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BRIEF REPORT

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Feasibility and acceptability of home treatment as an add-on to family based therapy for adolescents with anorexia nervosa. A case series

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Abstract

Objective: This study examines the feasibility, acceptability, and preliminary effect sizes on outcome measures of home treatment (HT) as an add-on to family-based therapy (FBT) in adolescents with anorexia nervosa (AN). The HT intervention is delivered by specialized nurses and aims at supporting patients and parents to re-establish family meals in the home environment.

Method: Forty-five (43 female, 2 male) adolescents meeting ICD 10 criteria for anorexia nervosa or atypical anorexia nervosa received FBT augmented with HT over 12 weeks. Eating disorder (ED) diagnosis, psychopathology and severity of clinical symptoms were assessed using the Eating Disorder Examination (EDE) interview, the Eating Disorders Inventory (EDI-2) at baseline (BL) and after 3-months

Results: All participants and parents were retained and found HT acceptable. At the end of Treatment (EOT) participants showed a significant early weight gain, a reduction in the AN psychopathology assessed with the EDE interview and a reduction in EDI-2 total scores. None of the patients had to be admitted to hospital. Treatment satisfaction was high in both patients and parents.

Discussion: Findings provide preliminary evidence that HT is feasible, acceptable and produces clinically significant improvements in targeted outcome.

KEYWORDS
adolescents, anorexia nervosa, eating disorders, family based treatment, home treatment

1 | INTRODUCTION

Anorexia nervosa (AN) is a serious illness showing high morbidity, chronicity, and mortality rates (Herpertz-Dahlmann, 2017). Studies have shown that parental involvement through family-based therapy (FBT) can improve the outcome of AN in adolescents (Fisher, Skocic, Rutherford, & Hetrick, 2019; Herpertz-Dahlmann, 2017; Jewell, Blessitt, Stewart, Simic, & Eisler, 2016; Zeeck et al., 2018).

Although 40–50% of the adolescents treated with FBT show a full and stable remission in long-term follow-up studies, there remains a substantial proportion of patients who do not respond sufficiently to treatment with FBT (Le Grange, Accurso, Lock, Agras, & Bryson, 2014). Thus, treatment approaches involving parents of adolescents with AN need to

be further developed. Studies have indicated a benefit of add-on treatments for patients who do not respond sufficiently to an early treatment phase of FBT. For example, one study with 45 patients investigated the addition of one family meal and of intensive parental coaching (IPC). Results showed a significantly greater weight gain at the end of treatment compared with the control group treated with FBT only (Lock, 2015). One pilot study found the combination of both cognitive remediation therapy and art therapy with FBT to be feasible and well-accepted (Lock, Fitzpatrick, Agras, Weinbach, & Jo, 2018).

Transferring treatment strategies into the home environment is the essential key challenge for sustainable symptoms change and long-term success in psychiatric treatment of children and adolescents (Woolston, Berkowitz, Schaefer, & Adnopoz, 1998). By involving parents and other family members, FBT seeks to increase the support for young AN patients. However, it is time consuming, requires a strong commitment, and potentially burdens carers. Parents experience strong distress if initial FBT interventions are ineffective (Wufong, Rhodes, & Conti, 2018). Home treatment (HT) as an add-on to FBT may reduce strain on family life through the support of health care workers in the implementation of behavioral modifications directly in the patients home. HT can reassure parents in their tasks prescribed by FBT sessions, and help (re-)establish more supportive family interactions and relationships.

Although several HT programs for adolescents with psychiatric disorders have been established (Boege, Schepker, Herpertz-Dahlmann, & Vloet, 2015; Lamb, 2009), only few randomized controlled studies have been conducted to prove their effectiveness (Boege, Corpus, Schepker, Kilian, & Fegert, 2015). Two studies demonstrated a reduction in hospital admission rates in adults with eating disorders (Darwish, Salmon, Ahuja, & Steed, 2006; Jaffa & Percival, 2004). One pilot study found HT to be a feasible, safe, and well-accepted approach in the treatment of adolescents with AN (Herpertz-Dahlmann et al., 2020). The scarcity of current evidence underlines the need for further research on HT in AN recovery. Our study investigates the feasibility of adding HT to the treatment of AN-suffering adolescents with FBT, and aims to determine preliminary effect sizes for the impact of this combined treatment on early weight gain and AN psychopathology outcome.

2 | METHOD

2.1 | Participants and procedure

Participants were 45 patients (43 female, 2 male), ages 10–20 years (mean age = 15.6 years, SD = 1.8, range 10.7–19.6), consecutively referred to our outpatient eating disorder unit, who met ICD 10 criteria of AN or atypical AN. All participants provided written informed consent. This study was carried out at our specialized eating disorders clinic at the Department of Child and Adolescent Psychiatry, University of Zürich. Patients received outpatient treatment with manualized FBT weekly and a 3-month HT Intervention during the first phase of FBT.

