



RESEARCH ARTICLE

Implementation of Dialectical Behavior Therapy in a Day Hospital Setting for Adolescents with Eating Disorders

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Abstract

Objective: This article discusses the implementation and preliminary outcomes of a Dialectical Behaviour Therapy (DBT) informed program integrated with Family Based Therapy (FBT) for adolescents with eating disorders within a day hospital program (DHP). **Method:** A retrospective analysis of hospital records between 2013-2015 provided descriptive characteristics of patients. Weight and percentage ideal body weight at admission and discharge, frequency of binge and purge episodes at discharge and readmissions were analysed. **Results:** Analysis of patient characteristics indicated a broad range of eating disorder and comorbid psychiatric diagnoses among patients. Preliminary outcomes revealed increased weight and percentage of ideal body weight, decreased binge-purge status and few readmissions to the program over the two-year period studied. **Conclusions:** The implementation of a DBT informed DHP with integration of FBT is associated with improved patient outcomes. Ongoing challenges with respect to the implementation of DBT include modifying DBT to address varying developmental levels, ages and diagnoses and promoting adherence to the program by patients and families. Limitations include small sample size, uncontrolled chart review and the nature of DHP, which include a variety of components that may influence outcomes. This research will help to inform future implementation of treatment programs for adolescents with eating disorders.

Key Words: *dialectical behavior therapy, family based therapy, eating disorders, adolescent, day hospital*

Résumé

Objectif: Cet article discute de la mise en œuvre et des résultats préliminaires d'un programme éclairé de thérapie comportementale dialectique (TCD) intégré à la thérapie familiale (TF) pour des adolescents souffrant de troubles alimentaires dans le cadre d'un programme d'hôpital de jour (PHJ). **Méthode:** Une analyse rétrospective des dossiers de l'hôpital entre 2013 et 2015 a livré les caractéristiques descriptives des patients. Le poids et le pourcentage du poids corporel idéal à l'admission et au congé, la fréquence des épisodes d'hyperphagie et de purge lors du congé et les réadmissions ont été analysés. **Résultats:** L'analyse des caractéristiques des patients a indiqué une vaste gamme de troubles alimentaires et des diagnostics psychiatriques comorbides chez les patients. Les résultats préliminaires ont révélé un poids et un pourcentage accrus du poids corporel idéal, un état diminué de l'hyperphagie-purge, et peu de réadmissions dans le programme sur les deux ans de la période de l'étude. **Conclusions:** La mise en œuvre d'un PHJ éclairé par la TCD intégrée dans la TF est associée à de meilleurs résultats chez les patients. Les difficultés actuelles à l'égard de la mise en œuvre de la TCD consistent à modifier la TCD pour tenir compte des niveaux de développement variés, de l'âge et des diagnostics, et pour promouvoir l'adhésion au programme par les patients et les familles. Les limitations comprennent la petite taille de l'échantillon, un examen des dossiers incontrôlé et la nature du PHJ, qui englobe une variété de composantes susceptibles d'influer sur les résultats. Cette recherche aidera à éclairer la future mise en œuvre des programmes de traitement pour les adolescents souffrant de troubles alimentaires.

Mots clés: *thérapie comportementale dialectique, thérapie familiale, troubles alimentaires, adolescent, hôpital de jour*

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Eating disorders (ED) typically have their onset during childhood and adolescence and persist into adulthood. They are associated with chronic and severe physical and psychological comorbidity and high mortality in the adolescent population (Arcelus, Mitchell, Wales, & Nielsen, 2011). Unfortunately, few effective treatments have been developed to treat these disorders and those that are effective do not adequately treat a large subset of patients. For all classifications of eating disorders in the adolescent population, psychotherapy is the gold standard with pharmacotherapy used largely as adjunctive treatment and to treat comorbid psychopathologies.

