





Lower rates of readmission following integration of family-based treatment in a higher level of care

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ABSTRACT

There has been a growing effort to incorporate the evidence-based practices of family-based treatment (FBT) into higher levels of care, such as day-treatment programs. This study tracked the effects of integrating the principles and strategies of FBT into a partial hospitalization program (PHP) for youth with eating disorders. Following retrospective chart review, rates of readmission to the PHP were measured for three years before (2011–2014) and after (2014–2017) FBT was incorporated into the hospital programming. Patients ($N = 326$) were primarily adolescents with anorexia nervosa. Rates of readmission were significantly lower for those who received care during the implementation of FBT-based PHP programming (2.95%) as compared to the prior traditional PHP (11.7%). Patterns of readmission to the PHP before and after FBT implementation suggest that FBT can be adapted for higher levels of care, and may reduce readmissions and promote continuity of care.

Clinical Implications

- Family-based treatment can be adapted for higher levels of care.
- Incorporating FBT into a PHP is associated with reduced rates of readmission.
- Supporting continuity of care across treatment settings may improve outcomes.

Family-based treatment (FBT) is the leading evidence-based outpatient intervention for adolescent anorexia nervosa (AN; Couturier et al., 2020; Lock & Le Grange, 2019; National Institute for Health Care and Excellence, 2017). FBT is guided by the fundamental assumption that parents are vital agents of change for their children; therefore, the treatment aims to empower caregivers to restore normal eating (Lock & Le Grange, 2013). Outpatient FBT has been shown to reduce hospitalization use (Lock et al., 2016; Wallis et al., 2018). However, many adolescents with AN require medical or psychiatric stabilization within higher levels of care (HLC; e.g., inpatient, residential, or day-treatment) at some point

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in their treatment (Society for Adolescent Health and Medicine, 2015). There has thus been an effort to consider how the evidence-based practices of FBT can be incorporated into HLC, both to improve treatment effectiveness and to encourage continuity of care for families who will step down to outpatient FBT (Hoste, 2015; Murray et al., 2015).

Day-treatment settings such as partial hospitalization (PHP) and intensive outpatient programs (IOP) provide the ideal environment for the integration of FBT into HLC, as caregivers can participate in programming while gaining experience with autonomous symptom management outside of program hours. This creates an opportunity to build parental empowerment using the principles of FBT, while simultaneously providing the benefits of intensive treatment within a medical setting. FBT-based PHPs and IOPs have reported promising outcomes in terms of within-treatment improvements in weight status, psychopathology, and parental self-efficacy (Girz et al., 2013; Henderson et al., 2014; Hoste, 2015; Martin-Wagar et al., 2019; Ornstein et al., 2012) that appear to be maintained at follow-up (Reilly et al., 2020; Rienecke & Richmond, 2018). However, these studies lacked any form of comparison groups and tended to include small patient samples. The present study sought to extend this literature by comparing rates of readmission before and after FBT was integrated into a PHP. Rates of readmission serve as one index of outcome, as readmissions are associated with poorer psychosocial functioning and greater illness severity (Castro et al., 2004; Matthews et al., 2018; Steinhausen et al., 2008; Vall & Wade, 2016). It was hypothesized that the FBT-based PHP would have lower rates of readmission than the traditional PHP.

Method

Retrospective chart review was used to gather data for children and adolescents ($N = 326$) who received treatment in a PHP during the three years before (2011–2014) and after (2014–2017) FBT was integrated into the program, beginning in May 2014. The hospital, located in the Mid-Atlantic region of the USA, incorporated FBT into their full range of care levels, including their inpatient medical unit, PHP and IOP. This process involved consultation with FBT experts in the field, followed by a multi-day onsite workshop in FBT and subsequent certification in the approach for key staff members. Outpatient FBT was available in their standard outpatient clinic and amongst therapists in the community during both periods of time.

Data characterizing the patients, treatment, discharge plan, and later readmissions were initially collected for clinical purposes and later aggregated for research. This retrospective study was thus limited to variables that had been operationalized uniformly and recorded consistently, in routine practice across both periods of time. Patients were eligible for admission to the PHP

if they were between the ages of 8–21 and diagnosed with an eating disorder. Diagnoses were made for clinical purposes and in accordance with the Diagnostic and Statistical Manual (DSM; American Psychiatric Association, 2013) following a comprehensive assessment, which included a clinical interview, medical evaluation, and self-report questionnaires.

The quantity and modality of treatment delivery in the PHP was generally consistent across these two periods of time, as shown in Table 1. Group therapy content and caregiver involvement was modified for consistency with the principles and strategies of FBT, as shown in Table 2. Following admission to the PHP, patients and caretakers had weekly FBT sessions conducted per the outpatient protocol, including a family meal (Lock & Le Grange, 2013). In keeping with the FBT philosophy that early in treatment, parents are the direct agents of symptom management, patients no longer had nutrition groups or meetings with dieticians to plan their own meals using the Exchange System (American Dietetic Association and American Diabetes Association, 1995). Instead, caregivers met with a dietician and made meal selections based on what they believed their child needed to eat to gain weight. In the FBT-based PHP, caregivers attended a didactic

Table 1. Description of PHP treatment week, before and after integration of FBT.