ED specialists not involved in HT and trained in administering the ED measures conducted all assessments shortly before the start of HT. Feasibility and acceptability of HT were assessed by using the FBB-HT which is an adapted version of the FBB to measure the treatment satisfaction (in German: Fragebogen zur Beurteilung der Behandlung (Mattejat, & Remschmidt, 1998)). The FBB is rated on a five-point Likert scale (Cronbach $\alpha = 0.8$) and administered at the end of the HT intervention.

The weight gain was measured by using BMI-change scores between baseline (BL) and end of treatment (EOT), 3 months after the HT intervention. Additional measures at both BL and EOT included the ED examination interview (EDE) and the Eating Disorder Inventory (EDI-2) questionnaire.

Four child and adolescent clinical healthcare nurses carried out the HT. They were supervised by a certified specialist in treatment of eating disorders including a training in FBT for adolescents with AN (Lock & Le Grange, 2015).

2.2 | Home treatment intervention

HT is a 12-week program of 2 to 4 sessions per week, each session lasting 60 min. HT focuses predominantly on providing practical support for parents, so they can fulfill their task to refeed their adolescents according to the first phase of FBT. The supervised HT-nurse advises the patients and their parents on how to overcome problems in their interactions dealing with meals (e.g., food-preparation, serving, avoidance of discussion about portions). In our study, at least one of the caregivers had to be at home for each HT session. The HT-nurse took part in at least one FBT session to fix the goals for the HT intervention, and contacted the FBT therapist regularly by phone or e-mail.

2.3 | Statistical analyses

We evaluate the feasibility and acceptability of HT by analyzing the treatment satisfaction of all patients who completed the 12-week program, and their parents. Paired-sample t tests, and within-patient standardized effect sizes, were used to evaluate change from BL to EOT for ED psychopathology (EDE; EDI-2 global scores) and body mass index (BMI) (Table 1).

3 | RESULTS

3.1 | Participant characteristics

All patients lived with parents and other family members. Out of the 45 study participants a total of 31 (69%) met ICD 10 criteria for AN whereas the remaining 14 (31%) met ICD 10 criteria for atypical AN. Duration of illness ranged from 6 to 72 months (mean = 21.1, SD = 16.4). Mean EDE global score at BL was 2.62 (SD = 1.23). BMI ranged from 13.0 to 23.2 (mean = 16.95; SD = 0.28). Eleven

TABLE 1 Treatment effects in BMI and Psychopathology

	Baseline (M, SD)	End-of-treatment (M, SD)	Baseline to end-of treatment *t*	Baseline to end-of-treatment hedge's *g*	Confidence interval [95%]
BMI (kg/m^2)	16.95 (±0.28)	18.6 (±0.32)	−7.25**	0.88	[0.57, 1.18]
BMI *z*-score	−1.81 (±0.25)	−0.9 (±0.23)	−5.73**	0.63	[0.42, 0.91]
EDE (total score)	2.35 (±0.17)	1.52 (±1.9)	4.35**	0.56	[0.27, 0.84]
EDI-2 (total score)	271.1 (±53.5)	263.0 (±11.57)	4.13**	0.90	[0.31, 1.49]

Note: Hedge's *g* intervals: 0.1–0.3: small effect; 0.3–0.5: medium effect; 05 and higher: strong effect. (Grissom, & Kim, 2005).
**$p < .01$.

participants reported comorbid psychiatric diagnoses (7 mood disorder, 4 obsessive compulsive disorder). Nine had previous treatment for ED. Seven were on psychotropic medication.

3.2 | Feasibility and acceptability

HT combined with FBT was offered to all patients diagnosed with AN or atypical AN during the study period. Out of 75 possible participants, 67 (89%) adolescents and their families expressed interest in HT and agreed to take part in the study. Twenty-two could not be treated with HT because of finite capacity of our HT team at the time of referral. Treatment retention was good with no premature drop-outs during the study period. However, while all participants at EOT participated in the EDE interview, only 19 (42%) returned the EDI-2 questionnaire. Treatment satisfaction according to the patients' ratings in the FBB-HT was good (65%) or very good (24%) in 89% of the sample. 93% of parents reported their treatment satisfaction in the FBB-HT to be good (33%) or very good (58%). There was no correlation between treatment satisfaction and BMI gain ($r = -.116$, $p = .447$, $n = 45$) or symptom reduction measured by EDE ($r = -.063$, $p = .692$, $n = 45$) and EDI-2 ($r = -.13$, $p = .644$, $n = 19$) total scores. The average number of HT sessions per week was 1.8. The maximum number of 4 sessions per week was used rarely and did not seem to fit into the time schedule of the patients and their families.

