AN have been widely debated, with no agreement about how to manage treatment avoidance (Andersen 2007, Appelbaum & Rumpf 1998, Campbell & Aulisio 2012, Douzenis & Michopoulos 2015, Holm et al. 2012, Zhang et al. 2015). Consequently, the aim of the present systematic review was to summarize attitude among mental health specialists and patients with AN to perform CT or to respect patient autonomy. It should be emphasized that all the arguments for or against TSO in AN have been substantially based on ethical, philosophical, and legal principles, but not on empirical data or on the organic damage caused by severe malnutrition.

SUBJECTS AND METHODS

The present review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement 2020 (Page et al. 2021a,b). The declaration of Helsinki - Ethical principles for medical research involving humans - was followed. Ethical approval and informed consent are not applicable, not needed.

Literature search

The following electronic databases were systematically searched from any time until June, 11, 2023: MEDLINE/PubMed/Index Medicus, Web of Science, and Scopus. The obtained references were cross-checked. Additional literature was screened through hand-searching the reference lists of relevant articles.

Literature search, title/abstract screening, and full-text review were performed by two blind independent investigators (AM, SB). Two investigator was consulted whenever a consensus could not be achieved (GP, LC). Methodological quality assessment was performed by three independent investigators (AP, LP, MT). Three investigators independently contributed to data extraction (AM, GP, SB); consensus was reached through discussion. The obtained references were cross-checked and the reference list of selected articles was screened in order to search for additional studies.

The following search strings were used:

- MEDLINE/PubMed/Index Medicus: ("ethic*" OR "legal" OR "guardian*" OR "tutor" OR "consent" OR "administrator" OR "mental capacit*" OR "living will") AND ("Anorexia Nervosa" [Mesh] OR Anorexia Nervosa) AND ("Coercion"[Mesh] OR "Commitment of Mentally Ill"[Mesh] OR "Restraint, Physical" [Mesh] OR forced OR compulsory OR involuntary OR mandatory OR guardianship OR nasogastric OR tube OR enteral));
- Scopus: (("ethic*" OR "legal" OR "guardian*" OR "tutor" OR "consent" OR "administrator" OR "mental capacit*" OR "living will") AND (anorexia AND nervosa) AND ("Coercion" OR "Commitment of Mentally Ill" OR "Restraint, Physical" OR forced OR compulsory OR involuntary OR mandatory OR guardianship OR nasogastric OR tube OR enteral));
- Web of Science: (ethic* OR legal OR guardian* OR tutor OR consent OR administrator OR mental capacit* OR living will) AND (anorexia AND nervosa) AND (Coercion OR Commitment of Mentally Ill OR Restraint, Physical OR forced OR compulsory OR involuntary OR mandatory OR guardianship OR nasogastric OR tube OR enteral).

Study selection

Original studies reporting ethical and legal issues concerning CT in patients with AN, diagnosed according to DSM-5-TR, or previous editions or the International Classification of Diseases (ICD), 10th or previous editions, were included. Surveys investigating physicians' attitudes and propensity to CT in patients suffering from AN were included as well. No language restriction was applied. Case reports, book chapters, reviews, letters to the editor, and commentaries were excluded, as well as studies not reporting medical data (es. ethnographical or legal studies). Studies including patients with diagnosis of bulimia nervosa or other ED, without stratifying the results according to diagnosis, were excluded. Studies that were not based on populations of compulsorily admitted patients but considered the "involuntary-like" procedures and the related perceived coercion, were not included.

Data extraction

For each of the included studies, we extracted information about country, study design, size and socio-demographic characteristics of the sample (age, sex, ethnicity), setting, diagnosis and diagnostic evaluation, method of recruitment, outcome and outcome evaluation, and limitations of the study.

Risk of bias assessment

Two reviewers (GP, LC) independently evaluated the risk of bias of each of the included studies and discussed their assessments to achieve consensus. To assess appropriateness of research design, recruitment strategy, response rate, representativeness of sample, objectivity/reliability of outcome determination, power calculation provided, and appropriate statistical analyses we used a

quality score modified from the Newcastle-Ottawa scale and adapted to cross-sectional studies, due to the nature of the included research (Modesti et al. 2016). Score disagreements were resolved by consensus and a final agreed-upon rating was assigned to each study.

RESULTS

Systematic search results

The database search initially yielded 302 records. Duplicates (n=131) were identified and subsequently excluded. After title and abstract screening, 125 papers did not meet the inclusion criteria. Consequently, 46 articles were deemed eligible for further inspection. After full text examination, 7 studies were selected. No additional records were found through hand-screening of references. For the flow diagram presenting the whole process of inclusion, see Figure 1.