Family Based Treatment has the strongest empirical support for the treatment of EDs, however, a significant subgroup fail to respond adequately or to fully recover (Mitchell, Agras, & Wonderlich, 2007; Wilson, Grilo, & Vitousek, 2007). Adolescents who do not respond adequately to standard FBT tend to not make adequate treatment gains early in therapy and have more severe ED pathology (Grilo, Masheb, & Wilson, 2006) demonstrate pervasive emotion dysregulation (Becker-Stoll & Gerlinghoff, 2004) are older, have longer treatment, more problematic family behaviors (Lock, Couturier, Bryson & Agras, 2006) and present with comorbid psychopathology (Wilfley et al., 2000; Lock et al., 2006). In particular there is a high rate of suicidal and self-injurious behavior among adolescent patients with EDs. Forty percent of adolescent patients with EDs report self-harming, and this number is higher in those with BN or those that have a history of binge eating and/or purging (Peebles, Wilson, & Lock, 2011; Crow, Swanson, Le Grange, Feig, & Merikangas, 2014). Among adolescent patients with BN, 53% reported SI, 26% reported a current plan for suicide, 35% reported a previous suicide attempt and 17% reported multiple suicide attempts (Crow et al., 2014). These behaviors often interfere with standard treatment models. At present, there is no evidence-based treatment for such complex multi-diagnostic ED presentations, however there is increasing literature suggesting that Dialectical Behaviour Therapy (DBT) may be an effective approach (Bankoff, Karpel, Forbes, & Pantalone, 2012).

Adaptations of DBT for ED

Wisniewski and Kelly (2003) described the application of DBT for the treatment of patients diagnosed with AN or BN. Given that DBT is based on an affect regulation model, the authors hypothesized that DBT would benefit patients with EDs by addressing the emotion dysregulation that commonly triggers and/or reinforces eating behaviours (i.e. restricting, binge-eating and purging). Furthermore, these authors proposed that the ability of DBT to address multi-problem behaviours would be useful for patients with EDs who present with varied psychological comorbidities (Wisniewski & Kelly, 2003). Theoretical adaptations to traditional DBT proposed included an expansion of the biosocial

theory to incorporate biological and nutritional vulnerabilities in regulating emotions, and acknowledging the broad spectrum of invalidating environments that would include the cultural pressure on body weight and shape. They also identified dialectical dilemmas to describe ED specific issues (e.g., over-controlled eating vs. the complete absence of an eating plan). Practical adaptations included modifying treatment targets to include ED behaviors, which may result in life-threatening consequences (e.g., hypokalemia, bradycardia) and adapting the standard DBT diary cards to include food intake and ED symptoms behaviours. They recommended a modification of DBT skills to include nutritional skills that address proper nutrition and dieting myths as well as mindfulness modules to practice mindful awareness of behaviours and subjective experiences while eating. For further discussion of how specific DBT components have been adapted for individuals with eating disorders refer to Wisniewski & Ben-Porath (2005) and Wisniewski, Safer & Chen (2007).

A number of additional modifications have been proposed for the application of DBT in adolescent BED including presenting the practical skills of the Distress Tolerance Module prior to all other modules, introducing an Interpersonal Effectiveness Module to address issues surrounding interpersonal relationships, collaboratively tackling homework during sessions and, importantly, including family sessions as-needed throughout the course of therapy to address concerns surrounding parental expectations and familial conflict (Safer, Lock, & Couturier, 2007). A number of modifications have been proposed for the application of DBT in adolescent AN and BN as well (Salbach-Andrae, Bohnkamp, Pfeiffer, Lehmkuhl, & Miller, 2008). Modifications included lengthening treatment in order to address high rates of relapse and recurrence among adolescents with AN and BN and introducing a Dealing with Food and Body Image skills module to provide nutritional information and to reduce negative experiences related to body image.

There is evidence for the use of modified outpatient DBT skills training (in group or given individually) for adult patients with Binge Eating Disorder (BED) (Safer, Robinson, & Jo, 2010; Telch, Agras, & Linehan, 2000; 2001) and BN (Safer, Telch, & Agras, 2001). DBT also appears to reduce general psychopathology associated with eating disorders, including reduced anxiety (Ben-Porath, Wisniewski, & Warren, 2009) and depression (Ben-Porath et al., 2009; Hill, Craighead, & Safer, 2011). There is growing evidence for the use of DBT for complex ED presentations (Ben-Porath et al., 2009; Chen, Matthews, Allen, Kuo, & Linehan, 2008; Federici, Wisniewski, & Ben-Porath, 2012; Federici & Wisniewski, 2013; Kroger et al., 2010; Palmer et al., 2003). Two case series (Chen et al., 2008; Palmer et al., 2003) found DBT protocols were effective for patients with an ED and comorbid Borderline Personality Disorder (BPD) and self harm. Two subsequent uncontrolled trials (Ben-Porath et al., 2009; Kroger et al., 2010) found

that a DBT-informed partial hospitalization program and inpatient program respectively may be successful models for individuals with an ED and comorbid BPD. More recently, analysis of a DBT oriented partial hospitalization programme for adult patients with AN-R, AN-BP and bulimia nervosa found significant improvements in body mass index, ED symptoms, and comorbid symptoms including depression and trait anxiety (Brown et al., 2018).

