

# Overview of Treatment Modalities in Adolescent Anorexia Nervosa

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## KEYWORDS

- Anorexia nervosa • Adolescence • Inpatient treatment
- Day care management • Review

The aim of this article is to scrutinize and compare the benefits of distinct treatment settings for anorexia nervosa (AN) and to review the different treatment modalities that have proven helpful in the management of young patients with AN. Unfortunately, with the exception of outpatient family therapy, there is a dearth of controlled studies on the treatment of adolescent AN, which results in most of the recommendations being made based on mainstream clinical opinion with little empiric standing. To date, there are no multisite comparison trials of different treatment methods with large sample sizes in inpatient, day patient, or outpatient settings.

## TREATMENT SETTINGS

This section deals primarily with inpatient and day care management, because different types of outpatient treatment are described in more detail in articles by Le Grange and Eisler and Schmidt elsewhere in this issue.

### *Inpatient Treatment*

Inpatient treatment is considered the treatment of choice for severely undernourished young AN patients, especially in Europe. However, this point of view has been challenged recently. Results of a randomized effectiveness study have demonstrated

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44 that inpatient treatment may not provide advantages over outpatient treatment in ad-  
45 olescent AN.<sup>1</sup>

46 In the United States, about half of patients seeking treatment for AN are admitted to  
47 inpatient treatment.<sup>2</sup> The mean duration of inpatient treatment for 15- to 24-year-old  
48 young people in Germany was 49.8 days, with overall costs of €12.800 € /patient  
49 in 1998.<sup>3</sup> In the United States, the average length of stay for each inpatient decreased  
50 from 149.5 days in 1984 to 23.7 days in 1998.<sup>4</sup> Instead, residential treatment options  
51 for individuals with AN or bulimia nervosa (BN) are becoming increasingly common.  
52 The average length of residential treatment was 83 days for patients with eating dis-  
53 orders, with an average cost per day of \$956.00.<sup>5</sup>

54 Admission to the hospital is a clinical decision based on multiple factors that should  
55 always include the patient and her family, even when it is involuntarily. Criteria for con-  
56 sidering admission to hospital are summarized in **Table 1**.

57 Most clinicians believe that multidisciplinary inpatient units experienced in the treat-  
58 ment of adolescent AN are the most effective settings for restoration of healthy body  
59 weight and for a fundamental change in overvaluation of weight and shape. However,  
60 there are no controlled studies to compare the outcomes of inpatient treatment on  
61 a general pediatric or adolescent psychiatric ward to a specialized inpatient program  
62 for eating disorders (see also Ref.<sup>6</sup>).

### 63 *Involuntary Treatment and Coercive Pressure*

64  
65  
66 Involuntary treatment of eating disorders has always been a controversial issue. It is  
67 used rarely in adolescent patients and only in life-threatening situations. Some early  
68 research argued that patients legally admitted for involuntary treatment have negative  
69 memories of their hospitalization and might not experience any benefit. However, re-  
70 cent studies from the United States and United Kingdom report that short-term re-  
71 sponses of the legally committed patients were just as good as the responses of  
72 the patients who had voluntarily agreed to treatment.<sup>7,8</sup> Detained patients gained as  
73 much weight during the hospital stay as those who were voluntarily admitted, but  
74 took longer to meet their weight goals. Most of the involuntarily treated patients later  
75 affirmed the necessity of their treatment and complied with the treatment process. In  
76 the British study,<sup>7</sup> involuntarily admitted patients had more aversive childhoods, dis-  
77 played more self-harm behaviors, had more previous admissions to hospital, and  
78 had a higher mortality rate at long-term follow-up. Note that both studies included ad-  
79 olescent patients. Russell<sup>9</sup> maintains that involuntarily treated patients often realize  
80 some time later that the professional staff, their family members, and legal authorities  
81  
82  
83

84 **Table 1**  
85 **Criteria for inpatient care in adolescent AN**

86 [Q12]

87 <b>Medical Criteria</b>	87 <b>Psychosocial Criteria</b>
88 BMI less than the third percentile	88 Severe social isolation
89 Rapid weight loss, low energy intake, refusal to drink	89 High parental criticism, dysfunctional family interactions
90 Medical complications (eg, hypokalemia, alkalosis, severe bradycardia, pancreas or liver affection)	90 Lack of outpatient facilities or insufficient response to outpatient treatment trials
93 Severe psychiatric comorbidity such as depression or OCD	

94

[Q1]

95 take their illness seriously. Moreover, the patients and their parents may even feel  
96 relieved to hand over the responsibility for their health to a professional team.

