Compulsory Treatment for Anorexia Nervosa in Israel: Clinical Outcomes and Compliance

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Abstract: *Objective*: Anorexia nervosa (AN) is associated with high morbidity and mortality rates, sometimes requiring compulsory treatment when patients refuse treatment despite life-threatening complications. Compulsory treatment of AN patients involving legal commitment is controversial in Israel, both ethically and legislatively. This study aimed to conduct a comprehensive retrospective examination of patient records to compare compulsory versus voluntary admissions regarding illness severity, admission, hospitalization, and outcomes**.**

Method: Participants were 51 voluntary and 28 committed patients with severe AN admitted to a major Israeli ED department in 2003-2013. Demographic, clinical, physical, historical, and outcome data were collected through patients' charts.

Results: No significant group differences emerged between the groups in most variables. Two main differences were found: Committed patients had higher rates of comorbid personality disorders (33% vs. 10%) and significantly more disturbed nutrition patterns (44% vs. 26%) than voluntary patients. The two groups showed similar treatment outcomes in terms of weight gain (*M* = 9.7 kg), mortality rate (7.6%), and rehabilitation after hospitalization (15.2%).

Conclusions: Results indicate that compulsory treatment may be as beneficial as voluntary treatment, both in the short and long term. After their initial resistance, compulsory patients were found to comply with the treatment and remain in the ED center to the same extent as those admitted voluntarily. Thus, compulsory hospitalization may reduce such patients' guilt about accepting nutrition and treatment. Compulsory treatment for severe life-threatening AN may save lives and should be implemented more commonly and earlier.

Keywords: Anorexia nervosa, compulsory treatment, Israel**,** clinical outcome, compliance.

INTRODUCTION

Anorexia nervosa (AN) is a serious mental illness characterized by failure to maintain minimal normal weight, fear of gaining weight or becoming fat, and preoccupations about body shape or weight [1]. AN is estimated to affect 0.5% to 1% of females during their lifetime and approximately one tenth as many males [2]. This disorder is associated with the highest morbidity and mortality rates of all psychiatric disorders [3-5]. Patients with AN must be medically stable before they can engage in meaningful psychiatric and or psychological therapy, and they are likely to refuse treatment despite life-threatening complications [6,7].

Compulsory treatment of eating disorders (ED) by means of legal commitment is a controversial issue. In such cases, patient's right to autonomy can conflict with protecting their best interests. Professionals considering compulsory hospitalization may debate whether patients with severe AN are sufficiently mentally competent to make decisions regarding their treatment; however, only two contradictory papers have been published to date regarding mental competency in patients with AN – one supporting competency and one refuting competency [8,9].

Our comprehensive literature search yielded only limited research on compulsory treatment in ED patients [7-16]. These studies found that comorbidity at admission tends to be more severe in cases of compulsory admission, and that duration of compulsory hospitalization is longer than voluntary hospitalization. Yet, the results at discharge seem more or less similar, and no clear conclusions have been drawn about compulsory treatments' long-term effectiveness among AN patients. Likewise, despite concern about possible adverse effects of compulsory treatment on patients' relationships with their therapists, researchers found that the therapeutic relationship was not significantly worse in cases of compulsory admission [10-15]. In Israel, only two papers were published on this topic.

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The first describes the legal aspects of compulsory treatment [16], while the second reviews the legal and ethical dilemmas associated with compulsory treatment [7].

Currently in Israel, compulsory treatment for AN is partially allowed under the Mental Health Law (1991). The fundamental requirement for sectioning a patient is mental illness, but the definition of mental illness has been at the center of legal debate over the last decade in Israel. In 2003, a ruling by a Tel Aviv district court stated that AN is not a mental illness but rather a mental disorder, thus prohibiting compulsory hospitalization under the Mental Health Law. However, since that court decision, anorexic patients continued to be hospitalized against their will under the Guardian Law, which is an unsatisfactory substitute for the Mental Health Law (Most of the patients in the current sample were hospitalized under the Guardian Law). An advanced recent ruling of the Tel Aviv district court (October 14, 2012) determined that AN is a mental illness and thus partially legalized use of the Mental Health Law to compel patients with AN to enter compulsory hospitalization. Yet the law only compels the admission process, and patients can later discharge themselves from treatment at any given time. Although the current study focused on an Israeli sample, compulsory treatment in EDs is a controversial issue worldwide, with inconsistent views arising from ethical and legal considerations. In the vast majority of western countries, compulsory treatment for patients with severe AN is not regulated by law [16], therefore calling for further research to support policy in facing this international dilemma.