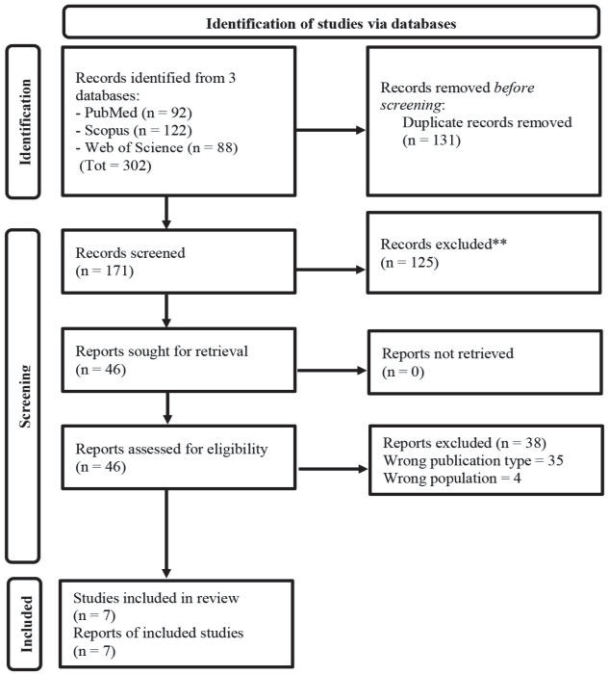

Figure 1. PRISMA 2020 Flowchart

Content results

Study characteristics are shown in Table 1. Results are presented in two different groups: I- *studies based on mental health practitioners*, investigating their attitudes towards CT in AN, especially in comparison with other psychiatric disorders, and in relation to AN patients' mental capacity and different illness stages; *II - studies based on AN patients*, investigating clinical characteristics and legal issues related to CT.

Studies based on mental health practitioners

Five of the included studies investigated mental health practitioners' attitudes towards CT. All studies were designed as cross-sectional and gathered information through different types of specifically designed self-administered questionnaires; four out of five were addressed to physicians only, while one (Fernández-Hernández et al. 2022) also involved psychologists and mental health nurses, as well as trainees.

Compulsory treatments in AN vs other psychiatric disorders

One study (Stoll et al. 2021) compared the use of CT in AN to other conditions of severe and persistent mental illness, particularly schizophrenia and depression, among 457 German-speaking Swiss psychiatrists. They found that psychiatrists were less willing to use CT when treating people suffering from severe and persistent AN than when they had to treat subjects with severe and persistent schizophrenia and major depressive disorder. Moreover, higher illness severity, specifically psychosis, was more often found in patients ascribed with decision-making incapacity, this possibly explaining the higher rate of accepting compulsory interventions in subjects with severe and persistent schizophrenia compared to those with severe and persistent AN. Similarly, another study involving 686 UK psychiatrists investigated psychiatrists' view on the competence of AN patients to take decisions concerning treatments and found significantly high consensus on the use of CH according to national laws, but greater for mental disorders in general than for AN (74% vs 43%, $p<0.001$). In the case of AN, CH was considered especially in case of death risk (80% of the respondents). Noteworthy, 90.4% of the sample agreed on CH according to national laws for compulsory re-feeding (Tan et al. 2008).

Mental capacity in AN

Tan et al. (2008) investigated the underlying beliefs about the nature of AN, finding some variability among different categories of psychiatrists. In fact, patients with mild AN were generally seen as having more choice (69% of the respondents) and ability to control (56% of the respondents) their behaviors, and 40% of the sample believed they could reason properly about treatment, while the opposite was not true for patients with severe AN (59%, 79% and 8%, respectively). However, ED specialists were reported less frequently that patients with mild AN could choose to engage in or were able to control weight loss behaviors. They also tended to support CT of patients with AN independently of views about their decision-making capacity (Tan et al. 2008). In a Japanese study (Takimoto 2022b) investigating 55 ED-treating physicians' and 77 Mental Health Care Review Board (MHCRB, ethic committee) members' attitudes towards involuntary hospitalization according to Japanese law in patients suffering from AN, the majority reported that mental capacity of AN patients was partially impaired and insufficient to accept