Modified DBT approaches have been the focus of several treatment studies of adolescent with EDs in outpatient settings. Safer et al. (2007) found decreased incidence of binge eating episodes at post-treatment and abstinence at three-month follow up in a 16-year-old female with BED with outpatient DBT. Salbach-Andrae and colleagues (2008) reported significant improvements in behavioural symptoms and psychopathology and increased BMI post-treatment in twelve adolescents aged 12-18 years diagnosed with AN or BN with outpatient DBT. More recently, Fischer and Peterson (2015) found decreased frequency of bingeing and purging episodes and increased rates of abstinence, as well as reduced self-harm, suicide attempts and non-suicidal self-injury following outpatient DBT treatment in seven patients with symptoms of BN.

A novel treatment approach has been to combine DBT with other models including CBT and FBT. Federici and Wisniewski (2012) proposed an intensive combined DBT and cognitive behavior therapy for ED model for complex, multi-diagnostic adolescents with recurrent suicidal/self-injurious behaviors, uncontrollable emotional dysregulation or resistance to treatment goals of FBT alone. This was associated with reductions in ED symptoms, suicidal and self-injurious behaviors, treatment interfering behaviors, psychiatric and medical hospitalizations and clinician burn-out in an outpatient setting (Federici & Wisniewski, 2012).

More recently, the philosophical and practical considerations for a combined FBT/DBT approach for adolescents with bulimia nervosa were described (Anderson et al., 2015). Application of this combined model in practice resulted in significant improvement in overall eating disorder pathology and bingeing and purging episodes in 35 adolescents enrolled in partial hospital treatment program for BN (Murray et al., 2015).

To our knowledge this article is the first to report on patient outcomes in a DBT-informed Day Hospital Program (DHP) integrated with FBT for children and adolescents with a variety of eating disorders including AN-R, AN-BP, EDNOS, ARFID and BN, the majority of whom have failed outpatient FBT and/or have comorbid psychopathology. Specifically clinicians in our program were seeing high numbers of patients with suicidal and self-injurious behaviors in their outpatient practices and it was hypothesized that these patients would have improved outcomes in a DBT-informed DHP.

Method

Day Hospital Program

Our Eating Disorder Program is the Regional Centre for Pediatric Eating Disorders located in Ontario, Canada. The program was established in 2001 and was recently expanded in 2013 to include three levels of service: Inpatient, Day Hospital and Outpatient care for children and adolescents with eating disorders.

The Pediatric Eating Disorders Day Hospital Program (DHP) was a newly funded program at that time. It is intended to act as a 'step down' program from inpatient care and a 'step up' program from outpatient care. Patients enter the program generally after they have tried Family-Based Treatment on an outpatient basis at least once. It would be rare that anyone would transfer directly from inpatient care to the day hospital program. Given there is a long waiting list the preference would be that patients have a trial of outpatient treatment before considering DHP. There are no specific exclusions for day hospital in terms of psychopathology, although patients with imminent suicidality or medical risk would be referred to the inpatient program.

The DHP is run by a multi-disciplinary health care team, which includes pediatric nurses, nurse practitioners, child life specialists, social workers, psychologists, a registered dietician, adolescent medicine paediatricians, child psychiatrists, teachers and pharmacists. The program accommodates four to six day hospital patients at any one time, allowing the health team to focus on individual patient needs. Objectives for the program include weight restoration and maintenance, regulation and normalization of eating, moods and emotions and the elimination of eating disorder thoughts and behaviours including restriction, binge eating and purging.

The DHP requires a significant commitment from patients and their parents. Families are asked to make a minimum six-week commitment to attend the program, which may be extended based on recommendation by the team. Participants must commit to attendance and participation in all aspects of the DHP including meals and snacks, as well as school and therapy groups. From Monday to Friday patients are required to eat three meals and two snacks each day while at the hospital and parents are responsible for providing one evening snack. A liquid supplement (Ensure) is substituted for food that the patient determines they cannot eat at any meal or snack time. Patients who refuse food as well as the supplement are asked to leave the program for the day and a parent will be called to pick them up. Parents must pick up their child before the next meal. If the parent can coach their child to accept the meal and the additional missed nutrition, the patient can re-enter the program for the day. Continuing to refuse nutrition may result in being discharged from the program, at which point the treatment team may recommend continuation with either outpatient

or inpatient treatment based on the severity of the patient's behaviors and symptoms. This approach to food refusal is taken in the program as it is considered a therapy interfering behavior for the patient themselves as well as their peers. This behavior must be seen as intolerable in order to reinforce to all participants the importance of continued food acceptance to the overall goals of the program. Patients are required to refrain from discussing or engaging in self-injury during program hours and must discuss with health care professionals any self-harm that occurs outside of the program.