97 Even voluntarily admitted patients often perceive subtle or direct pressure by their  
98 parents, friends, or teachers. In a recent study by Guarda and colleagues<sup>10</sup> patients'  
99 perceptions about their need for hospitalization and the coerciveness of the admission  
100 process were evaluated. Patients younger than 18 years reported more perceived  
101 coercion and tended to disagree with hospitalization than did adult patients. After  
102 2 weeks of treatment, nearly half of the patients who denied needing admission had  
103 changed their minds to believing that they did indeed need to be admitted. However,  
104 the large majority of those who had changed their minds were adults, whereas the ad-  
105 olescents still did not endorse the need for hospitalization. Thus, it might be more dif-  
106 ficult to persuade anorectic adolescents than adults of the seriousness of their illness,  
107 which points to the necessity of involving caretakers of eating disordered adolescents  
108 in treatment procedures.

109 This is also true for treatment adherence. One-third to one-half of anorectic inpa-  
110 tients drop out of treatment prematurely,<sup>11–13</sup> which is substantially higher than the  
111 rates reported in general psychiatry. Predictors of dropout in adults were a higher  
112 number of previous hospitalizations, especially in those who dropped out in the earli-  
113 est phase of treatment and the binge–purge subtype of AN.<sup>11,14</sup>

114 Relapse rates of 25% to 40% have been reported during the first year after admis-  
115 sion.<sup>15–18</sup> In a multisite follow-up study of adolescent AN in Western and Eastern Eu-  
116 rope, significant predictors of readmission were paternal alcoholism, eating disorder in  
117 infancy, physical hyperactivity, lower weight increase at first admission, and lower BMI  
118 at first discharge.<sup>18</sup> Other studies have identified high mean scores on the eating at-  
119 titudes test, lower mean age, previous treatments for eating disorders, severity of ob-  
120 sessive compulsive disorder (OCD) symptoms, and excessive exercise immediately  
121 after discharge.

122 However, up to now it has not been clarified whether there is a paucity in the quality  
123 of inpatient treatment in adolescent AN or whether AN per se takes a protracted and  
124 distressful course.

125

### 126 ***Full-Time Inpatient Hospital Treatment Versus Outpatient Treatment in Adolescent*** 127 ***Anorexia Nervosa***

128 In a very early, randomized controlled trial that compared inpatient and outpatient  
129 treatment, the investigators found limited evidence that outpatient treatment was as  
130 effective as inpatient treatment in adolescents not ill enough to warrant emergency  
131 medical treatment.<sup>19</sup> In this study, inpatient treatment was characterized by a multi-  
132 modal approach, including dietary counseling and individual and family therapy. In  
133 the second arm of the trial, patients received twelve outpatient sessions with varying  
134 amounts of individual and family therapy. In the third option, patients and parents were  
135 treated separately with 10 group meetings for the anorectic patient and the parents,  
136 respectively. Both outpatient options also received dietary counseling. After 1 year,  
137 weight gains in all 3 treatment groups were significant, with the largest gains in the out-  
138 patient groups.<sup>19</sup> This comparative study was biased by the fact that many patients  
139 randomized to inpatient treatment did not accept it. There was a 2-year follow-up in-  
140 vestigation for the outpatient group treated with a package of individual and family  
141 therapy. Of the original 20 patients, 12 were rated as well or nearly well according  
142 to Morgan and Russell criteria.<sup>20</sup>

143 There is some inconclusive evidence that hospital inpatient care may adversely af-  
144 fect outcome in young patients. In a British study, 21 of 75 patients who had received  
145 inpatient treatment had a significantly worse outcome than the 51 patients never

146 admitted to the hospital.<sup>21</sup> This study, too, was biased by several factors, including the  
147 problem that the time of follow-up varied between 2 and 7 years, although it is well  
148 known that a longer time of follow-up is associated with a better outcome. In addition,  
149 treatment modalities differed significantly between settings. Only those treated on an  
150 outpatient basis received family therapy, which is the only treatment method that has  
151 proven to be relatively successful in adolescent AN.