Table 1. Characteristics of the included studies

Study	Brief description of the study	Sample and Setting	Recruitment	Outcome	Outcome evaluation	Results
Tan 2008 (UK) CSS	A self-completed attitudinal questionnaire was sent to different categories of psychiatrists to evaluate their approach towards AN patients' competence to make treatment decisions and explore the factors regarded as relevant to the consideration of the use of CT.	686 psychiatrists/ 1322 (51.9% response rate). Sex: Males 357 (52.2%). Specialties: 209 (30.4%) CAP, 366 (56.4%) GAP, 139 (20.3%) other subspecialties. Experience: mostly consultant psychiatrists 496 (72.4%), with 440 (64.2%) having worked for more than 10 yr; 39 (5.7%) worked in settings where they only treated ED, 68 (10.0%) worked in settings with special interest in ED.	Psychiatrists who had consented to receive research mailings, and who belonged to the South East Region General Adult Faculty, the South East Region Child and Adolescent Faculty, or the EDSIG of the Royal College of Psychiatrists across the UK, received anonymous questionnaires by mail first in October 2004 and, to non-responders, in February 2005.	1. Attitude to use of the MHA; 2. impact of having AN on competence; 3. attitudes to the impact of different severities of AN; 4. differences of views between CAPs and other specialists.	Questionnaire - developed by the investigators through an iterative process – conteining 37 attitudinal items, each iteam having 7 possible responses scored 0 to 6 on an ordinal scale.	1. *Use of the MHA*: higher approval of hospitalization enforcement for mental disorders in general vs AN (74% vs 43%, p<0.001). 90.4% agreed on MHA for compulsory re-feeding in AN patients.Reasons for MHA: risk of death (80% of respondents); risk to physical health (39%); family being keen to support CT was the least important (highest rate only in 3%); 2. *Impact of having AN on competence*: 56% agreed that AN compromises the competence of an adolescent to make treatment decisions, 72 % agreed on treatment refusal being due to the influence of AN; 3. *Severities of AN*: mild AN patients were considered to be choose (69%) and to control (56%) their behaviors, and to reason properly about treatment (40%) vs severe AN patients. ED specialists believe that mild AN patients cannot choose to engage in (p=0.005) or are able to control (p=0.005) weight loss behaviors. 4. *Differences of views between specialists*: CAPs support CT in adolescents (p=0.01), most of them with parental consent (p<0.001), believing that the presence of AN compromises competence to refuse treatment (p<0.001). 13 factors accounted for 64.6% to the total variance, three of which for a quarter of it: 1) support for the powers of the MHA to protect from harm, 2) primacy of best interests and 3) autonomy viewed as being preserved in AN. ED specialists scored higher than non-ED specialists on Factor 1 (p=0.003) and lower on Factor 3 (p=0.014). CAPs scored higher than non-CAPs on Factor 2 (p<0.001). Men scored higher than women on Factor 3 (p=0.014).
Stoll 2021 (Switzerland) CSS	German-speaking Swiss psychiatrists were asked about the care of SPMI patients and their attitudes towards mandatory interventions for patients with severe and persistent AN, schizophrenia, and depression.	457/1311 German-speaking psychiatrists in Switzerland, members of the SSPP (34.9% response rate). Mean age: 57.7 years (4.4% missing); gender: 58.9% were male (4.2% missing); mean work experience: 27.7 years (5% missing data).	After SSPP informed members about the study, they received the survey by mail with a prepaid return envelope, from February to March 2016. Participants also received a reminder postcard 4 weeks later.	Psychiatrists' attitudes on: 1. respecting the Patients' Autonomy; 2. acting against the Patients' Wishes; 3. compulsory Interventions in Patients With SPMI	Survey in German language with 42 items and an open comment field. 5 questions regarded SPMI patients treatment, 13 palliative care and assisted suicide, 7 were related to three case vignettes (answers through 7-point Likert scale).	*Severe and persistent AN* - 96 (21.1%) of psychiatrists would act against the patient's will, 303 (66.3%) would not, and 51 (11.2%) remained neutral (1.3% missing); - 117 (25.6%) found the mandatory interventions that led to a temporary reduction in quality of life acceptable, 284 (62.1%) would not, and 53 (11.6%) remained neutral (0.7% missing). *Specific items* - "In this case, I would accept a temporary decrease in quality of life because of coercive measures.": psychiatrists disagreed more in the case of severe and persistent AN (Mdn = −1.00) vs severe and persistent schizophrenia (Mdn = 0.00; U = 80065.50, z = −5.61, p < 0.001, r = −0.19) and severe and persistent major depressive disorder (Mdn = 0.00; U = 85498.50, z = −4.36, p<0.001, r = −0.14); - "In this case, I would not proceed against the patient's wishes.": psychiatrists agreed significantly more in the case vignette depicting the patient with severe and persistent AN (Mdn = 2.00) vs severe and persistent schizophrenia (Mdn = 0.00; U = 74911.00, z = −6.48, p<0.001, r = −0.22) and severe and persistent major depressive disorder (Mdn = 1.00; U = 80187.50, z = −5.29, p<0.001, r = −0.18).

