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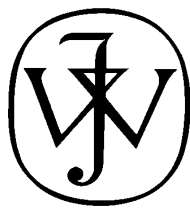
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Course and Predictors of Rehospitalization in Adolescent Anorexia Nervosa in a Multisite Study

Hans-Christoph Steinhausen,
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ABSTRACT

Objective: The course and clinical predictors of rehospitalization were studied in a large sample of adolescent patients with anorexia nervosa who had been treated at five European sites and been followed-up.

Method: Two-hundred and twelve adolescent patients first admitted for inpatient treatment, aged 10–18 (Mean 14.9) years and 94.8% female, were followed-up for an average of 8.3 years after first admission at sites in (former East and West Berlin, Zurich, Sofia, and Bucharest). Clinical history data were collected by use of standardized item-sheets at first admission. Semi-structured interviews including ratings of eating pathology and psychosocial outcome were performed at follow-up.

Results: About 44.8% (95/212) of the patients required at least one readmission. Rates of rehospitalization were significantly higher at the Eastern sites (Sofia and Bucharest). Significant predictors of readmission were paternal alcoholism, history of anorexia nervosa in the family, eating disorder in infancy, periodic overactivity, lower weight increase at first admission, and lower

BMI at first discharge. In a model of logistic regression analysis, five variables (paternal alcoholism, eating disorder in infancy, periodic overactivity, low weight increase during first admission, and low BMI at first discharge) correctly classified 69% of the participants into cases with single or repeated admissions. Patients with repeated admissions had a less favorable long term outcome and had higher rates of persisting psychopathology at follow-up.

Discussion: Rehospitalization reflects the chronic course in a sizable proportion of adolescent patients with anorexia nervosa. Family psychopathology may have an effect both in terms of genetic vulnerability and environmental stress leading to unfavorable courses. The strong effect of insufficient weight gain during first admission and lower BMI at first discharge emphasizes the importance of adequate interventions. Readmissions carry the risk for later poor psychosocial and psychiatric outcomes.
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Introduction

Both clinical experience and long-term follow-up studies indicate that a subgroup of patients with anorexia nervosa needs long-term treatment.

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Intensive interdisciplinary treatment based on inpatient, day clinic, or out-patient care is often necessary in order to provide sufficient intervention for the affected individuals and has been repeatedly emphasized also for the younger group of patients.^{1,2} However, findings from long-term outcome studies show that a sizeable proportion of patients remain chronic^{3–5} and, thus, are in need of continuous care.

In the younger age range of adolescent patients there is a deficit of well-controlled studies which address the effects of psychotherapeutic interventions, and there is also limited systematic knowledge about the effects of standard clinical care.^{1,6} Rehospitalization occurs quite frequently and may be considered both as an indicator of the severity of the disorder and the goodness of fit between

patient needs and the characteristics of the treatment program. High readmission rates have been observed both in adults and particularly in adolescent patients⁷⁻¹⁰ and there is some indication that the increasing trend for shortened hospitalization and the insufficient weight gain at discharge contributes to further readmissions.^{8,10} However, it should be noted also that some treatment studies provide a more optimistic view of treatment and course of adolescent eating disorders.¹¹⁻¹³

A few studies of patients suffering from anorexia nervosa have tried to identify predictors of readmission and found young age, long duration of the disorder, low body mass index (BMI) at admission, purging behavior, and insufficient weight gain are contributing to readmission.^{7-9,14,15} Most of these studies contain only a rather small proportion of adolescent patients and only a single study⁷ has addressed the issue of rehospitalization in a sizeable sample of adolescent patients.