152 In another controlled trial, 167 young people with AN were randomized to inpatient  
153 treatment, to a specialized eating disorder outpatient service with a manualized treat-  
154 ment program, or to treatment as usual at a child and adolescent mental health ser-  
155 vice.<sup>1</sup> According to the results of this study, there was no advantage of inpatient  
156 over outpatient management. Indeed, inpatient treatment predicted a poor prognosis,  
157 and specialist outpatient management did not result in a better outcome than general  
158 child and adolescent mental health service. However, these findings are difficult to in-  
159 terpret. First, the duration of treatment differed significantly among the 3 arms of the  
160 trial, with inpatient treatment lasting a mean of 15 weeks and the 2 outpatient arms  
161 lasting 6 months. Inpatient treatment was not followed by any kind of outpatient  
162 care. Second, adherence to treatment regimens varied substantially. Unsurprisingly,  
163 inpatient treatment had the highest dropout rate. All participants were evaluated on  
164 an intention-to-treat-based analysis, although several of the outpatients subsequently  
165 engaged in more intensive forms of treatment. Third, with the exception of the special-  
166 ist outpatient management, treatment components were not manualized. The investi-  
167 gators argue that despite the caveats, the study provides insight into a more  
168 naturalistic use of services in the United Kingdom.

169 In sum, basic questions about inpatient treatment have not been adequately  
170 addressed or answered. There is some evidence that inpatient treatment is helpful  
171 for severely malnourished or medically at-risk patients. However, there are no evi-  
172 dence-based criteria for admission to inpatient treatment, and the specific goals of  
173 inpatient treatment are not agreed on. Accordingly, there is no established consensus  
174 about the most effective length of inpatient care or about the comparative role of dif-  
175 ferent treatment modalities. In addition, it is still unclear whether different age groups  
176 (eg, adults vs. adolescents) may profit from different treatment settings.<sup>22</sup>

### 177 178 **Day Care Management**

180 In addition to financial benefit, day-patient treatment may have some advantages over  
181 inpatient care. Day-patient care allows the patient to have extensive contact with her  
182 family, school, and peers. New skills learned at the day-patient program may be trans-  
183 ferred home immediately, and alternate social roles or coping strategies will be more  
184 easily generalized from the therapeutic milieu to everyday situations. Nevertheless,  
185 there is only 1 survey in the literature based on a systematic database search of eating  
186 disorder day-hospital-treatment programs.<sup>23</sup> This study mainly focused on 3 institu-  
187 tions, 1 in the United States 1 in Canada, and 1 in Germany. Findings from these treat-  
188 ment locations suggest that the day-treatment programs led to significant weight gain  
189 and an improvement in specific and general psychopathology in AN patients. The out-  
190 come did not depend significantly on the number of days spent in day care. Older  
191 adolescents were included in these partial day programs; however, there was no  
192 information on the influence of age on outcome.

193 Significant differences between day care units exist in terms of criteria for admission  
194 (eg, minimal body weight, repeated outpatient failure), time spent in treatment, and  
195 posttreatment care. Some institutions operate 7 days/week, whereas others are  
196 open only 4 days/week.

197 To our knowledge, there is only 1 study that has compared day-patient and inpatient  
198 treatment.<sup>24</sup> In this study, 13 consecutively admitted day patients were matched with  
199 corresponding inpatients. After inpatient treatment, patients had gained a greater  
200 amount of weight and reached a more favorable overall outcome. However, this study  
201 was biased by an extremely small sample size and nonrandomization. Therefore, ran-  
202 domized controlled trials between day care management and inpatient treatment are  
203 urgently needed. In the United States, the pressure to reduce the length of stay for  
204 hospitalized patients and reduced insurance coverage for management of eating dis-  
205 orders has led to a hurried transmission into less intensive settings. In contrast, the  
206 high costs for the treatment of adolescent AN in Germany reflects the fact that most  
207 of the patients are admitted to inpatient treatment. However, both situations depend  
208 more on health care policies than on empiric standing. Adolescent anorectic patients  
209 may experience the care of the professional staff in a hospital setting as supportive,  
210 whereas life outside the hospital is seen as tough and the resumption of responsibil-  
211 ities too stressful. A return to hospitalization related to relapse of the eating disorder is  
212 probably seen as an escape and not as a failure.<sup>21</sup> Instead, the time spent outside the  
213 unit after day treatment might provide a better opportunity to gain mastery in everyday  
214 life (concerning eating and non-eating behavior) and thus might contribute to a better  
215 relapse prevention. At present, the authors are conducting a 5-site controlled study  
216 supported by the German Ministry for Education and Research. In this investigation,  
217 children and adolescents between 11 and 17 years of age are randomized to either  
218 day-patient or inpatient service after a 3-week admission to an inpatient unit. Treat-  
219 ment approaches are manualized, and apart from the setting, modalities are exactly  
220 the same. Up to now, more than 60 patients fulfilling fourth edition of the Diagnostic  
221 and Statistical Manual of Mental Disorders (DSM-IV) criteria for AN have been enrolled  
222 in this study.