Note: CSS = Cross-Sectional Study; AN = Anorexia Nervosa; CT = Compulsory Treatment(s); CAP = Child and Adolescent Psychiatrist(s); GAP = General Adult Psychiatrist(s); ED = Eating Disorder(s); EDSIG = Eating Disorder Special Interest Group; MHA = Mental Health Act; SPMI = severe and persistent mental illness; SSPP = Swiss Society of Psychiatry and Psychotherapy; VH = Voluntarily Hospitalization; HMCP = Hospitalization for Medical Care and Protection; CH = Compulsory Hospitalization

Table 1. Continues

Study	Brief description of the study	Sample and Setting	Recruitment	Outcome	Outcome evaluation	Results
Takimoto 2022a (Japan, UK, USA) CSS	Nation-wide survey investigating the attitudes of Physicians in Japan, the UK, and the US towards towards compulsory treatment in AN patients refusing treatment.	Physicians: Japan (n =55, 38.2% psychosomatic, 43.6% psychiatrists, and 18.2% adolescent medicine), UK (n =84, psychiatrists), USA (n =81, psychiatrists). Work experience: Mostly work experience of 10-19 yr and in all three countries, mostly treatment of 50-99 pt/yr in Japan and USA, 20-49 pt/yr in UK. Setting: 52.9 % ED clinics/hospitals in UK, 61.2% in USA.	Members of ED-related societies: Japan: Members of the Japanese ED Society; UK: Physicians regisetered with Doctors.net.uk; USA: Physicians registered with MD.Linx. All received an anonymous questionnaire (by email in Japan, web-based in UK and USA).	Attitudes of expert ED-treating physicians, in Japan, UK, and USA, towards compulsory traeatment (CT) of AN patients refusing treatment.	Questionnaire containing 4 case vignettes of patients with AN refusing treatment: A, severe acute, with/without family consent to treatment; B1, severe chronic case with/ without family consent; The physician was asked to choose for or against compulsory hospitalization (CH)	*Case A, young and acute AN: with family consent*, 53 (96%) physicians in Japan, 65 (77%) in the UK, and 54 (66%) in the US would choose CH. Bilateral comparisons showed significant differences Japan vs UK (p=0.003) and vs US (p=0.00013). *If family left the decision to the patient*, 46 (84%) physicians in Japan, 53 (63%) in the UK, and 47 (57%) in the US would choose CH. Bilateral comparison showed a significant difference in Japan vs UK (p=0.008) and vs US (p=.00049). Japan: no difference in propensity to CH depending on family request; UK an USA: higher propensity to CH if family requested treatment. *Case B, older and severe chronic AN: with family consent,* 53 (96%) physicians in Japan, 62 (74%) in the UK, and 57 (70%) in the US would choose CH. Bilateral comparisons showed a significant difference in Japan vs UK (p=0.001) and vs US (p=0.00049). Significant bias was found in the response rates in the three countries. *If family left the decision to the patient*: 38 (69%) physicians in Japan, 56 (66%) in the UK, and 55 (67%) in the US would choose CH. No significant differences among countries. Japan: higher propensity (p=.00012) to CH if family requested treatment (n=53, 96%) then if not (n=38, 69%). UK and USA: no difference in propensity to CT depending on family request of treatment. - *Response trends by country:* No significant differences in CH propensity a) between young and older patients, b) if family consented to treatment or not; c) based on years of experience and number of cases treated/yr.
Fernández-Hernández 2022 (Spain) CSS	The study aimed to create and empirically validate a questionnaire in Spanish to measure attitudes toward capacity and involuntary institutionalizatio n in AN and to compare them across different categories of mental health professionals.	338 mental health professionals: psychiatrist 134 (39.6%); psychiatric trainees 9 (2.7%); clinical psychologist 96 (28.4%); psychology interns 9 (2.7%); general health psychologists 47 (13.9%); mental health nurse 26 (7.7%); mental health nurses 4 (1.2%); other 12 (3.6%); NS/NC 1 (0.3%). Mean work experience: 10.58 ± 10.7 years. Gender: women 237 (70.1%); Males 98 (29.0%); NS/NC 3 (0.9%). Bioethics training: 127 (37.6%). Experience in ED = Yes 220 (65.1%); No 117 (34.6%); NS/NC 1 (0.3%). Experience of support for a decision of CH: Yes 167 (49.4%); No 169 (50.0%); NS/NC 2 (0.6%).	Spanish autonomous communities' departments provided addresses of the hospitals' treating patients for AN. An invitation addressed to professionals working there was sent, and to of Spanish professional associations of physicians, psychologists, and nurses, universities and private hospital groups from October 2019 to March 2020. Less extensive forms of recruitment attempted (i.e. elements of convenience, snowball sampling).	Attitude of mental health professionals to non-voluntary hospitalization and the capacity to make decisions.	ACINOVAN questionnaire, 13 items (5 regarding CT, 3 capacity, 5 chronicity)	Strong and significant positive correlation between respondents' answers on the prointervention factor and the absence of capacity factor (Spearman's rho = 0.656; p<0.001). Moderate and significant positive correlation between the factors prointervention and chronicity (ρ = 0.402; p < 0.001). Weak and significant positive correlation between the factors absence of capacity and chronicity (ρ=0.258; p<0.001). No significant differences were found among the examined categories, exception made for those with training in bioethics who on average felt it was appropriate to implement mandatory interventions at first hospitalizations rather than in chronic situations more than those without training in bioethics (3.50 vs. 4.07, p<0.05). Professionals who had already been involved in an involuntary treatment decision on average thought it more appropriate to enact involuntary treatment than those who had no experience with it (6.01 vs 5.44, p<0.05).