Moreover, the process of obtaining this court order for an ill family member's compulsory hospitalization can be highly problematic and complex for the legal guardian (usually a parent) who undertakes this procedure. The act of appealing to the court against the ill individual's declared will on the one hand reflects the family member’s commitment to the ill person's well-being and awareness of the urgent need for lifesaving treatment, but on the other hand betrays the ill person's autonomy and freedom of choice. Therefore, data on the effectiveness and costs of compulsory hospitalization may help offer support to guide families facing such dilemmas.

Thus, this study aimed to conduct a comprehensive retrospective examination of compulsory admission cases of patients with severe AN at a major ED facility in Israel over the last decade, in comparison to voluntary admission cases. Investigate patient records to determine the reason for admission, admission and hospitalization characteristics including compliance, illness severity characteristics, clinical and demographic features and treatment outcomes**.**

METHOD

This retrospective cohort study used a convenience sample of patients who diagnosed with sever AN according to DSM- IV [1]. Patients were admitted for compulsory or voluntary treatment for their illness at a central ED facility in a major Israeli medical center (Sheba) over a 10-year period (2003-2013). Consent for compulsory hospitalization of patients in the current study was provided by a court-appointed legal guardian, usually at least one of the patient's parents. Pertinent information was extracted retrospectively from patients' clinical charts and recorded on a coding sheet. For patients who were admitted more than once, only information from the first admission, which met the inclusion criteria (patients with AN, admitted for voluntary treatment with a BMI 14 or lower, or for compulsory treatment between the years 2003-2013), was recorded on the coding sheet. All diagnoses were made according to *DSM-IV* criteria [1] . The information obtained from the patients' chart included demographic, illness, hospitalization, and outcome characteristics:

A. Demographic characteristics

- Personal variables (e.g., ethnic origin, gender, age, marital status, level of education, occupation, residence, religiosity).
- Family variables (e.g., family history, parental functioning, number of siblings).

B. Illness Characteristics

- Age of illness onset and duration of illness.
- Clinical subtype (restrictive or binge-purge).
- Weight history (highest weight, weight at illness onset, lowest weight, admission weight).
- Comorbid diagnoses (diabetes, depression, sexual abuse, alcohol abuse, drug abuse).
- Therapeutic history (number and type of previous hospitalizations).

C. Hospitalization Characteristics

- Physical parameters at admission and discharge (including blood pressure, pulse, body mass index).
- Patient's cooperation with the multidisciplinary team (measured from active resistance to passive verbal refusal to partial to full cooperation).
- Participation in family therapy, as an indication of familial support and compliance.
- Self-discharge against medical advice.
- Length of hospitalization.

D. Treatment Outcomes

- Death after hospitalization.
- Admission to a residential rehabilitation program for EDs after hospitalization, as an index of more favorable prognosis.

Statistical analyses were conducted using SPSS version 17 software. Comparisons were made between paired compulsory AN patients and voluntary AN patients. Paired *t*-tests were used for continuous variables and Pearson chi-square tests were used for paired categorical variables.

RESULTS

The sample comprised 79 severely ill hospitalized patients with AN. Twenty-eight patients (35.4%) were compulsorily admitted, with a mean age of 22.45 years (*SD* = 4.96, range: 18-38). Fifty-one patients (64.6%) were voluntarily admitted, with a mean age of 25.25 years (*SD* = 9.57, range: 18-61). Seventy-six patients were women (96.2%), and three were men. Legal guardians of patients in the compulsory AN group were: both parents (*n* = 11, 39.3%), mother (*n* = 9, 32.1%), father (*n* = 5, 17.9%), a sibling (*n* = 1, 3.6%), or a person who was not a family member (*n* = 2, 7.1%).

In this study, compulsory AN patients were found to be similar in almost all aspects to voluntary AN patients except in their willingness to seek and accept treatment for their life-threatening ED. No significant differences were found between compulsory and voluntary AN patients in any of the examined demographic parameters, including: age, gender, place of birth, marital status, residence, level of education, employment status, and religiosity level ($p > .05$). Most patients were Israeli, single, and living with their married parents. Some non-significant differences emerged suggesting a tendency for higher functioning in the voluntary group than in the compulsory group: The voluntary AN patients showed higher rates of marriage, military service, employment or school attendance, as well as more years of education.