### 225 MULTIMODAL TREATMENT APPROACH

226 Although it has not yet been systematically assessed in controlled trials, there is some  
227 clinical evidence that a multidisciplinary behavioral treatment program in an inpatient  
228 or day-care setting is effective to restore a healthy body weight and better psycholog-  
229 ical and social functioning. This can be achieved by a multimodal treatment approach  
230 based on the following main components:

- 232 (1) Nutritional rehabilitation and treatment of medical complications
- 233 (2) Nutritional counseling to restore healthy eating behavior
- 234 (3) Individual therapy to help the patient to correct dysfunctional thoughts and  
235 improve self-esteem
- 236 (4) Group therapy
- 237 (5) Family (or parent) counseling or therapy.

239 In addition, comorbid disorders, especially depressive, anxious, or obsessive-com-  
240 pulsive symptoms should be alleviated.

241 To prevent more adolescents from dropping out of treatment, it may be helpful to  
242 introduce some sort of “motivational enhancement intervention” to engage them  
243 in therapy and reduce ambivalence and resistance to change. In adolescent inpa-  
244 tients, low motivation to change was a reliable predictor of readmission to hospital.<sup>25</sup>  
245 Recent studies suggest that motivational interviewing, which has been used in the  
246 treatment of addiction, may be helpful in short-term treatment outcomes in adolescent  
247 AN<sup>26,27</sup> (for a description see Schmidt U. in this issue). In an Australian study group,

248 motivational enhancement therapy was used in the beginning of inpatient treatment to  
249 foster longer-term motivation and promote treatment continuation.<sup>28</sup>

### 250 **Nutritional Rehabilitation**

252 Nutritional rehabilitation and nutritional counseling are described here in more detail,  
253 because in our opinion it is an important component of inpatient and day care treat-  
254 [Q6] ment in adolescent AN, but is not dealt with by other authors in this issue.

255 The goal of nutritional rehabilitation in emaciated AN patients is the restoration of  
256 normal body weight. In general, a healthy body weight may be considered the weight  
257 at which menstruation reoccurs. However, by clinical experience, we know that many  
258 anorectic patients do not resume menstruation in the first months of treatment despite  
259 reaching a reasonable weight. Some researchers have recommended assessing ovar-  
260 ian maturity as a reliable measure of adequate target weight.<sup>29</sup> In the German guide-  
261 lines for the treatment of adolescent eating disorders, the 25th age-adjusted BMI  
262 percentile is defined as target weight for girls younger than 18 years, including pre-  
263 menstrual patients. Accordingly, goals for weight have to be adapted continuously  
264 to account for increases in age and height. Several clinicians prefer a target weight  
265 range to a definite weight target.<sup>30</sup> Discussing a target weight range or weight target  
266 is recommended toward the end of the initial phase of treatment, when the patient may  
267 be less distressed at the prospect of further weight gain.

268 Given the severe caloric restraint characteristic of adolescent AN patients, renutri-  
269 tion should be started at a low caloric level of 900 to 1000 kcal/d; in severe cases, in-  
270 take should be even less. Too high a caloric replacement may lead to the so-called  
271 “refeeding syndrome,” with cardiac, renal, and neurologic complications. In addition,  
272 patients may complain of “feeling extremely full” because of delayed gastric empty-  
273 ing. The number of calories should be increased stepwise over a period of 1 or 2  
274 weeks until the patient arrives at 2200 to 2500 kcal/d depending on her height and  
275 age. With the help of a behavioral program, an average weight gain of 500 to 1000  
276 g/wk (1–2 lb/wk) in inpatient settings and 300 to 500 g/wk in day care management  
277 should be achieved.<sup>31</sup> In some patients, calorie levels should be adjusted several  
278 times owing to changes in resting energy expenditure and activity levels. Because  
279 of dehydration or edema, it may be necessary to weigh the patient daily at the begin-  
280 ning of refeeding; afterward weighing twice a week is sufficient to ensure the expected  
281 weight gain.