Note: CSS = Cross-Sectional Study; AN = Anorexia Nervosa; CT = Compulsory Treatment(s); CAP = Child and Adolescent Psychiatrist(s); GAP = General Adult Psychiatrist(s); ED = Eating Disorder(s); EDSIG = Eating Disorder Special Interest Group; MHA = Mental Health Act; SPMI = severe and persistent mental illness; SSPP = Swiss Society of Psychiatry and Psychotherapy; VH = Voluntarily Hospitalization; HMCP = Hospitalization for Medical Care and Protection; CH = Compulsory Hospitalization

Table 1. Continues

Study	Brief description of the study	Sample and Setting	Recruitment	Outcome	Outcome evaluation	Results
Takimoto 2022b (Japan) CSS	Nation-wide survey investigating the attitudes of physicians and EC members towards CH, according to Japanese law, for AN patients refusing treatment	*ED-Physicians*: n = 55/212 (25.9% response rate) EC members: n = 77/180 (42.8% response rate). *ED-Physicians Specialty*: psychosomatics 38.2% (n = 21), psychiatry 43.6% (n = 24), child and adolescent 11.2% (n = 10). *Experience:* 10-19 ys and 50-99 pt/yr in most cases. *EC Members: Academic background:* psychiatry 59% (n = 45), law 9% (n = 7), other 27% (n = 21) no response 5% (n = 4).	*Physicians:* members of the Japanese ED Society received an e-mail invitation to join the survey, together with the anonymous questionnaire. *EC members:* received a written request to join the survey, and anonymous questionnaire was individually distributed. *Setting*: ED-treating and EC members operating in ED hospital across Japan.	*Physicians:* attitude towards CH in AN patients refusing treatment. *EC members:* indication to CH in AN patients refusing treatment, according to Japanese law	Questionnaire containing 6 vignette cases of AN patients refusing treatment: A1,2 minor (15 ys) acute case, with/without family consent; B1,2 adult (20 ys) acute case, with/without family consent; C1,2, adult chronic (40 ys) case with/without family consent; Physicians should choose among CH, HMCP, persuasion for VH, others; EC members judged if CH/HMCP was legally indicated.	*Physicians' propensity to CH*: no significant differences between patients with or without family consent. *CH Indication by EC members:* no significant differences between patients with or without family consent. *Assessment of mental capacity:* no significant differences between physicians and EC members ($p = 0.16$, $\chi^2 = 1.99$, $df = 1$). *CH propensity and mental capacity:* among EC members who considered AN patients mentally capable (66%, n = 48): 20% (n = 8) thought patient's decision should be respected, and 80% (n = 40) did not. *Factors influencing CH indication (EC members)*: - If family consented, CH indication was not influenced by either mental capacity or by self-injurious behavior. - If family did not consent, CH indication was significantly higher when AN behavior was considered as self-injurious (Case A - OR: 34.71 [7.89–152.72] $p<0.001$; Case B - OR: 34.71 [7.89–152.72] $p<0.001$; Case C - OR 14.91 [3.65–60.89] $p<0.001$).
Kondo 2004 (Japan) Retro spective	The aim of this study is to clarify issues about VH or CH in AN, especially the influence of legal protectors on patient condition, through an analysis of hospital admissions for AN between 1991 and 2000.	70 AN patients/126 hospitalization for ED. Sex: Female 70 (100%). CT: 8 (11.43%).	Analysis of 10yr clinical records of the inpatients in the Psychiatric Department of Gifu Universitary Hospital, diagnosed with AN according to ICD-10 diagnostic criteria.	1. Duration of hospitalizations, admission and discharge BMI in CH vs VH; 2. 'Good' or 'poor' outcome in CH vs VH; 3. Assess the intra familial situation and link it to hospital stay	Data obtained from medical records. 'Good' outcome defined as no longer obtaining reason(s) for admission (ensuring the patient's health and/or safety); otherwise, outcome stated to be 'poor'.	1. Duration of VH significantly shorter than CH (69.8 ± 10 days vs 216.3 ± 32.2 days, p=0.027). No significant difference in BMI between VH and CH (14.6±8 vs 15.3±5.1, p>0.1); 2. No significant difference in outcome between VH and CH ('good'/'poor': 34/32 vs 6/2, p>0.1); 3. The duration of admission in cases with intra familiar conflicts was from twice to over 10 times as long as that in the case without conflict (leaving aside 1 case of premature death by suicide).
Carney 2008 (Australia) Retro spective	The study investigates circumstances that lead clinicians to enact legal coercion in treating severe and enduring AN, analyzing 5 years of records of a specialist AN treatment facility.	96 hospital admissions (75 individuals) for AN/117 to a specialist ED program. Mean age: 25 yr. Nearly 75% had ≥1 co-morbid mental illness and nearly 33% ≥2. Legal coercion: 27 (28.1%).	Analysis of 5 yr clinical records of the inpatients in a specialist AN treatment facility, diagnosed with AN according to DSM-IV diagnostic criteria	Circumstances that lead clinicians to enact legal coercion in treating patients with severe and enduring AN.	Data obtained from medical records. Formal legal coercion defined as involuntary admission under mental health legislation, or appointment of a third party as a guardian with authority to consent to treatment, under adult guardianship laws.	The number of comorbid DSM-IV psychiatric conditions (mean 1.94 vs 1.05, p=0.0378) and of previous admissions (mean 3.88 vs 1.74, p.0.0368) were significantly higher in the coerced group. Patients with re-feeding syndrome were 3 times more likely to be treated with legal order; patients with use of tube feeding were 5 times more likely to be treated with legal order; patients whose age were not 20-29 were 2.2 times more likely to be treated with legal coercion; for every unit decrease in BMI the odds of coercion being used increase by 1.3. Logistic regression model only sorted out the number of psychiatric co-morbidity (OR=1.75) and previous admission (OR=1.29).