Using a large sample of adolescent patients who received hospital care at five different sites, the present study readdressed the issue of the course and predictors of rehospitalization. The issue is of ongoing relevance because the identification of risk variables for readmission may ultimately contribute to more tailor-made interventions aiming at better outcome. Data of the present study were collected within the International Collaborative Outcome Study of Eating Disorders in Adolescence (ICOSEDA) which assessed the clinical features, treatment, and outcome in consecutive cohorts of adolescent patients at five European sites. After some preliminary reports based on data coming from two and three sites,¹⁶⁻¹⁸ the main outcome findings based on data from all five sites had been showing amongst others that within a mean follow-up period of 6.4 years (76 months) the average time spent in in-patient treatment was 4.56 months (6% of the total follow-up time) and that a large proportion required one to a maximum of five rehospitalizations within the follow-up period.¹⁹ In the present report we extend these analyses by describing the hospitalization history and the effect on outcome of these patients in more detail. We hypothesized to replicate findings based on previous studies in patients with adult onset of AN indicating that weight characteristics are significant predictors of readmission. Furthermore, it was expected that further predictors of rehospitalisation would be found by a systematic analysis of clinical history data of the patients. Thus, the study was also explorative in nature.

Method

Participants

The entire sample of $N = 212$ participants consists of five series of consecutively admitted patients suffering from anorexia nervosa who were initially seen between 1979 and 1988 in former West Berlin ($N = 45$), between 1979 and 1991 in former East Berlin ($N = 61$), between 1979 and 1991 in Zurich ($N = 19$), between 1987 and 1993 in Sofia ($N = 47$), and between 1984 and 1996 in Bucharest ($N = 40$). All 212 patients fulfilled the ICD-10 criteria for anorexia nervosa and were diagnosed by experts (MD and PhD level) in the assessment and treatment of these disorders. The vast majority ($N = 201$, 94.8%) of the sample was female. The age at first assessment varied from 9.8 to 18.7 years at admission (Mean = 14.8, SD = 1.7). The follow-up period amounted to a mean of 8.3 (SD = 3.0) years and the average age at follow-up was 22.3 (SD = 2.9) years.

Procedure

Diagnosis of Patients. All patients were assessed by use of semistructured direct clinical interviews with clearly defined ratings of the individual items that dealt with clinical symptoms, family and personal history. Clinical symptoms included a total of 11 items reflecting age at onset, weight and height characteristics, and the defining clinical criteria according to ICD-10. The latter included the four items of overactivity, bulimic episodes, vomiting, and laxative abuse. The instrument for data collection had been used before in various outcome studies.¹³⁻¹⁶ At the Bucharest site all patients were initially diagnosed with the K-SADS-E^{20,21} interview addressed to one parent about the patient and to the patient herself. The data from this interview were fitted to the items of the standardized sheet of the study.

Personal history included six items covering pregnancy and birth complications, premorbid eating and weight pathologies (i.e. feeding disorders, picky or selective eating, overweight), and premorbid psychopathology. All clinical data were collected in clinical interviews during the first admission to hospital by the treating clinicians and carefully rechecked by the authors as the supervising seniors at each site.

Familial Psychopathology Data Collection. Familial psychopathology was a special chapter of our standardized interview sheet. A total of nine items covering the various eating disorders, affective disorders, substance abuse, obsessive compulsive, anxiety and somatoform disorders, and schizophrenias in parents and siblings were addressed to one adult first degree relative of the patient in the clinical interview. At the Bucharest site the familial investigation started only in 1987 and a total of

TABLE 1. Rehospitalizations by site (N = 212)

	West-Berlin (N = 45)		East-Berlin (N = 61)		Sofia (N = 47)		Zurich (N = 19)		Bucharest (N = 40)		χ^2	df	p
	N	%	N	%	N	%	N	%	N	%			
Single admission	34	76	37	61	14	30	14	74	18	45	26.86	4	<.001
Repeated admissions	11	24	24	39	33	70	5	26	22	55			

83.9% (110/131) of the first degree relatives of the Romanian probands were directly interviewed with SCID-I²² and SCID-II²³ for DSM-III-R either at the patient first admission or during the follow-up. Psychopathology data on the remaining 16.1% (21/131) of the first degree relatives were collected through family history method. For each proband family at least one adult first degree relative and the patients themselves after the age 18 provided psychopathology information about the other family members not available to direct investigation in face-to-face interviews based on a standard checklist containing DSM-III-R diagnostic criteria for eating disorders, major affective disorders, schizophrenia, schizoaffective disorders, alcoholism, anxiety, somatoform, and personality disorders. Any other psychiatric disorder mentioned by the informants was also recorded (for more details see Ref. 21). Only in the Zurich sample family history data had to be retrospectively collected from the files.