282 During the early stages of inpatient treatment, it is necessary to advise the patient  
283 about the potential adverse physical consequences of starvation and to support her  
284 compliance with the refeeding program. A normalization of body weight is needed  
285 to reverse the physical and mental consequences of malnutrition, such as starva-  
286 tion-associated depression and obsessive behavior. In the United States, clinicians  
287 are under increasing pressure to transfer AN patients from inpatient treatment to  
288 less expensive settings. However, several studies on adolescent patients suggest  
289 that restoration to full weight, in contrast to partial weight, confers a more favorable  
290 prognosis.<sup>32,33</sup> On the other hand, a too rapid and large weight gain may be followed  
291 by hyperleptinemia in previously starved patients, which likely promotes reduction of  
292 food intake and increase in energy expenditure, resulting in a premature relapse. A  
293 modest but regular weight gain is probably associated with a more favorable short-  
294 term outcome.<sup>34</sup>

### 295 **Nutritional Counseling**

297 Eating disordered patients are well informed about caloric intent and the amount of fat  
298 in different food items, although they have insufficient knowledge of adequate

299 nutritional requirements. To reestablish a normal eating behavior, an individualized  
300 meal plan is developed for each patient, consisting of 3 main meals and 3 snacks. It  
301 is always designed with the patient, and takes her personal likes or dislikes into ac-  
302 count. The meal plan is built on caloric needs and recommended food components,  
303 including a sufficient amount of protein, carbohydrates, and fat. Patients should be en-  
304 couraged to expand their meal choices to previously “forbidden foods” to enrich a se-  
305 verely restricted diet. At the beginning of treatment it is often helpful for the adolescent  
306 patient to get the size of her meal portioned or to get detailed information on portion  
307 size by seeing pictures or food models. If the adolescent has great difficulty restoring  
308 normal eating habits, it is often helpful to provide a “human model” for the patient to  
309 imitate. In the authors’ department, a nurse demonstrates how to take a normal bite,  
310 finish a meal in a reasonable time, and incorporate all food groups, such as fats and  
311 desserts, in a setting separate from the other patients.

312 In addition to individual nutritional advice, nutritional group programs are helpful. In  
313 weekly psychoeducational sessions, patients are informed about things like standard  
314 nutritional recommendations, necessity of fat intake for absorption of fat-soluble vita-  
315 mins, and consequences of starvation for bone metabolism and growth of height. An-  
316 orectic patients often avoid or feel ashamed of eating with others or in unknown places  
317 or situations, which might contribute to their social isolation. For this reason, cooking  
318 sessions and staff-supported visits to restaurants, school cafeterias, and food courts  
319 are also part of the group program to help patients to gain necessary skills for eating in  
320 public or with their peers. Finally, it is important to involve the family in the reestablish-  
321 ment of normal eating patterns. Parents often do not know what to say to help patients  
322 with their meal plans or their meal sizes. In addition, during the meal, there is often  
323 a high level of parental criticism focused on the patient. For that reason, it is often help-  
324 ful to arrange staff-supported family meals with the parents, siblings, and the patient  
325 attending.

326 There is scant research on the importance of nutritional counseling on the outcome  
327 of adolescent AN treatment. In a post-hospitalization study in adult AN by Pike and  
328 colleagues<sup>35</sup> nutritional counseling was compared with cognitive-behavioral therapy  
329 (CBT). CBT was found to lead to lower dropout rates, a higher percentage of favorable  
330 outcomes, and a longer time to relapse. However, in most multidisciplinary treatment  
331 approaches, nutritional counseling is complementary to, not a substitute for, individual  
332 psychotherapy.

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### INDIVIDUAL PSYCHOTHERAPY

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There are virtually no controlled studies on individual psychotherapy in adolescent AN. In adults, therapeutic approaches comprise CBT, interpersonal therapy (IPT), cognitive analytic therapy (CAT), focal psychoanalytic therapy and specialist supportive clinical management (SSCM) (for a review see Ref.<sup>36</sup>). Several of these studies focused on CBT, which has proven effective in the treatment of BN (a more thorough survey of this treatment modality is given by Schmidt elsewhere in this issue). However, in AN, individual CBT has probably no advantage over other forms of individual treatment.