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treatment in a life-threatening situation (i.e., when AN behaviors are self-injurious). If family consents to treatment, both physicians and ethic committee (EC) members tend to consider hospitalization for medical care and protection (HMCP) appropriate. If not, physicians do not tend to choose CH, and EC members are divided, but judge CH appropriate especially when AN is considered a self-injurious behavior (Takimoto, 2022b). In the study by Fernández-Hernández et al., which has validated a questionnaire to measure attitudes towards capacity and involuntary institutionalization and to compare them across different categories of mental health professionals (n=338), those who had experience with involuntary intervention reported stronger views that AN patients lack capacity. These professionals also supported non-voluntary interventions more frequently than the others. In general, the respondents who defended the lack of capacity of patients also tended to defend the need for non-voluntary treatment in the best interest of the patient (Fernández-Hernández et al. 2022).

Acute versus chronic AN patients

As for minors affected by AN, child and adolescent psychiatrists resulted more inclined to agree that the presence of AN almost certainly compromises the competence to refuse treatment, even though a minor with AN can be intellectually able to understand the risks. They tended to support the use of CH under MHA in adolescents and most of them supported the use of parental consent (Tan et al. 2008). The choice of CH in young patients was also investigated by Takimoto, in a multicenter study inquiring the attitudes of physicians towards refusal of treatment for AN. The study revealed that CH propensity was significantly higher in Japan than in the US and the UK (Takimoto 2022a). Moreover, in the UK and USA, authors found a significantly higher propensity to CH in young and acute patients if family requested treatment, while in Japan propensity to CH was high and not affected by family consent in young and acute patients, while it was more likely to be influenced by family requests in the case of older and chronic patients. The years of experience in psychiatry or the number of cases treated/year did not significantly impact on CH choice (Takimoto 2022a). In an another already mentioned study, Takimoto also investigated the propensity to HMCP/CH for both young and older patients in Japanese psychiatrists and EC members, with and without family consent. No significant differences in choices of HMCP/CH were found, nor there were in EC members judgement of appropriateness in presence of family consent (Takimoto 2022b). Conversely, Fernández-Hernández et al. found that professionals on average felt it was appropriate to implement mandatory interventions at first hospitalizations rather than in chronic situations, especially those with training in bioethics (Fernández-Hernández et al. 2022).

Studies based on AN patients

Two of the selected papers were based on AN patients, analyzing retrospectively inpatient clinical records, to investigate the legal issues related to legal coercion and clinical and sociodemographic characteristics of subjects who required CT. Carney et al. (2008) investigated the circumstances that inevitably lead clinicians to enact legal coercion in treating their patients with severe and enduring AN. Five years of records from a large Australian facility specializing in the treatment of AN were analyzed, with a total of 96 hospital admissions. Past history of the patient (number of previous admissions), the complexity of the patient's condition (number of other psychiatric co-morbidities) and their current health risk - measured either by body mass index (BMI) or the risk of re-feeding syndrome - resulted relevant factors in deciding whether the current admission required the support of legal powers of coercion. Indeed, patients with re-feeding syndrome were 3 times more likely to be treated with legal order; patients with use of tube feeding were 5 times more likely to be treated with legal order; patients whose age were not 20-29 were 2.2 times more likely to be treated with legal coercion; for every unit decrease in BMI the odds of coercion being used increase by 1.3. However, the logistic regression model only sorted out the number of psychiatric co-morbidity (OR=1.75) and previous admission (OR=1.29) (Carney et al. 2008). Another study investigated the influence of legal protectors on patient condition by analyzing 70 cases of AN hospitalizations. Kondo et al. showed that the duration of voluntary hospitalization (VH) (n=62) is significantly shorter than compulsory hospitalization (CH), while no significant difference was found in admission or discharge BMI between VH and CH or in outcome. In addition, they showed that duration of admission in cases with intra familiar conflicts was from twice to over 10 times as long as that in the case without conflict (leaving aside one case of premature death by suicide). In this regard, the authors argue that the definition of the legal protector might be expanded to include the local social services authority as a guardian to reduce the indirect effects of intra-familial conflicts on prolonged hospitalization (Kondo et al. 2004).