In terms of clinical differences, 46 of the patients (58.2%) were diagnosed as AN restrictive subtype and 33 of the patients (41.8%) as AN binge-purge subtype, with no significant differences between the groups (Compulsory AN: restrictive *n* = 14, 50.0%, purging *n* = 14, 50.0%; Voluntary AN: restrictive *n* = 32, 62.7%, purging *n* = 19, 37.3%), $\chi^2(1) = 1.21$, $p = .272$. Most patients came from functional families (*n* = 58, 76.3%), without a known first degree relative with an ED (*n* = 66, 83.5%) and without a family history of violence (*n* = 65, 85.5%), with no significant group differences.

Table **1** presents the means, standard deviations, and *t*-test values for the participants' illness severity characteristics by group, and Table **2** presents the frequencies and chi-square values for their illness history and hospitalization characteristics by group. As seen in these tables, compulsory AN patients, as compared to voluntary AN patients, showed a significantly younger age of illness onset (14 vs. 17, respectively), significantly higher rates of prior hospitalization in both ED departments (*M* = 4.68, SD = 3.84 vs. *M*= 2.47, SD = 2.43) and psychiatric departments (58.3% vs. 23.3%), indicating hospitalization due to high psychiatric risk, significantly lower rates of psychological therapy during the hospitalization period (65.4% vs. 90.2%), and significantly more disturbed nutrition at admission. In the compulsory AN group, 33% of patients consumed normal oral nutrition and 44% received nutrition *via* nasogastric feeding. In the voluntary AN group, 66% of patients consumed normal oral nutrition and only 26% used nasogastric feeding.

However, as seen in the tables, no significant differences were found in terms of illness duration (*M* = 7.99, *SD* = 6.27), weight at admission (*M* = 33.62, *SD* = 4.96), body mass index at admission (*M* = 12.68, *SD* = 1.63), or blood pressure and pulse at admission. As seen in Table **2**, 80% of the patients had normal blood pressure, and about 75% had a normal pulse rate. There were also no significant differences regarding previous admissions to pediatric or youth units (which would indicate hospitalization due to high medical risk)

Table 1: Means, Standard Deviations, and t Values for Illness Severity Characteristics by Group (N = 79)

	Range	Compulsory (n = 28)		Voluntary (n = 51)		Total		t
		M	SD	M	SD	M	SD	
Age of illness onset (years)	10- 46	14.27	2.42	17.07	6.71[a]	16.06	5.71[b]	t[c] (67.77) = -2.66**
Illness duration (years)	1- 36	8	5.91	7.99	6.52[a]	7.99	6.27[b]	t (76) = 0.01
No. of prior hospitalizations in an eating disorder department	1- 14	4.68	3.84	2.47	2.43	3.25	3.16	t[c] (39.13) = 2.75**
Current admission number in sequence of hospitalizations	1- 9	2.86	2.22	1.25	0.69	1.82	1.61	t[c] (29.87) = 3.72***
Height at admission (cm)	143-180	162.25	8.32	162.14	6.98	162.18	7.43	t (77) = 0.06
Weight at admission (kg)	22-46	33.21	5.92	33.84	4.4	33.62	4.96	t (77) = -0.54
Body mass index at admission (kg/meter^2)	8-16	12.61	2.06	12.73	1.36	12.68	1.63	t[c] (40.17) = -0.27

[a]n = 50.
[b]n = 78.
[c]t for unequal variances.
*p < .05. **p < .01. ***p < .001.

Table 2: Frequencies and Chi-Square Values for Illness History and Admission Characteristics by Group (N = 79)

		Compulsory (n = 28)		Voluntary (n = 51)		Total		χ^2
		n	%	n	%	n	%	
Prior hospitalization(s):								
In pediatric/youth units	Yes	9	40.9	14	32.6	23	35.4	$\chi^2(1)=0.44$
	No	13	59.1	29	67.4	42	64.6	
In psychiatric departments	Yes	14	58.3	10	23.3	24	35.8	$\chi^2(1)=8.24$**
	No	10	41.7	33	76.7	43	64.2	
Physical parameters at admission:								
Blood pressure	Abnormal	4	19	10	20.4	14	20	$\chi^2(1)=0.02$
	Normal	17	81	39	79.6	56	80	
Pulse	Abnormal	5	23.8	13	26.5	18	25.7	$\chi^2(1)=0.06$
	Normal	16	76.2	36	73.5	52	74.3	
Nutrition	Normal oral nutrition (PO)	8	32	33	66	41	54.7	$\chi^2(2)=8.41$*
	Nasogastric feeding (PZ)	2	8	3	6	5	6.7	(PO vs. In progress vs. Others)
	In progress (first PZ then PO)	11	44	13	26	24	32	
	In retreat (first PO then PZ)	2	8	1	2	3	4	
	Combined (PZ+PO)	2	8	--	--	2	2.7	
Participation in therapy:								
Psychological therapy	Yes	17	65.4	46	90.2	63	81.8	$\chi^2(1)=7.13$**
	No	9	34.6	5	9.8	14	18.2	
Psychiatric therapy	Yes	23	82.1	44	86.3	67	84.8	$\chi^2(1)=0.24$
	No	5	17.9	7	13.7	12	15.2	