In a recent study on underweight outpatients with AN or subthreshold AN (age range, 17–40 years), CBT was compared with IPT and nonspecific supportive clinical management,<sup>37</sup> which was later described as specialist supportive clinical management.<sup>38</sup> Intriguingly, the results favored SSCM, which led to better outcomes than IPT when global outcome ratings were compared. Therapeutic response to CBT fell between IPT and SSCM. SSCM combines the principles of supportive psychotherapy

and clinical management, which was delivered by a clinician experienced in the treatment of eating disorders. Besides a regular monitoring of body weight, clinical management comprised several components of psychoeducation, including explanations about the etiology, symptoms, course, and outcome of the eating disorder. The patient received nutritional education and advice, and a target weight range was set during treatment. These strategies, which aimed at improving the core symptoms of AN, were embedded in a reliable and supportive relationship between clinician and patient, which fostered working together in an environment of empathy and acceptance.<sup>38</sup>

Although the results of this study are interesting, they cannot be generalized to most of the patients with AN. Mean BMI at baseline was high (17.3 + 1.1) and because there was no follow-up investigation, the number of relapses after the end of treatment is unknown.

### BODY IMAGE THERAPY

Bruch<sup>39(p88)</sup> is credited as being the first to define a “perceptual and conceptual disturbance or disorder of body image” in patients with AN. In the DSM-IV<sup>40(p545)</sup>, distorted body image is defined as a “disturbance in the way in which one’s body weight or shape is experienced, with undue influence of body weight or shape on self evaluation.” Many studies have shown the association between eating pathology and disturbed body image (eg,<sup>41</sup>). Beyond that, a negative body image seems to have an essential role in the development and maintenance of AN.<sup>42,43</sup> The large number of studies concerning the assessment of negative body image in AN stands in contrast to the few attempts to influence the way these patients actually experience their bodies. Although treatment programs specifically targeting body image concerns have been developed,<sup>44–46</sup> no randomized controlled trials for adolescent and adult eating disorders exist. Cognitive-behavioral body image therapy includes body exposure, desensitization through specific “do it yourself” exercises, and full-length “mirror confrontation.” Moreover, cognitive techniques are used to identify and modify negative body-related thoughts.<sup>47</sup> In nonclinical samples, evidence for the effectiveness of cognitive-behavioral body image therapy has been found.<sup>48,49</sup> A pilot study by Key and colleagues<sup>50</sup> assessed the role of mirror confrontation in the desensitization of a body image treatment within an inpatient program for AN. They found that body image treatment involving sustained mirror confrontation was more effective than body image treatment without mirror confrontation. Unfortunately, the sample size was small and no information about the effect on weight gain was given. Another study, which was executed with women suffering from AN, BN, EDNOS (eating disorder not otherwise specified), and healthy controls, demonstrated that the extent of negative cognitions and emotions evoked by looking in a mirror can be reduced by cognitive-behavioral body image therapy aiming at an improvement of body image.<sup>51</sup> This study, too, was biased by a small sample size and the lack of an eating disordered control group. Because body image therapy is often applied in inpatient and day care management of adolescent AN, evidence-based studies on the effect of body image therapy should be conducted.

### GROUP PSYCHOTHERAPY

Group psychotherapy is generally recognized as an important form of psychotherapy for AN patients and is usually implemented in inpatient and outpatient settings. Although it is difficult to specifically address individual (eg, comorbid) problems and issues, group therapy is cost-effective compared with individual therapy and provides

401 support and motivation. Despite the listed advantages, only 1 randomized controlled  
402 study has examined the efficacy of outpatient group psychotherapy for the treatment  
403 of AN in adolescence to date<sup>19</sup> (as aforementioned). No controlled trial has yet com-  
404 pared the effectiveness of individual versus group psychotherapy in AN. Comparison  
405 of group CBT and individual CBT for adult patients with BN showed no significant dif-  
406 ferences between both groups at follow-up.<sup>52</sup> Additional studies should examine  
407 whether group psychotherapy is as effective as individual psychotherapy in AN. Pro-  
408 gram descriptions of multifamily therapy have been published. A more detailed de-  
409 scription of this form of family-based therapy is given by Le Grange and Eisler,  
410 elsewhere in this issue.