3.3 | Primary and secondary outcomes

Paired-samples t tests and inspection of standardized effect size estimates (Hedges'*g*) were used to determine changes from BL to EOT for BMI, EDE-, and EDI-2 global scores. The mean BMI at EOT was 18.6 (SD 0.32), which is a significant improvement with a large effect size ($t[44] = 7.25$; $p < .001$), ($g = 0.88$) CI 95% [0.57, 1.18]. The mean total score of the EDE at EOT was 1.52 (SD 1.9), which was a significant improvement ($t[44] = 4.35$; $p < .001$) with a medium effect size of $g = 0.56$ CI 95% [0.27, 0.84]. Likewise, the sample showed a significant improvement of the mean total score of EDI-2 (263, SD 11.57) at EOT with a large effect size ($t[44] = 4.13$; $p = .001$), ($g = 0.90$) CI 95% [0.31, 1.49]. All patients were treated in the outpatient unit during the study period from BL to EOT without needing inpatient treatment.

4 | DISCUSSION

This study examined the feasibility and acceptability of HT for adolescents with AN and determined preliminary effect sizes for its impact on main and secondary outcome measures. All 45 participants, enrolled with their parents, stayed in treatment for the entire planned duration. Treatment was well accepted by the vast majority of patients and parents, rating their treatment satisfaction as good or very good. Clinical outcomes were encouraging with changes on all measures pointing in the expected direction. Changes in BMI as well as in ED psychopathology improved in a statistically significant way from BL to EOT, providing preliminary support that the addition of HT to FBT might help reduce symptoms and improve recovery for adolescents with AN. The improvement of EDI-2 total score promisingly showed a large effect size, however with a large CI. The only medium effect size of improvement of EDE total scores is likely to be a consequence of the short follow-up time period. Effects of therapy on psychopathology measures usually need more time and may only emerge at later follow-up time points. The large effect size [0.88]of BMI increase in the relatively short follow-up time is considered as clinically very meaningful, even when considering the CI [0.57–1.18]. The early weight gain may lead to a further improvement of other clinical parameters. In addition, none of the patients of this study needed admission to an inpatient unit. Thus, by transferring the FBT instructions for parents in the home environment, HT seems to help the adolescents and their families re-establish family meals. A number of two sessions per week of the HT intervention proved to be feasible and cost-effective.

Interestingly, treatment satisfaction in most patients was good or very good (89%), and was even higher within parents, with 91% of them rating their satisfaction with the combined HT/FBT as good or very good. This relates to the aims of HT and its intended focus on early weight gain. It also confirms the result of a study with a high treatment satisfaction after the HT intervention for adolescents with AN which was a little bit more pronounced in carers than in patients (Herpertz-Dahlmann et al., 2020) and to a study evaluating inpatient FBT that found a high treatment satisfaction in parents compared to a moderate satisfaction in patients (Halvorsen & Rø, 2019). As described in the FBT-manual it is crucial for the first phase of treatment that the therapist allies with the parents, in the goal of re-establishing meals and focusing on weight gain, but at the same time has to win the patient, to engage in therapy for their own best. As the pre-treatment motivation in adolescent patients with AN has shown

to be generally low (Pauli, Aebi, Metzke, & Steinhausen, 2017), the fact that 89% of the patients consider the HT, including its difficult tasks for the anorexic adolescent, as good or very good is a very promising result and contrasts with the only moderate treatment satisfaction in the above mentioned study (Halvorsen & Rø, 2019). Especially for the parents, HT is a highly intrusive method introducing an external person in the private home setting. Nevertheless, this new treatment was agreed upon by the vast majority (89%) of the participants that were eligible, proving to be a desired form of treatment if implemented correctly. Treatment satisfaction shows no significant correlation with outcome parameters such as weight gain or change in EDE or EDI-2 total scores. Thus, most of the patients and parents seem to value the support by the combined HT/FBT for their efforts to fight against the eating disorder, independently of the velocity of early weight gain or symptom reduction.

This pilot study demonstrated that HT is a promising intervention for adolescents with AN. However, our study was limited in terms of a small sample size, short follow-up time, the lack of a comparison group, and broad inclusion criteria ranging from typical to atypical AN cases. Randomized controlled studies in different health care systems should be performed in future to evaluate treatment efficacy of HT as an add-on to FBT in adolescents with AN.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, Nicole Flütsch, upon reasonable request.

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