*p < .05. **p < .01. ***p < .001.

Table 3: Frequencies and Chi-Square Values for Patient Compliance by Group (N = 79)

		Compulsory (n = 28)		Voluntary (n = 51)		Total		χ^2
		n	%	n	%	n	%	
Self-discharge	Yes	15	53.6	30	58.8	45	57	$\chi^2(1)=0.20$
	No	13	46.4	21	41.2	34	43	
Cooperation during hospitalization	Active resistance	16	57.1	13	25.5	29	36.7	$\chi^2(2)=12.19$** (Active resistance vs. Passive resistance vs. Full/some cooperation)
	Passive resistance	8	28.6	11	21.6	19	24.1	
	Full cooperation	--		23	45.1	23	29.1	
	Resistance, then cooperation	4	14.3	2	3.9	6	7.6	
	Cooperation, then resistance	--		2	3.9	2	2.5	
History of noncompliance with hospital therapy	Yes	23	82.1	22	50	45	62.5	$\chi^2(1)=7.54$**
	No	5	17.9	22	50	27	37.5	

*$p < .05$. **$p < .01$.

and regarding rates of participation in inpatient psychiatric therapy.

Table **3** presents the frequencies and chi-square values for patient compliance during hospitalization, by group. As seen in the table, no significant differences emerged between groups in rates of self-discharge against medical advice (approximately 57% in the total sample). However, significant differences emerged regarding present and past compliance. Approximately 57% of the patients in the compulsory group actively resisted the present admission and none cooperated with it fully, compared to only 25% of the patients in the voluntary group who actively resisted it and 45% who cooperated fully. In total, only 14% of the patients in the compulsory group showed some level of cooperation, as compared to 53% of the patients in the voluntary group who showed some level of cooperation. Regarding past compliance, approximately 82% of the patients in the compulsory group had a history of lack of cooperation with hospital therapy, as compared to 50% of the patients in the voluntary group.

No significant group differences in comorbidity emerged; approximately 63% of the patients in both groups had received comorbid diagnoses. However, significant differences did emerge in some of the specific diagnoses. 33% of the patients in the compulsory AN group had a personality disorder, compared to only 10% of the patients in the voluntary AN group. Approximately 21% of all patients met criteria for Major Depressive Disorder, 14% met criteria for obsessive compulsive disorder, and 16% had attempted suicide. Less than 10% had self-injurious behavior, an anxiety disorder, reported sexual abuse, or drug or alcohol abuse, with no group differences. In total, 21% of all patients had other comorbid disorders, with no group differences.

In addition, no group differences emerged regarding length of hospitalization (*M* = 75.32 days), weight at discharge (*M* = 43.14 kg), or body mass index at discharge (*M* = 16.49). The two groups also did not differ significantly in their weight gain during treatment (*M* = 9.7kg). At discharge, both groups had normal blood pressure and pulse values with no significant differences. There was a marginally significant difference ($p = .06$) in patients' weight change rate, which was 0.12 kg per day in the compulsory group and about 0.29 kg per day in the voluntary group.

Regarding post-hospitalization outcomes, as seen in Table **4**, four patients in the compulsory group and two patients in the voluntary group died after hospitalization; however this was not a significant difference. In addition, no significant group differences emerged for the percentage of patients admitted to a residential rehabilitation program for EDs after hospitalization (15.2% in the total sample). Meeting criteria for admission to the rehabilitation program indicates a more favorable prognosis, greater cooperation with treatment, and greater commitment to recovery.

Figure **1** summarizes the main characteristics of the severely ill patients with AN in this study. The figure emphasizes the similarities as well as differences found between the compulsory AN and voluntary AN patients, as discussed next.