Admission and discharge dates were taken from hospital records. The main hospital admission criteria at all sites were the presence of anorexia nervosa according to ICD-10 that involves significant BMI reduction (below 17.5) by the time of the admission because of the fear of getting fat, body image distortion, and the absence of menses during the last months preceding the admission. Comorbid disorders in patients were investigated and treated during hospitalization but they were not the main admission criterion. Based on hospitalization data, the total absolute duration of in-patient treatment and the relative duration of treatment, taking the duration of follow-up into account, was calculated. The latter is a quotient and was converted into percentage values.

At follow-up all patients were directly interviewed by experienced clinicians who had, to a large extent, been involved in the treatment of the patients. At each visit the weight of the patients was measured and compared both with the patient weight at the previous visit and with weight standards for height, sex, and age. Information about the eating attitudes of the patients was obtained both from the patients and one of the parents or siblings. Thus, the assessment was based on objective weight measures, on two sources of information about eating attitudes and benefited from a good rapport and a trusting relationship. A semistructured interview was conducted at follow-up that requires the rating of topics that deal with symptoms of the eating disorders and psychosocial outcomes. Each of the 11 topics were rated on a

four-point scale reflecting the intensity or frequency of the respective item (absent, mild, moderate or severe) as described in the previous reports on the West Berlin subsample.^{5,24-26} Five topics of the follow-up interview dealt with symptoms of the eating disorders, i.e. dieting, vomiting, bulimic episodes, laxative abuse, and menstruation. These five items formed the eating disorder's outcome score. Two additional topics addressed the attitude towards sexuality and active sexual behavior, and the remaining four items assessed the quality of relationship with the patient's family of origin, the quality of social relationships in general, and their educational or occupational status. From these six items a psychosocial outcome score was calculated. The total outcome score was based on the entire set of 11 items. Furthermore, the eating disorder diagnosis was reassessed according to ICD-10 criteria and a global rating of any persisting psychopathology was made on a three point scale (normal, slightly abnormal with no needs for further treatment, definitely abnormal with need for further out-patient or in-patient care).

All of the assessors at follow-up were senior clinicians with expert knowledge of the eating disorders and extended training in both adolescent and adult psychopathology. All of the principal investigators were trained in data collection by the senior author.

Statistical Analyses

Survival analysis was applied in order to study the time course of rehospitalization. Age adjusted BMI at various points in time was calculated by analysis of covariance. Comparisons between participants with either single or repeated admissions were made by use of χ^2 tests and analyses of variance. Logistic regression provided the best combination of predictors of rehospitalization.

Results

A total of $N = 95$ participants (44.8%) required readmission during the entire follow-up period. The frequencies of rehospitalization across sites differed significantly as shown in **Table 1**. Repeated admissions occurred more frequently at the two Eastern European sites in Sofia and Bucharest. The

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F1 survival function of hospitalization of the entire sample is shown in **Figure 1**. The last discharge of a patient from hospital within the entire observation period took place after nearly 1,000 days.

T2 Findings coming from family and personal history are shown in **Table 2**. Out of a total of 15 items 3 differentiated significantly between participants with single and repeated admissions. In patients with repeated admissions, the rate of paternal alcoholism, anorexia in another family member, and

premorbid eating disorders in infancy of the patient was elevated.