Parents are expected to attend parent support group on Fridays as well as team meetings every other week throughout the program. Parents may also be expected to attend visits with their child's therapist depending on individualized requirements. Family sessions would follow a DBT and/or FBT model depending on the patient's individual treatment plan.

Patients and their parents are obliged to sign a contract prior to beginning the DHP, which outlines the above non-negotiable conditions. Re-application and readmission into the program is only possible after a minimum three-month wait and active participation in outpatient care. The program is designed this way in an effort to shape and motivate adaptive behaviour and encourage a commitment to participate fully.

A typical day, from Monday to Thursday, in the DHP begins at 7:45am and ends at 5:45pm. On Fridays, the DHP begins at 7:45am and ends at 3:00pm. Table 1 outlines a detailed program schedule for the full program. Patients are provided three meals and two snacks throughout the day (breakfast, morning snack, lunch, afternoon snack and dinner). Participants eat meals and snacks in a group setting with support from nursing staff, the Child Life Specialist and a Registered Dietician. School is provided for elementary and high school students in the morning every day with a break mid morning for morning snack. A teacher from the Board of Education oversees schooling and they work with community teachers to ensure that assignments required are made available to patients. Therapy groups take place in the afternoon and mid-afternoon break provides time for afternoon snack and skills practice. All DHP patients as well as eligible inpatients attend group therapy sessions.

The DHP is designed to provide eating disorder treatment within a DBT framework. There were elements of FBT applied depending on the type of treatment the young person was enrolled in prior to day hospital. Their own therapist followed them throughout the program from outpatient care into day hospital, so if they were in an FBT therapy prior to entry to day hospital, elements of FBT would have continued throughout day hospital. This might include parental empowerment to be in charge of nutrition on the weekends or evenings, or if the adolescent were in phase two of FBT treatment, it might include a gradual transfer of control from

parent to adolescent in terms of bringing a bagged lunch to program that the adolescent would have packed with parental supervision, or ultimately without supervision.

Therapy groups offered include a selection of Distress Tolerance Skills, Emotion Regulation and Interpersonal Skills, and Mindfulness skills. Therapy groups involve didactic teaching, skills practice and assigned homework, the latter of which is expected to be completed by the patient during day hospital hours or in the evenings. Patients work on new skills each week for the six-week period.

Patients fill in diary cards daily to track treatment targets, including food restriction, bingeing, purging, over-exercise, drug and alcohol use, suicidal thoughts and behaviours, and self-harm. The diary cards also track their use of DBT skills. Behaviour chain analysis is used to assess what prompts and reinforces target behaviours. Filling out chain analyses is meant to provide insight into specific vulnerabilities, prompting events and the series of links that lead to engaging in target behaviours. With this insight, patients are challenged to identify DBT skills to replace maladaptive links. Patients review their completed diary cards in the morning with nursing staff as they enter the program. Chain analyses are reviewed by the patient, their therapist and day hospital staff as required. Skills homework sheets are reviewed during the homework practice time in the schedule.

Data Collection

A retrospective examination of hospital records was completed to compile descriptive data of patients enrolled in the Pediatric Eating Disorder DHP from 2013-2015. This time period was selected to examine the first two years of implementation of the DHP, which was newly funded in 2013 and before which there existed only an inpatient and outpatient program. Descriptive data focusing on demographic information, eating disorder diagnosis, comorbid psychiatric diagnoses, and length of stay were collected. Patient outcomes including weight and percentage of ideal body weight at admission and discharge, frequency of binge and purge episodes upon discharge and instances of readmission during the two-year period were also collected. Our Integrated Research Ethics Board approved this study.

Statistical Analysis

Frequency and descriptive statistics were analyzed using IBM Statistical Package for the Social Sciences (SPSS) software version 24. Means, standard deviations and percentages were used to describe the sample profile.