Table 4: Frequencies and Chi-Square Values for Post-Hospitalization Death and Admission to Residential Program by Group (N = 79)

		Compulsory		Voluntary		Total		χ^2
		n	%	n	%	n	%	
Death	Yes	4	14.3	2	3.9	6	7.6	--
	No	24	85.7	49	96.1	73	92.4	
Referral to rehabilitation	Yes	4	14.3	8	15.7	12	15.2	$\chi^2(1)=0.03$
	No	24	85.7	43	84.3	67	84.8	

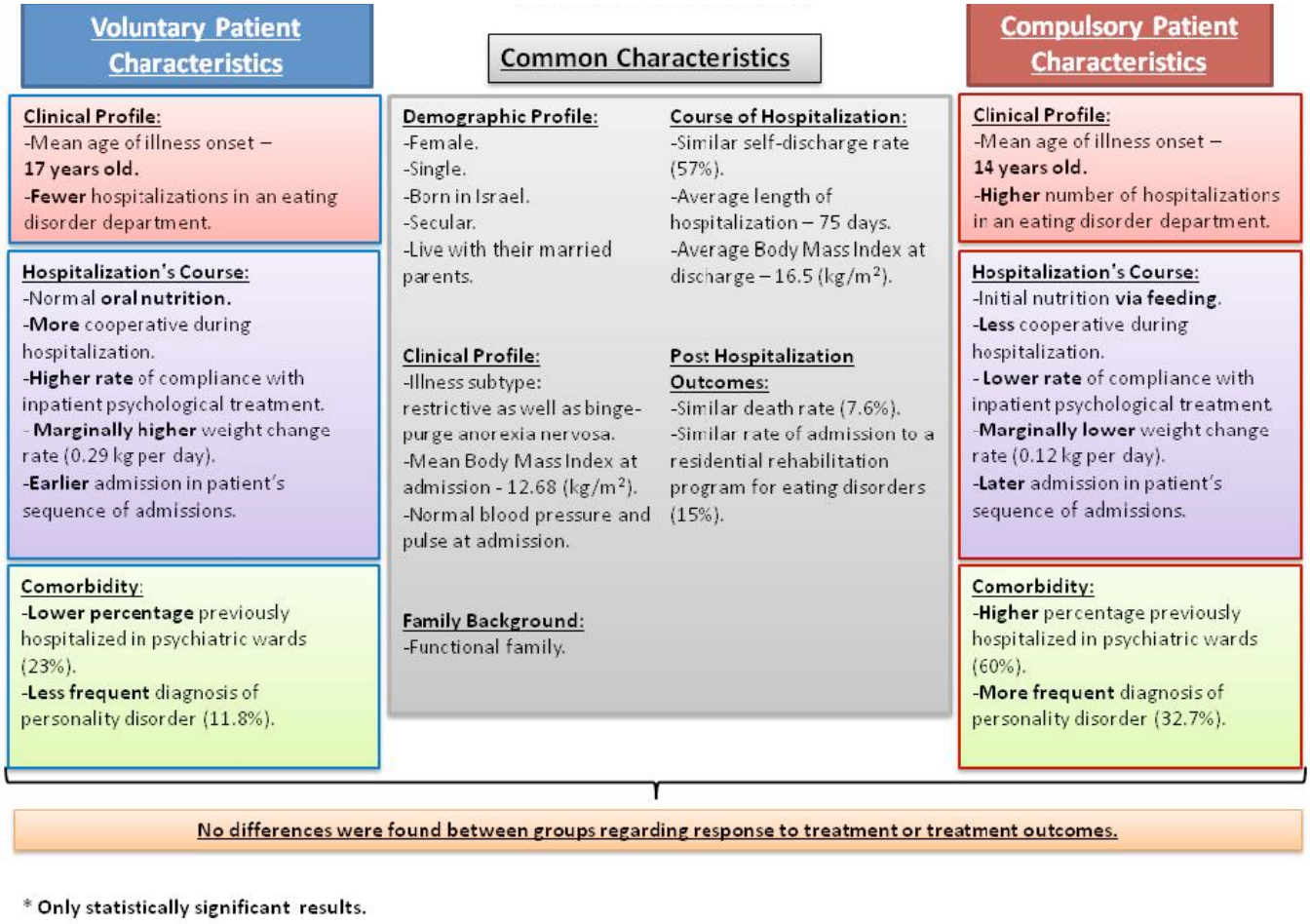

Figure 1: Similarities and differences between voluntarily and compulsorily admitted inpatients with severe anorexia nervosa in Israel.