T3 A comparison of age, duration of treatment, and weight characteristics between participants with single and repeated admissions is presented in **Table 3**. There were a few significant differences. Patients with repeated admissions showed less weight increase at first admission and a lower BMI at discharge from first admission. They did not differ from patients with single admission in terms of age at onset of the disorder and at admission, duration of pretreatment illness, premorbid BMI, duration of first in-patient treatment, and BMI at first admission. All BMI calculations were age-adjusted with age being significant in all three instances.

T4 The corresponding comparison of the main clinical symptoms of the eating disorders is shown in **Table 4**. Patients with repeated admissions were significantly more overactive and tended to also have more vomiting and laxative abuse. In an additional step of the analyses the various univariate significant risk factors for repeated admissions were jointly analysed in a single logistic regression analysis. In this analysis a total of 68.8% of the participants were correctly classified. The corresponding figures for single admissions and repeated admissions amounted to 73.0 and 64.0%, respectively. As **Table 5** shows, five predictors remained

FIGURE 1. Survival analysis of discharge from in-patient treatment.

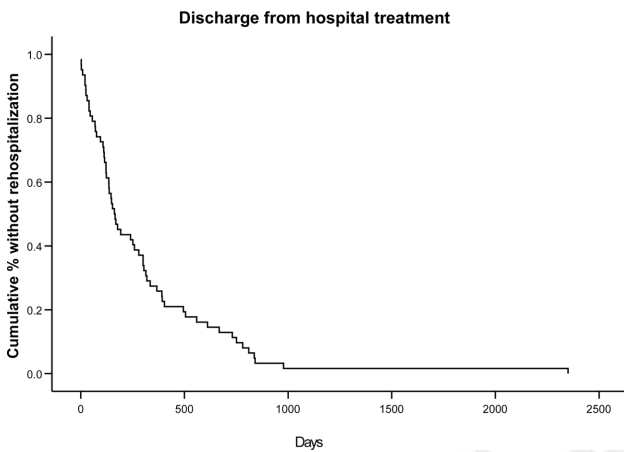


TABLE 2. Family and personal history

	Single Admission		Repeated Admissions		χ^2	df	p
	N	%	N	%			
Paternal alcoholism (N = 193)							
Not present	95	91	70	79	6.23	1	.01
Present	9	9	19	21			
Anorexia in the family (N = 195)							
Not present	103	97	80	90	4.42	1	.03
Present	3	3	9	10			
Premorbid eating disorder in infancy (N = 211)							
Not present	105	91	76	80	4.74	1	.03
Present	11	9	19	20			

TABLE 3. Age, duration of treatment, and weight characteristics of patients with single and repeated admissions

	Total (N = 212)		Single Admission (N = 117)		Repeated Admissions (N = 95)		F (df = 1)	p
	Mean	SD	Mean	SD	Mean	SD		
Age at onset of the disorder	13.9	1.6	14.0	1.6	13.7	1.5	2.38	n.s
Age at first admission	14.8	1.7	14.9	1.7	14.7	1.6	0.65	n.s.
Duration of pretreatment illness (yrs)	1.1	1.1	1.1	1.2	1.0	0.9	1.16	n.s.
Duration of first inpatient treatment (days)	76.0	85.3	82.3	59.7	68.1	108.8	1.44	n.s.
Age-adjusted premorbid BMI	19.5	2.7	19.7	2.7	19.3	2.7	0.58	n.s..
Age-adjusted BMI at first admission	13.9	1.7	14.0	1.6	13.8	1.8	0.85	n.s.
Weight increase at first admission (kg)	6.5	4.8	8.2	4.7	4.6	4.3	32.16	<.001
Age-adjusted body mass index at discharge from first admission	16.5	2.1	17.1	1.8	15.7	2.1	24.11	<.001