Traditional PHP	FBT-based PHP
40 hours	40 hours
10 meals, 5 snacks	10 meals, 5 snacks
1 individual therapy session	1 individual therapy session
14 psychotherapy groups	16 psychotherapy groups
-9 process	-10 process
-2 DBT-informed skills	-2 DBT-informed skills
-1 body image	-1 body image
-1 nutrition	-1 goal-setting
-1 nursing	-1 relapse prevention
	-1 neurobiology of eating disorders
4 yoga groups	4 yoga groups
2 art therapy groups	3 art therapy groups
other (e.g., schoolwork, breaks)	

PHP, partial hospitalization program; FBT, family-based treatment; DBT, dialectical behavior therapy.

Table 2. Description of caregiver involvement in the PHP, before and after integration of FBT.

Traditional PHP	FBT-based PHP
Weekly family therapy	Weekly FBT
Dietician with patient	Dietician with caregivers
Exchange system (American Dietetic Association and American Diabetes Association, 1995)	Caregivers select food
%EBW shared with patient	Patient's weight shared in FBT
Record % of meal completed	100% meal completion required
Supplemental shakes provided	No supplemental shakes
Weekly caregiver skills group	Biweekly caregiver didactic group
Weekly multifamily process	Weekly multifamily activity
	Biweekly multifamily dinner

PHP, partial hospitalization program; FBT, family-based treatment; %EBW, percent expected body weight.

group that covered topics such as the neurobiology of eating disorders and distress tolerance skills. Additionally, the FBT-based PHP included a biweekly multifamily meal, which was attended by caregivers and siblings. During this meal, caregivers were responsible for plating a buffet-style meal, and therapists were present to help caregivers learn how to independently manage their child's resistance to eating.

Statistical analyses

Two patients were excluded from data analysis because their admissions straddled both observation periods. Sample characteristics were compared for baseline differences using chi-square analysis for categorical variables and independent samples *t*-tests for continuous variables. Chi-square analysis was used to compare the rates of readmission in the traditional and FBT-based iterations of the PHP. SPSS Statistics 26 was used for all analyses. This research was deemed exempt from IRB approval, as the activities did not meet the definition of human subject research.

Results

There were some differences in sample characteristics between the three years before ($N = 188$) and after ($N = 138$) FBT was integrated into the PHP, as shown in Table 3. Most patients met criteria for AN or unspecified restrictive eating disorder presentations. There were diagnostic discrepancies between the traditional PHP as compared to the FBT-based PHP, with the latter treating a greater proportion of patients with AN relative to those with other specified or unspecified feeding or eating disorder (OSFED; UFED). Additionally, percent expected body weight (%EBW) was significantly lower in the FBT-based PHP, as the program lowered this admission threshold upon integrating FBT. Duration of illness was shorter in the FBT-

Table 3. Sample characteristics.

	Traditional PHP ($N = 188$)	FBT-based PHP ($N = 138$)	<i>p</i>
Age at intake, M (SD)	16.0 (2.1)	15.7 (2.1)	.18
Anorexia nervosa, <i>n</i> (%)	124 (66)	118 (85.5)	<.001*
OSFED/UFED, <i>n</i> (%)	50 (26.6)	14 (10.1)	<.001*
Bulimia nervosa, <i>n</i> (%)	14 (7.4)	4 (2.9)	.08
ARFID, <i>n</i> (%)	0 (0)	2 (1.4)	.10
Duration of illness, months, M (SD)	16.2 (12.4)	12.4 (12.4)	.02*
Age of onset, M (SD)	14.7 (2.5)	14.7 (1.9)	.99
%EBW at intake, M (SD)	87 (13.4)	82.9 (9.5)	.003*
No prior treatment, <i>n</i> (%)	81 (43.1)	78 (56.5)	.02*
Family intact, <i>n</i> (%)	157 (83.5)	115 (83.3)	.88

p-value based on Chi-Square for categorical variables and independent samples *t*-tests for continuous variables. Asterisk indicates $p < .05$. PHP, partial hospitalization program; FBT, family-based treatment; OSFED, other specified feeding or eating disorder; UFED, unspecified feeding or eating disorder; ARFID, avoidant/restrictive food intake disorder; %EBW, percent expected body weight.

based PHP, and these patients were somewhat less likely to have received prior treatment for their eating disorder. Data regarding the nature of such treatment were not available.