411 Dialectical behavior therapy (DBT) is an empirically supported treatment that com-  
412 prises (a) a skills training group to enhance skill capabilities, (b) individual psychother-  
413 apy sessions to conduct behavioral and solution analyses on target behaviors and to  
414 improve client motivation, and (c) intersession telephone availability to enhance skills  
415 generalization and therapeutic relationship issues. It targets emotion regulation and  
416 was originally developed for female adult multiproblem outpatients diagnosed with  
417 borderline personality disorder (BPD).<sup>53</sup> Interest in DBT has grown recently and re-  
418 searchers have begun to apply DBT to other clinical populations in inpatient and out-  
419 patient settings (eg, Ref.<sup>54</sup>). Wisniewski and Kelly<sup>55</sup> presented a case for applying DBT  
420 to the treatment of AN and BN patients. Telch and colleagues<sup>56</sup> and Safer and col-  
421 leagues<sup>57</sup> adapted DBT for patients with binge eating disorder and BN. These results  
422 revealed preliminary evidence suggesting that DBT may be an effective treatment for  
423 these eating disorders in adults. To date, only 2 studies exist on the effectiveness of  
424 DBT for adolescent patients suffering from AN and BN.<sup>58,59</sup> The results of these pilot  
425 studies suggest that DBT seems to be a promising treatment for inpatient and outpa-  
426 tient settings for these adolescents; however, further evaluation is required before any  
427 firm conclusions can be drawn.

### 428 429 **FAMILY-BASED INTERVENTIONS**

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431 Family-based therapy (FBT) has gradually been established over the last decade as an  
432 important therapeutic strategy for adolescents with AN. In this context, families seem  
433 to be an important resource for the recovery of young anorectic patients. Built on Min-  
434 uchin's work, the first controlled FBT study with adolescents and young adults was  
435 initiated by Russell at the Maudsley's hospital in London. In their study, FBT with youn-  
436 ger and non-chronic anorectic patients was more effective than individual supportive  
437 therapy. Since then, the Maudsley research group has conducted several studies.  
438 Their results are described in another article by Le Grange and Eisler in this issue.

439 Most of these family-based interventions were performed on an outpatient basis, al-  
440 though some of the participating patients required admission to inpatient treatment  
441 because of insufficient weight gain or starvation-associated medical risks.<sup>60</sup> In  
442 some of the investigations, patients had to have a minimal body weight more than  
443 75% ideal body weight (IBW) or were even in the low range of normal weight. There-  
444 fore, findings of outpatient family therapy in adolescent AN may not be transferred to  
445 severely emaciated patients. In another well-known study by Robin and colleagues in  
446 Detroit,<sup>61</sup> about half of the sample was hospitalized at the beginning of therapy and  
447 stayed on the ward until their weight had increased to more than 80% of ideal body  
448 weight.

449 Besides the "state of the art" FBT, only a few models of family-based interventions  
450 exist. Geist and colleagues<sup>62</sup> compared the effect of family therapy with family group  
451 psychoeducation. Most of the treatment sessions took place in an inpatient setting.

452 The investigators concluded that group psychoeducation involving parents and anorectic adolescents was as effective as family therapy with regard to eating disorder or  
453 general psychopathology. Finally, Uehara and colleagues<sup>63</sup> reported that 5 2-hour  
454 sessions of family psychoeducation led to a significant reduction in the emotional  
455 involvement of relatives of adult female patients with eating disorders. Since then,  
456 [Q7] some research groups have developed psychoeducation programs to involve parents  
457 or whole families in the therapeutic process instead of or complementary to “typical”  
458 FBT. In a project by Zucker and colleagues<sup>64</sup> 16 families whose children were receiv-  
459 ing outpatient treatment participated in a 16-session group treatment. Only parents at-  
460 tended the group, and group sizes ranged from 7 to 12 participants. The program  
461 adapted elements of dialectical behavior therapy (DBT, learning theory and social cog-  
462 nitive therapy). Topics of the sessions included etiology of eating disorders, parenting  
463 style, behavior modification, role modeling (parents as models of healthy behavior),  
464 family mealtimes, emotion regulation, and communication. The parental response to  
465 the intervention was positive in the sense that parents acknowledged the program  
466 to be an essential part of the management of their child’s eating disorder and as a re-  
467 sult decreased the burden they experienced.  
468