TABLE 4. Clinical symptoms by rehospitalizations

	Single Admission		Repeated Admission		χ^2 (df = 1)	<i>p</i>
	<i>N</i>	%	<i>N</i>	%		
Periodic overactivity (<i>N</i> = 205)						
Not present	38	34	15	16	8.87	.003
Present	73	66	79	84		
Vomiting (<i>N</i> = 208)						
Not present	79	69	53	56	3.71	.054
Present	35	31	41	44		
Laxative abuse (<i>N</i> = 204)						
Not present	93	85	70	75	3.20	.07
Present	17	15	24	25		

significant in the combined analysis. Repeated admissions were significantly predicted by lower weight increase during first admission, overactivity, and by tendency also by lower BMI at discharge, paternal alcoholism, and eating disorders during infancy.

The association with long-term outcome at follow-up showed that the two groups with repeated and with single admissions did not differ significantly on the eating disorders outcome score (Mean = 7.5, SD = 3.0 vs. Mean = 6.9, SD = 2.4, $F = 2.25$, $df = 1$, $p = n.s.$). However, the group with repeated hospitalizations had both a more unfavourable psychosocial (Mean = 11.1, SD = 4.2 vs. Mean = 10.0, SD = 3.7, $F = 4.26$, $df = 1$, $p = .04$) and total outcome score (Mean = 18.6, SD = 6.1, SD = 17.0, SD = 4.7, $F = 5.08$, $df = 1$, $p = .025$). Correspondingly, this group was also considered to have a greater amount of persisting psychopathology in need of further treatment ($N = 23/84$ or 27% vs. $N = 12/82$ or 15%, $\chi^2 = 4.05$, $df = 1$, $p = .04$). In the latter analyses, the West Berlin sample was not included due to the fact these patients had been seen earlier for follow-up when the rating of persisting psychopathology had not yet been a part of the assessment.

Conclusion

The present data on rehospitalization of young eating disordered patients come from a sizeable sample of patients who were studied in a multisite collaborative project that had been conducted at various European centres with some expertise in the treatment of these young patients. Because of the combined analysis of historical data, clinical data at first admission, and long-term outcome data, this study is in a unique position to evaluate both the risk factors and the consequences of insuffi-

TABLE 5. Significant predictors of rehospitalisation in logistic regressions analysis

Variable	<i>B</i>	SE	OR	<i>p</i>
BMI at first discharge	-0.173	0.10	0.84	.08
Weight increase during first admission	-0.111	0.04	0.89	.009
Paternal alcoholism	0.953	0.50	2.29	.06
Eating disorder in infancy	0.832	0.49	2.30	.09
Overactivity	0.921	0.43	2.51	.03

cient treatment response as indicated by the need for further hospitalization. In this way, the present findings significantly add to present knowledge of a serious topic, namely, the insufficient response of some patients to treatment.

The total rehospitalization rate of 44.8% in the present study compares with rates of 25–63% in adolescent patients and is somewhat higher than in adult patients (25–35%).⁷⁻¹⁰ Findings varied due to different follow-up periods. The initial finding of striking differences in rehospitalization with higher rates at the Sofia and the Bucharest site may, in fact, have reflected a selection effect. For example, the Bucharest sample consisted of severe restrictive anorexia nervosa cases, with a sample mean BMI of 14.1 at admission and with an important rate of familial psychopathology (major psychoses, alcoholism, anxiety disorders, personality disorders) in first degree relatives.²⁰ Many of these patients developed comorbid disorders either in the course of anorexia nervosa or later.²⁵ At all three Eastern and the two Western sites, the recruitment of the patients occurred in a state university hospital, the most important in the country or the area. Patients who came to that hospital were referred either by out-patient services or by other clinics that felt they were not able to manage the patient disorder. The financial state of the patient family played no role in hospitalization because the medical care of children and adolescents was supported by the state in Eastern Europe and covered by obligatory insurance at the two Western sites. There was no time limitation for the hospitalization at any site. Moreover, AN was defined according to more severe weight loss criteria before 1986 and a part of the patients were recruited before 1986.