Risk of bias and quality assessment of the selected studies

The Ottawa Quality Assessment Scale (NOS) adapted to cross-sectional studies (Modesti et al. 2016) provides quality assessment ranking studies on the basis of three broad perspectives: the selection of the study groups; the comparability of the groups; the ascertainment of either the exposure or outcome of interest. Selected studies were evaluated with a minimum of 6 up to a maximum of 8 stars, as illustrated in Table 2.

Table 2. NOS for assessing risk of bias in cross-sectional studies

Cross-Sectional / Study	Selection				Comparability	Outcome		Total stars
	S1	S2	S3	S4	C1	O1	O2	
Tan 2008	*			**	**	*	*	7
Stoll 2021	*			*	**	*	*	6
Takimoto 2022a	*			*	**	*	*	6
Fernández-Hernández 2022	*			**	**	*	*	7
Takimoto 2022b	*			*	**	*	*	6
Kondo 2004	*			**	**	*	*	8
Carney 2008	*			*	**	*	*	6

DISCUSSION

Use of forced commitment in psychiatry is controversial, and research is scant, as highlighted by the few studies retrieved. Epidemiological studies have shown wide cross-national variability (Salize & Dressing 2004, Wasserman et al. 2020), reflecting differences in the legal and cultural systems. In most western countries, the legal base is represented by an impaired mental capacity to decide about treatments (Takimoto 2022a). Additional criteria generally include either prevention of danger (to self or others) or medical protection, or both, depending on the legal system (Salize & Dressing 2004, Wasserman et al. 2020). In some countries, such as Japan, protective CH order can be issued even in the absence of danger (e.g., injury to self or others) upon family request (Takimoto 2022b). Therefore, the psychiatrist assessing AN patient in critical conditions who are refusing treatment, has to balance the need for protection with the respect for patient's autonomy. During the last decades, the approach to the mentally ill has gradually shifted from the paternalistic view (i.e., prevent danger to self and others, and protect patient) to protection of rights. Therefore, separate mental health legislations have been introduced in most countries. However, impairment of mental capacity is controversial in AN, and the benefit of CH remains inconclusive (Stoll et al. 2021, Tan et al. 2008).

The current systematic review analyzed studies from different countries (Spain, Switzerland, and the UK, Australia, Japan, USA), investigating the propensity to CH of mental health professionals dealing with AN patients, and the underlying legal and ethical motivations. Most of the analyzed legal systems are based on protection (Spain, UK and Australia), while in Japan both protection and danger are applicable, and in the USA the legal model prevails. In Japan and USA, short emergency hospitalization can precede forced commitment.

Of the seven studies analyzed, five are based on nation-wide surveys, and provide a body of evidence in 1466 psychiatrists, 35% of which specialized in EDs. In 43,2% cases, the work setting included facilities dedicated to ED treatment. Although response rates are low, the presented data may be considered fairly representative of the overall psychiatric community in these countries. The other two studies analyzed are retrospective cross-sectional studies, providing a body of evidence of hospital records of 140 AN inpatients (n=222 admissions), treated at two major ED hospital in Australia and Japan, over a period of 5 and 10 years, respectively.

The attitude of mental health professionals towards CT has been analyzed in relation to several factors, including in comparison with other severe mental illnesses (i.e., schizophrenia and major depression); attitude towards mental capacity; and disease stage.

The collected evidence shows that, although psychiatrists are in favor of protective CH in the mentally ill, support is weaker in AN vs either mental illnesses in general (Tan et al. 2008), or other severe and persistent mental disorders, such as schizophrenia and depression (Stoll et al. 2021).

Such trend reflects the controversial views on mental capacity in AN. In fact, Tan et al. (2008) found that UK physicians tend to choose CH for protection (vs. impaired mental capacity), which prevails on respect of patient autonomy. This is more evident in ED specialists and in children and adolescent psychiatrists (CAPs). In fact, while general psychiatrists believe that decisional capacity is preserved in mild AN, and is progressively impaired with disease progression, ED-specialists and CAPs tend to view decisional capacity as impaired at all stages, and, consequently, support CH, independently of it. In the Japanese system, which allows for two CH options, including 'protective' treatment (upon family request), or CH in case of danger (i.e., self-injury), which can be ordered by the legal authority, Takimoto et al. (2022b) found that all psychiatrists choose protective hospitalization, and none was willing to act against the family's will. Instead, EC members supported CH in the absence of family consent when AN behavior was perceived as self-injurious (i.e., danger).