469 The eating disorder research group at the authors’ department also designed a pro-  
470 gram of group psychoeducation for parents to increase the understanding of the disor-  
471 der and to promote high transparency with regard to our treatment strategy (**Table**  
472 **2**). In accordance with the program by Zucker and colleagues,<sup>64</sup> it was aimed only at  
473 the parents of the authors’ eating disordered inpatients and outpatients. They received  
474 detailed information about the group psychoeducation at the first contact to the eating  
475 disorder service. The program was limited to 5 dates of 90 minutes, which took place 1  
476 day every week in the late afternoon. The group was guided by a child and adolescent  
477 psychiatrist, a nutritional scientist, and an occupational therapist specialized in work  
478 with eating disordered patients. In a preliminary evaluation, parents of 142 patients  
479 were invited to anonymously fill out a satisfaction questionnaire, which was returned  
480 by 115 (81%) of the parents. Most (77%) of those who had returned the evaluation  
481 sheet rated the group psychoeducation as a helpful way to cope with their child’s disor-  
482 der and 85% would recommend other parents to take part in the program.<sup>65</sup>  
483

484 Relatives of patients with eating disorders show high levels of emotional distress,  
485 which may contribute to dysfunctional coping.<sup>66</sup> Through group psychoeducation pro-  
486 grams, parents are provided with relevant information on the illness and intervention  
487 strategies. This seems to reduce conflicts between patients, parents, and therapists,  
488 which are usually common in the treatment of eating disorders. In learning about the  
489 biological mechanisms, etiology, and symptomatology of eating disorders, parents  
490 are relieved of guilt and shame for being the agent of the child’s disorder.

491 In conclusion, group psychoeducation for parents of adolescents with eating disor-  
492 ders may represent a useful and economic method in the multimodal treatment of eat-  
493 ing disorders.  
494

#### 495 **SUMMARY AND RECOMMENDATIONS FOR FURTHER RESEARCH**

496 Evidence-based findings on the effect of different treatment methods for adolescent  
497 AN are limited. Family therapy is considered to be an effective treatment for adoles-  
498 cent patients. However, few data show that FBT is more helpful than other forms of  
499 treatment. In addition, it is not clear whether FBT is of any benefit to severely under-  
500 weight patients or whether psychoeducational interventions prove to be effective help  
501 for the parents or the patient. We do not know which kind of individual psychotherapy  
502 should be recommended for adolescent AN.

**Table 2**  
**Psychoeducation program for parents of eating disordered patients**

Topic	Contents
<i>Session 1</i>	
Etiology, symptoms, medical complications of AN, importance of weight gain in adolescence	Physiologic and psychologic consequences of semi-starvation, short-term and long-term consequences of malnourishment (eg, osteoporosis), compulsive need for exercise, significance of target weight
<i>Session 2</i>	
Concept and goals of inpatient treatment program	Criteria for admission to inpatient treatment, components and aims of treatment program, (eg, individual and group psychotherapy, family-based interventions)
<i>Session 3</i>	
Nutritional counseling	Caloric needs for weight restoration and weight maintenance, overall and specific nutritional needs in adolescence, food components, reintroduction of "forbidden food"
<i>Session 4</i>	
Relapse prevention and outpatient treatment	Necessity of long-term "aftercare," how to identify first signs of relapse, criteria for readmission, what to tell teachers and neighbors
<i>Session 5</i>	
Role of the family in eating disorders, feelings of shame and guilt	Active role of the parents to help the adolescent recover, negative effects of parental criticism on outcome, improvement of parenting skills

There is no consensus on whether and how target weight should be set. An investigation in the United Kingdom and Europe has demonstrated considerable variation. Although most of the institutions relied on age-related norms in the treatment of adolescent AN, weight targets ranged from the 10th to the 75th percentile for those who used BMI percentiles and between 17.5 and 21 kg/m<sup>2</sup> for those using absolute values.<sup>30</sup> Recent studies have demonstrated that nonspecific treatment forms were as effective for AN as specific and intensive psychotherapeutic methods.<sup>1,37</sup> The contribution of nonspecific factors to the establishment and maintenance of a strong relationship between the clinician and the adolescent AN patient may be most important for adherence to the treatment process and relapse prevention.

The most urgent questions that have to be resolved by additional research are (1) How can we prevent young patients from dropping out of treatment? (2) What kinds of treatments are effective in severely underweight patients? (3) Which intensity of treatment (inpatient, day patient, or outpatient) is necessary at different stages of the illness? (4) Which treatment modality (medication, different forms of psychotherapy) is most effective for relapse prevention? (5) What is the cost/benefit relationship?

Anorectic adolescents have a much better outcome than their adult counterparts. Many recent follow-up studies point to a recovery rate of about 70% in adolescent AN, and mortality rate is close to zero. This should encourage us to intensify our search for effective treatment interventions in adolescent AN.

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