In Eastern Europe there was an understanding that drug treatment rather than psychotherapy should be the treatment of choice for mental disorders. On the other hand, the survival analysis showed that after close to 3 years not a single patient in the study needed further in-patient treatment. This is not to say that all patients were also not any more in need of out-patient treatment. Previous analyses have shown that the Sofia subsample received significantly less out-patient treatment than the other

subsamples which may have reflected, again, more a shortage in provision than in needs.¹⁹ Besides these differences in local provision of treatment, these data reflect the rather large rate of patients who run a protracted chronic course of the disorder.

On the other hand, we were able to show that even with a more advanced provision of treatment and a strong reliance on out-patient family therapy at the Zurich site there was a high rejection rate of out-patient treatment and disappointment with treatment and an amazingly high rate of impaired outcomes at follow-up.¹⁹ The comparison of the long-term course of AN patients living in different social and economical systems suggest that socio-cultural factors do not play a major role in the long-term course and psychopathological outcome of AN. Our study benefited from the unique natural social experiment represented by the political division of Europe in 1989.

Both data from the clinical presentation and the history of the patients point to some critical risk factors for the course of the eating disorders. Starting from the early history of the patients there is no evidence from the present study that pre- and perinatal risk factors and premorbid behavioral abnormalities may have exerted an unspecific influence on rehospitalization whereas premorbid early eating disorders in infancy may well have. The latter is in accordance with a few observations that early feeding and eating disorders may contribute to later eating disorders²⁷ with a limited understanding of the transmitting mechanisms.

Family history findings of the present study with an increased rate of paternal alcoholism and anorexia nervosa in other family members match findings from other family studies of the eating disorders.²⁸⁻³⁰ However, the prognostic impact of these risk factors in terms of a poor course as indicated by a need for increased hospitalizations is a novel finding. One may speculate that the AN with familial loading of alcoholism and eating disorders may reflect a genetic subtype marked by a less favourable course. A confirmation of this interpretation are the findings reported elsewhere on the Romanian sample.³¹ In a stepwise multiple regression, the authors found that the familial psychopathology belongs to the best predictors of a poor physical long-term outcome (6–11 years) of the restrictive type of anorexia nervosa as measured by the Morgan–Russell index.

Alternatively, it may well be that the resulting family stress due to major mental problems in other family members may result in a lack of therapeutical responsiveness or that both genetic and

environmental factors interact in producing the less favourable course of the disorder. There is some evidence coming from other studies that, in fact, family functioning and parental rearing practices may have an impact on the short-term outcome of adolescent anorexia nervosa.^{32,33}

There is little evidence coming from the present study that premorbid weight pathology has an impact on rehospitalization in adolescent patients with eating disorders. This finding is in accordance with the study by Castro et al.⁷ who also found no association between BMI at admission and rehospitalization in their adolescent sample and in contrast to findings in adult patients.⁸ The present findings are based on age adjusted BMI calculations. Furthermore, there is strong evidence that insufficient weight gain during first admission and a resulting lower BMI at discharge are important risk factors for rehospitalization. The two weight-related factors were not only unilaterally associated with readmission but also strong enough to each contributing to readmission when jointly considered in logistic regression analysis.

Insufficient weight gain during admission has been identified as a risk factor for rehospitalization also in the study on adolescent patients by Castro et al.⁷ These authors have made a plea both under a biological and a psychological perspective for providing sufficient time so that weight recovery can take place. Although this argument seems to be well taken, both their own data as well as the present study do not provide clear-cut evidence to support this hypothesis. In both studies the duration of in-patient stay did not distinguish between patients requiring single or repeated admissions. Further evidence that poor weight gain contributes also to poor course and outcome of adolescent anorexia nervosa comes from the collaborative study by Hebebrand et al.³⁴ Currently, we are still lacking a profound understanding of the complex interplay of biological and psychological factors resulting in poor weight gain. It may well be that other factors including motivational features are the core elements of treatment response and weight gain is only a proxy or surface variable.