The average length of stay was 32.96 days (SD = 14.59) in the traditional PHP and 29.37 (SD = 18.85) in the FBT-based PHP. Regarding discharge plans, 72.7% of the overall sample stepped down to IOP and/or outpatient FBT within this same hospital (traditional PHP = 67.1%; FBT-based PHP = 80.4%) and another 8.6% stepped down to outpatient care elsewhere in the community (traditional PHP = 12.2%; FBT-based PHP = 3.6%). For the remainder of the sample, discharge planning included a step-up in care for inpatient medical stabilization within this same hospital (overall = 6.4%; traditional PHP = 6.9%; FBT-based PHP = 5.8%) or residential treatment elsewhere (overall = 4.9%; traditional PHP = 6.4%; FBT-based PHP = 2.9%), and some patients left against medical advice (overall = 7.4%; traditional PHP = 7.4%; FBT-based PHP = 7.2%).

Of the patients who received care during the period of traditional PHP, 11.7% (22/188) were later readmitted, for an average of 20.05 days (SD = 14.56). For the patients treated after FBT was integrated in the PHP, 2.9% (4/138) were readmitted, for an average of 24 days (SD = 13.49). The rate of readmission was significantly lower for patients who received care in the FBT-based PHP as compared to the traditional PHP [$X^2(1, 326) = 8.40$, $p = .004$].

Discussion

As compared to the traditional PHP period, the FBT-based PHP period had a lower rate of readmission. This indicates that FBT can be adapted for HLC, which may be associated with reduced readmissions. These findings are broadly consistent with prior studies supporting the integration of FBT into PHPs and IOPs (Girz et al., 2013; Henderson et al., 2014; Hoste, 2015; Martin-Wagar et al., 2019; Ornstein et al., 2012; Reilly et al., 2020; Rienecke & Richmond, 2018), although this is the first to examine readmission in this context. Results are consistent with the broader literature on outpatient FBT, which has also been found to reduce hospitalization use (Lock et al., 2016; Wallis et al., 2018). Strengths of the study include the use of naturalistic clinical outcomes and a relatively large sample size as compared to that of prior studies of FBT-based PHPs and IOPs. To the authors' knowledge, this is the first study to compare program outcomes before and after the introduction of FBT-based programming.

There are several limitations to the current research. First, the study was observational rather than experimental, and thus results could reflect effects of time or other variables. It is possible that patients requiring further treatment in a HLC elected to do so elsewhere, as long-term follow-up data were not

available. Notably, most patients in this sample were immediately discharged to other levels of care within this same hospital, with the majority stepping down to IOP and/or outpatient FBT and a small proportion stepping up to inpatient care for medical stabilization. Subsequent research on readmission would benefit from more comprehensive assessment of longitudinal treatment trajectories and the systems-level factors that influence such pathways (e.g., outpatient provider availability, insurance coverage, etc.).

Second, data were collected through retrospective chart review and additional information to characterize the sample and outcomes were not available, thus limiting the scope of the findings. Although earlier studies have shown that participation in FBT-based PHPs and IOPs is associated with improvements in weight status and psychopathology (Girz et al., 2013; Henderson et al., 2014; Hoste, 2015; Martin-Wagar et al., 2019; Ornstein et al., 2012; Reilly et al., 2020; Rienecke & Richmond, 2018), these studies did not have comparison groups nor did they assess readmissions. Subsequent studies of HLC could more rigorously examine and compare treatment effects by integrating a variety of standard outcome measures, per recent calls to the field for increased accountability in eating disorders treatment programs (Anderson et al., 2017; Attia et al., 2017). Including additional variables in this study could have, furthermore, clarified how differences in diagnosis and severity between the two groups may have affected outcomes. The higher rate of AN in the FBT-based program could be attributed to the broadening of the diagnostic criteria in the fifth edition of the DSM, which was published during this time and shifted diagnostic distributions in this direction (American Psychiatric Association, 2013; Vo et al., 2017). Patients in the FBT-based PHP presented with significantly lower %EBW, while those in the traditional PHP had a longer average duration of illness and a higher rate of prior treatment. Future research comparing FBT-based HLC to other programs should better address possible confounds through more direct and comprehensive measurement of illness severity.

This study extends the mounting body of literature supporting the integration of evidence-based practice into HLC for adolescent eating disorders to improve the quality and standardization of such care (Anderson et al., 2017). These efforts may ultimately reduce the need for hospitalization and the consequences thereof, including cost and resource utilization (Lock et al., 2016). Despite alternative explanations for the findings that FBT-based PHP programming was associated with better outcome, the urgent need to reduce families' burden of suffering is likely to be better met when we encourage thematic continuity in treatment strategies as patients step up or down in treatment intensity (Anderson et al., 2017; Yager et al., 2005). In this team's experience, promoting parental empowerment in HLC facilitated a smoother transition to outpatient FBT for both patients and caregivers (i.e., each was already oriented to their respective role in the treatment process). Collecting indices of acceptability and satisfaction or measures of parental empowerment could help the field better understand how families

experience FBT in this setting. Additional research is needed to determine how HLC treatment compares to empirically supported outpatient approaches.

Disclosure statement

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