DISCUSSION

AN is a serious illness associated with high morbidity and mortality rates. Patients' refusal of treatment despite life-threatening complications can necessitate compulsory hospitalization. This study aimed to determine if compulsorily admitted inpatients with severe AN would differ significantly from their voluntarily admitted counterparts on clinical, demographic, and treatment compliance characteristics as well as in their treatment outcomes. The patient population at the Sheba specialized ED adult inpatient treatment center provided a unique context for retrospective study of these two groups' differences and similarities in presentation, treatment, and outcomes. Although the sample size was small, the percentage of compulsory AN patients at Sheba resembles that of other centers in Israel and around the world. Therefore, this research provides unique and valuable quantitative data that have not yet been collected in Israel.

Overall, the current findings indicated remarkable similarity between the two groups of inpatients with severe AN: those admitted compulsorily and those admitted voluntarily. It is possible that these groups' significant similarities in our study stemmed mainly from our inclusion and exclusion criteria, particularly regarding level of illness severity. This may have created a comparison group of similar morbidity. Refusal of treatment may also be related to clinical characteristics such as more severe psychiatric comorbidity or a history of traumatic life events, which are predictors of negative prognoses according to the literature [17,18].

The more frequent prior hospitalizations (to psychiatric, EDs and other units) and lower rate of compliance with inpatient psychological treatment in the compulsory treatment group may indicate compulsory AN patients' strong resistance to treatment, as well as to the difficulties apparent in handling these patients. In many cases, such noncompliance may lead to the need for treatment in closed inpatient psychiatric wards (as opposed to the open inpatients EDs wards). This explanation is supported by previous research indicating the difficulties in treating patients with AN in general [19] and severely ill patients in particular [20].

At the time of admission, the demographic profile of a compulsory AN patient – both the personal and the family variables – may appear the same as the voluntary AN patient. Likewise, most aspects of the clinical profile, including the AN subtype and medical parameters, are similar between the two groups. However, the compulsory AN patient is nevertheless resistant to receiving lifesaving inpatient treatment, whereas the voluntary AN patient agrees to enter the specialized ED unit at the hospital. One may speculate that compulsory AN patients' opposition to hospitalization and treatment may reflect therapists' insensitivity to clients' needs or failure to detect underlying issues surrounding the necessity for treatment . The therapist may have failed to create a secure therapeutic environment, especially for younger patients, which would enable patients to engage in treatment [21]. Patients' resistance may also reflect the family's difficulty in managing a family member with AN and in cooperating with treatment, particularly when illness onset occurs at a younger age. This may explain why compulsory AN patients had more hospitalizations. According to the literature, more frequent hospitalizations are also linked with poorer prognosis. More hospitalizations at an earlier age alienate children from their peer group and make it harder to reintegrate into everyday life following discharge. This leads to a vicious cycle of a frustrated family, a patient who cannot integrate into normal life, and feelings of hopelessness, helplessness, and desperation [17,18, 21].

This interpretation is in line with the significantly more disturbed nutrition patterns that compulsory AN patients demonstrated at admission. Compulsory AN patients in our sample were significantly more likely than voluntary AN patients to receive their initial caloric intake *via* nasogastric feeding instead of orally, thus corroborating previous comparative research [10]. These nasogastric feeding patterns, which may be another expression of treatment refusal, may make the situation feel even more hopeless for both patients and their families in terms of hope for recovery. Yet, it may be misleading to consider this nutritional difference as a background or diagnostic variable because it is likely to be related to the compulsory legal order. The relatively wide use of nasogastric feeding in compulsory cases is strongly associated with professional's use of pressure, especially when a 'locked ward' is not available [22] (such as in the current compulsory treatment centers for EDs in Israel). Moreover, clinical observations indicate that nasogastric feeding may play an ameliorative role for patients with AN, who often report feeling extremely guilty and overwhelmed about having to make a choice to eat. This guilt is relieved when that choice is taken away through coercion, either by their parents or professionals. They can then accept food because they were forced, rather than because they chose to do so [22]. Similarly, Draper (2000), who dealt with the patient's decision to refuse food, stated that nutrition is definitely part of the therapy required to restore 'health'. He suggested two justifications for using nasogastric feeding in a severely ill patient with AN who refuses to eat. One is when the patient's desire not to eat undermines an even stronger desire not to die. The second is when the desire not to eat might itself be an involuntary one, grounded in some other deeply held but false belief about their body image [23].