Among the clinical core features of anorexia nervosa it was shown that overactivity was unfavourably associated with readmissions and that there was a similar trend for vomiting and laxative abuse. These findings may be partly seen as an indicator of the severity of the disorder and partly concur with findings of an association of the purging-type of anorexia nervosa with readmissions in adult patients.⁹ This effect was not noticeable in the study by Castro

et al.⁷ One may conclude that the relatively low frequency of purging behavior in both studies based on rather young patients prevented a clear replication of the findings in adult studies.

Finally, the present study provided some novel findings on the impact of rehospitalization on long-term outcome. On the one hand, readmission had no effect on eating disorders symptoms after a mean of 8 years of follow-up. In contrast, there was clear evidence that both in terms of the psychosocial adaptation and persisting psychopathology in need of further treatment the patients with previous readmissions fared less well at follow-up. With the lack of an association to the eating disorder symptoms, these findings are different from previous studies indicating that longer duration of in-patient treatment has a negative impact on the course of anorexia nervosa whereas there is less information on the association of treatment duration with psychosocial outcome (for a review see Ref. 3).

The study has some limitations. In the analyses we did not consider the influence of patient personality traits and attitudes towards the illness and of family interactions on readmission frequency. Furthermore, familial psychopathology data were collected with different accuracy across sites. Because paternal alcoholism emerged as the only variable having a significant prevalence in patient first degree relatives compared with other psychiatric disorders, we studied only its impact on the admission rate in patients. An additional limitation arose out of the long time span over which the patients were selected (from 1979 to 1996). Although the patients were uniformly diagnosed across sites according to ICD-10 criteria for the purpose of this study, this diagnosis was a post-hoc process. From 1979 to 1996 diagnostic criteria for eating disorders changed both in DSM and ICD. A subgroup of patients was initially diagnosed based on more severe criteria like the DSM-III criteria that required 25% loss of the initial body weight. This is the case of a part of the Romanian sample recruited between 1984 and 1986. Therefore these patients were very severe cases. Moreover, all samples consisted of consecutive hospital admissions and patients referred to a hospital are usually more severe cases than those attending only out-patient services.

The specific historical and societal circumstances under which the study was performed induced differences in treatment concepts and differences in readmission rates between sites. However, all patients were serious cases of AN, with a BMI below 17.5 and did not profit sufficiently from out-patient services in the case of any existing service of this

type. The use of standardized discharge criteria across sites was not possible. In addition, this study was not in a position to control for any effect of comorbid conditions on rehospitalization. However, the concept of comorbidity was not used in the clinical practice of the eighties when we started the patient recruitment. Therefore, comorbidity data were not collected for the first patients. As to uniform discharge criteria across sites, these cannot be imposed for ethical reasons, since no patient can be constrained to spend a standard time in a hospital.

Finally, some of our findings need replication. This does not apply to the strong predictive power of BMI and weight characteristics because these findings were largely replicated also in adult patients and our results had a high significance level. However, other clinical variables like patient overactivity and parental alcoholism predicting rehospitalisation had more modest significance levels and, therefore, need further replication in future studies.

The clinical implications point to the early identification of risk factors for readmission and a strong emphasis on sufficient weight gain as a core feature of successful in-patient treatment. This goal may only be achieved by a combination of skilful dietary treatment, cognitive-behavioral interventions including motivational enhancement, and cooperation with the family within a therapeutic in-patient environment that meets the needs of adolescent patients. Whilst weight gain may be limited predominantly to a subgroup of treatment responders, more emphasis needs to be placed on the identification of risk factors for insufficient treatment response. Currently, due to lacking empirical data it is still unclear whether simply setting a goal of a higher discharge weight will accomplish lower rehospitalisation rates.

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