Fernandez et al. (2022) found that, among mental health professionals, experience with CH increases propensity to it, and supports lack of capacity of AN patients. In general, when patients were viewed as lacking mental capacity, the choice of CH was motivated by protection.

Concerning disease stage, Tan et al. (2008) found that UK CAPs support the use of protective CH and parental consent, since they consider adolescents not fully capable to accept treatment.

Generally, in different countries analyzed, at the onset of disease the attitude to protection and prevention of danger prevails over respect of autonomy, and therefore CH is applied; however, in the chronic advanced disease, the dysfunctional beliefs can be integral to patient identity, and treatment may become futile, leading to a higher tendency to respect patient autonomy. In fact, in countries such as Switzerland, that have adopted a liberal approach to assisted-dying, "palliative psychiatry" is being discussed as a future option (Stoll et al. 2021). Fernandez-Hernandez (2022) found that Spanish physicians were more favorable to CH in the early disease stages (at first admission) vs chronic cases, especially when they had a training in bioethics.

Takamoto et al. (2022a) found that Japanese physicians choose both protective and legal (danger and self-injury) CH in young patients, depending on the presence of family consent; in the US and UK, propensity was higher for protective CH (family consent) vs legal. In older and chronic patients, instead, propensity to protective CH was significantly higher vs. legal (danger and self-injury). CH propensity was generally highest in Japan (collectivistic and paternalistic culture) vs UK and USA. CH choice did not depend on experience (USA and UK), but on personal beliefs.

Two studies analyzing ethical and legal factors predicting CH and CH outcome in case series of AN inpatients. Kondo et al. (2004) found that, in Japanese patients, compulsory vs voluntary hospitalization was associated to increased duration of hospital stay, which was further increased by the presence of family conflicts. This led the Authors to propose the extension of legal guardianship to social services (Kondo et al. 2004).

Carney et al. (2008) identified past admissions, psychiatric comorbidities, and current health risk (BMI or refeeding syndrome) as independent risk factors for CH in Australian patients. In particular, among current health risk, re-feeding syndrome, tube feeding, age < 20-29, and BMI decrease were associated to an increased risk of CH. Although the use of legal coercion risks stalling the process of building therapeutic alliance, it is a useful strategy in the management of severe and enduring AN - especially in situations of extremely low BMI -, due to the absence of more effective treatment regimens.

Finally, several issues have been identified as possible treatment biases, including paternalism, which can lead to forced commitment even in the presence of mental capacity, therefore in violation of the law; a tendence to equate treatment refusal with lack of mental capacity and vice-versa; an inner challenge to the professional identity of the psychiatrist, which is trained to prevent suicide; and a sense of hopelessness towards the feared negative outcome.

The present review has some limitations. The studies on clinical records (Carney et al. 2008, Kondo et al. 2004) and EC members (Takimoto et al. 2022b) have a limited generalizability, due to the small sample. In addition, the number of studies is small, and, therefore, evidence is limited. Furthermore, different instruments and methodologies used to assess physicians views may lead to discrepancies.

CONCLUSION

The major controversial issues in CH in AN patients refusing treatment are mental capacity (i-e., competence to decide on treatment options), and self-injurious behavior. In fact, although such patients may be intellectually competent in assessing the risk, they may be unable to choose treatment.

The balance between protection and autonomy, is currently based on the assessment of the psychiatrist. However, considering that the benefits of CH are inconclusive, and that the involuntary hospitalization is associated with significant stress and potentially negative outcomes, different stakeholders, especially in Europe, are advocating the development of dedicated guidelines (Wasserman et al. 2020). Guidelines could be useful to help professionals in their clinical decisions in such difficult – often ambivalent – situations, but these must be integrated with personalized approaches due to the complexity of the examined cases.

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Contribution of individual authors:

Patrizia Moretti & Giulia Menculini conceived and designed the study.

Agnese Minuti & Sara Bianchi performed literature search and title/abstract screening.

Grazia Pula & Lorenzo Cuzzucoli evaluated the risk of bias of each of the included studies.

Sara Bianchi, Andreina Perlangeli, Martina Tardani & Laura Pastorino wrote the first draft of the manuscript;

Giulia Menculini, Agnese Minuti & Grazia Pula corrected the first draft of the manuscript;

Patrizia Moretti & Giulia Menculini supervised all phases of the study design and writing of the manuscript.

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Correspondence:
Patrizia Moretti, MD
Department of Psychiatry, University of Perugia
Piazzale Lucio Severi, 1, 06132, S. Andrea delle Fratte, Perugia, Italy
E-mail: patrizia.moretti@unipg.it