Another area of similarity between the two groups in the present study was in their frequency of comorbid diagnoses. Only one difference emerged: Significantly more comorbid personality disorders were diagnosed in the compulsory AN patients. Prior research has indicated that personality disorders are a known comorbid diagnosis among AN patients, particularly those in the chronic phase of illness. The greater rate of such disorders found in our compulsory AN group

coincides with previous studies indicating that individuals with AN who have personality disorders tend to express more difficulty in treatment alliance [12,24]. They have difficulties with commitment, cooperation, and perseverance in treatment. They also express a higher degree of ambivalence toward recovery [12]. The presence of a severe ED alongside lack of insight furnishes dual reasons for compulsory treatment. Lack of insight may be due in part to abnormal traits reflected in the psychological disturbances characterizing personality disorders but may also stem from cognitive impairments resulting from malnutrition [25]. Thus, it is challenging to disentangle personality factors from the illness itself in AN. Ayton *et al*. (2009) compared adolescent patients treated under parental consent versus those detained under the Mental Health Act. Unlike our results, they found that detained patients had worse psychosocial functioning and higher levels of comorbid depression and suicidal behavior [10]. In line with our findings, Ramsay *et al*. (1999) found that the only significant difference between compulsory and voluntary adult patients with AN was that compulsory patients more often gave a history of childhood sexual or physical abuse [13]. Hence, it might be that compulsory patients tend to have a less secure environmental base and are thus less trusting. The illness may serve as a coping mechanism; it may be the only secure zone in which they have some control over their lives [21].

These explanations support another significant difference that emerged between the two groups regarding present and past compliance during hospital admission.

An important finding of the current study is that, despite compulsory patients' declared unwillingness to receive treatment, they still responded to the treatment program as well as their peers who had been voluntarily admitted. Both groups revealed a statistically similar length of hospitalization (mean of 10.76 weeks) and substantial weight gain (mean of 9.7 kg) by discharge, and the daily weight change rate was only marginally lower among compulsory AN patients. These results substantiate previous observations in adults [13].

This striking finding pinpoints an important characteristic of the current compulsory treatment for EDs. Although the initial admission was forced, treatment took place in an open unit that all patients could actually leave at any time. Interestingly, despite their initial refusal to cooperate with treatment and their freedom to leave the ED center, the compulsory patients did not exhibit higher rates of self-discharge against medical advice than the voluntary group, thereby corroborating prior research [13]. This interesting similarity in rates of withdrawal from treatment for the two groups suggests that sometimes the act of compulsion is somehow symbolic, helping patients begin to cooperate with the treatment program. As mentioned above, a possible explanation is that forcing some patients into hospitalization enables them to accept eating and weight gain with less guilt because they can perceive these behaviors as coerced rather than as chosen freely [22]. The equivalent short-term outcomes for both groups (weight gain, length of hospitalization, self-discharge rates) seem to indicate that the act of compulsion may be crucial for treatment in cases of uncooperative patients with severe AN.

The long-term outcomes also support this conclusion. Following discharge, similar death rates and admission rates to a residential ED rehabilitation program were found for the compulsory and voluntary AN groups. Together, these short-term and long-term results suggest that legal detainment for treatment does not necessarily prevent the development of a therapeutic alliance or clinical improvement [14]. It seems that what matters most to patients is not whether or not they are compelled to have treatment but rather the nature of their relationships with parents and mental health professionals. As previously found by Tan *et al*. (2010), due to the self-destructive nature of their illness, individuals with AN tend to experience considerable environmental restrictions of their choices surrounding their eating habits and behaviors. Indeed, within a trusting relationship, coercion may be experienced as care [26]. Furthermore, Guarda *et al*. (2007) found that even among voluntary admissions to inpatient units, coercive pressure from clinicians, family, friends, employers, or educators is common. In their study, 41 percent of the patients who denied a desire for admission changed attitudes after two weeks of treatment, endorsing the need for inpatient treatment. This study, together with our results, suggests that patients' motivation for treatment might increase as they reach normal weight, regulate their behavior, and achieve a sense of mastery over the process of recovery [22].

A review of the literature indicates that prior research focused only on post-hospitalization deaths as a follow-up measure, but those studies revealed mixed findings. Like in our study, Ayton *et al*. (2009) found no evidence of higher mortality rates in the compulsory group [10]. However, Ramsay *et al*. (1999)

reported that mortality at follow-up was 12.7% for compulsory patients as compared to only 2.6% for voluntary patients [13]. When investigating the differences in mortality rates between compulsory and voluntary patients, we must bear in mind the relatively small number of participants in past studies, as well as in our study. Additionally, it is also important to take into account other confounding and risk factors that could have influenced mortality, as well as the possible differences in treatment received by the patients. Further research is necessary to determine those other potential risk factors and follow-up on larger samples.

Our study examined an additional unique follow-up measure – residential rehabilitation programs for patients with EDs. This relatively new and very innovative inpatient treatment was recently developed in Israel to help facilitate young adults' transition back into everyday life. In this program, residents can reach normal weight, strengthen motivation, and start the recovery process while living within their own communities. The current finding that the two groups demonstrated similar levels of admission into such residential programs suggests that compulsory treatment can not only save lives but also provide hope and pave the way for a meaningful rehabilitation process.

In sum, the present findings seem to highlight the clear benefits of compulsory treatment. The fact that compulsorily admitted patients seem to achieve the same compliance with treatment and the same short- and long-term outcomes as those admitted voluntarily reinforces the recommendation to coerce hospitalization earlier. That is, in the case of chronically ill patients, earlier compulsory treatment may reduce the negative consequences of repeated hospitalizations and treatment failures on the patient, family, and therapists. Obviously, application for a compulsory treatment must be initiated carefully, only after thorough consideration of the particular benefits and disadvantages of such a legal order in the specific case. Yet, the results of our study, combined with the knowledge that patients with severe AN suffer significant pain and denial regarding their need for help with their illness, imply that families and professionals should aid these individuals even without their explicit call for help [7,21]. It is the ethical commitment of treatment providers to save lives; indeed, in the current study compulsory treatment seems to have saved at least some of these patients' lives.

Nonetheless, it is important to remember that our study focused on comparing compulsory admissions to voluntary admissions, but the entire group of adults with severe AN is an extremely high-risk population. Mortality rates in AN, as linked to medical complications and to the high suicide rate, are the highest of all mental disorders, even if patients are adequately treated. An examination of the total sample in our study reveals long-term illness and multiple hospitalizations with high rates of resistance, noncompliance, and self-discharge.

STUDY LIMITATIONS

Our study's main strengths include its retrospective cohort methodology and its pioneering comparison of compulsory versus voluntary AN patients in Israel over a decade. However, several limitations must be emphasized. It is important to note that full compulsory treatment in Israel is still illegal, and the current sample involves patients who were hospitalized by court order but could leave treatment at any time. Thus, it is difficult to generalize these results to fully compulsory treatment contexts. Also, our data set was not initially designed for research purposes; we relied only on existing patient charts recorded and collected by hospital staff. Thus, the only follow-up data available was on patient mortality and admission to a residential ED rehabilitation program, and some data (for example cause of death) was missing in the available records. Although the sample size was small, we fully used all available information about these patients collected over a 10-year period.

Due to the significant similarities between the groups, it is difficult to identify prospectively which patients will require compulsory treatment. The few factors that were identified included age of onset, recurrent hospitalizations, and comorbid personality disorder. However, generalizability from those results is limited. Further research should specifically examine history of traumatic life events, particularly sexual abuse that was suggested in other research [13] to be a predictive factor.

The current design did not include controlled trials evaluating the benefits and possible disadvantages of compulsory treatment and nasogastric treatment for severely ill patients with AN. Yet, such controlled trials are unethical and therefore challenging to design.

FURTHER RESEARCH

These limitations highlight the need for further research. Because of the relatively small number of

adult patients with compulsory treatment of severe AN in this study, wider cooperation from clinicians would be necessary in order to conduct larger studies and understand long-term outcomes. International collaboration between ED centers would enable accumulation of larger samples and cross-cultural comparisons. Importantly, future research should also focus on possible factors predicting favorable outcomes in compulsory treatment, as well as on the management of patients with AN. Further empirical study can be helpful in developing a suitable protocol for compulsory treatment.

In addition, qualitative research could enrich the current quantitative findings by investigating the patient's subjective experience of the compulsory treatment process, from its first step, through the treatment phase, up to the discharge period, and if possible at a follow-up interval. Particular emphasis might be placed on patients' feelings, such as guilt related to one's decision to eat and take care of oneself or the feeling of humiliation related to one's need to receive treatment.

Altogether, this study shows that use of compulsory hospitalization can be lifesaving in cases of AN that are associated with the core features of resistance to treatment and denial of life-threatening illness. In the present study, we found no indication that compulsory treatment was harmful in any way. Furthermore, compulsory treatment may reduce the patient's guilt about accepting nutrition and treatment. These results may provide an additional perspective on the ethical debate surrounding forced hospitalization for severely ill patients with AN.

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