Table 1. Weekly schedule within the Day Hospital Program

| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|-------------|---------------------------|-----------------------------------|--------------------|---------------------------------------------|---------------------------------------------------------|
| 8:00-8:30 | <i>Breakfast</i> | <i>Breakfast</i> | <i>Breakfast</i> | <i>Breakfast</i> | <i>Breakfast</i> |
| 9:00-10:00 | School | School | School | School | School |
| 10:00-10:30 | <i>Snack</i> | <i>Snack</i> | <i>Snack</i> | <i>Snack</i> | <i>Snack</i> |
| 10:30-12:00 | School | School | School | School | School |
| 12:15-12:45 | Lunch | Lunch | Lunch | Lunch | Lunch |
| 13:00-14:00 | Distress Tolerance Skills | Acceptance and Commitment Therapy | Coping Skills | Emotion Regulation and Interpersonal Skills | Distress Tolerance Skills/Weekend Planning Family Group |
| 14:15-14:45 | <i>Snack</i> | <i>Snack</i> | <i>Snack</i> | <i>Snack</i> | <i>Snack</i> |
| 15:00-15:30 | Skills Practice | Skills Practice | Skills Practice | Skills Practice | Skills Practice |
| 15:30-16:30 | Coping Skills | Coping Skills | Mindfulness | Coping Skills | OPEN |
| 17:00-17:30 | <i>Family Meal</i> | <i>Family Meal</i> | <i>Family Meal</i> | <i>Family Meal</i> | <i>Family Meal</i> |

Results

Participants

The characteristics of all adolescent patients (N=24) enrolled in the Pediatric Eating Disorder DHP between 2013 and 2015 are described in Table 2. Age of participants ranged from 13 to 17 years with an average age of 15.42 years (SD=1.25). The most prevalent diagnosis among patients was Anorexia Nervosa Restricting Type [AN-R (n=10)], followed by Anorexia Nervosa Binge Purge Type [AN-BP (n=6)], Other Specified Feeding and Eating Disorder [OSFED (n=5)], Avoidant Restrictive Food Intake Disorder [ARFID (n=2)] and finally BN (n=1). Thirteen of the total 24 patients enrolled in the program had comorbid psychiatric diagnoses. Depression was the most common comorbid diagnosis (n=9) followed by anxiety disorders (n=8), Obsessive-Compulsive Personality (OCPD) traits (n=3) and BPD traits (n=1). Only one patient was admitted directly into the DHP from our inpatient unit with no prior outpatient treatment, while the vast majority had prior courses of outpatient treatment (23/24). The majority of patients had had prior courses of inpatient care (21/24). As our program is a regional program, it is difficult to ascertain the exact type of outpatient care the patients had received prior to admission to our DHP, however, most reported they had undergone FBT (20/24). Length of stay in the DHP ranged from two to 35 weeks with the average length of stay being 8.80 weeks (SD=6.57). Five patients left the DHP prior to reaching six weeks of treatment due to inability to comply with treatment recommendations. All patients who complied with the treatment recommendations were kept in the program for the entire duration of the contracted six weeks in order to complete the treatment program.

As shown in Table 3 discharge weight in kilograms was significantly increased from weight upon admission ($t(23) = 4.87, p < .01$), as was percentage of ideal body weight at discharge compared to admission ($t(23) = 4.52, p < .01$). As

shown in Table 4, binge-purge status at discharge according to information collected from the discharge summaries for patients diagnosed with AN-BP and BN was reduced (n=2/7) or completely abstinent (n=5/7). Readmission rates were low, with the majority of patients not requiring readmission to the DHP, nor to the inpatient unit over the course of the two-year period studied (n=18). Four patients had one readmission to the DHP each. These readmissions occurred at nine days, seven months, nine months and one year and five months following their discharge date. One patient was readmitted to the DHP twice – two months following their first discharge and 21 days following their second discharge. Only one of the four patients who needed readmission to DHP had completed the program successfully. The other three out of four had left prematurely. These results would likely capture the majority of readmissions to an acute care unit as this is the regional program, however it is unknown whether some patients may have been admitted to residential care.

Discussion

Although FBT has the strongest empirical evidence for the treatment of adolescent EDs, this model fails to adequately treat a substantial proportion of patients with severe pathology and comorbid psychopathology including suicidal and self-injurious behavior. Recent literature indicates DBT may be an effective model for this multi-diagnostic, hard to treat subset of patients. Recently there has been a growing movement to incorporate FBT and DBT for adolescent ED treatment.

There exists an inherent philosophical conflict between the FBT and DBT models. FBT treatment is focused on parental control over eating and the limitation of activity, whereas in DBT treatment is focused on collaboration, such that greater autonomy is given to the adolescent. Parents remain involved in DBT, however their role shifts from being 'in

Table 2. Patient characteristics

| Patient | Gender | Age | Diagnosis | Psychiatric comorbidity | Length of stay (weeks) |
|---------|--------|-----|-----------|-------------------------------------------------|------------------------|
| A | F | 16 | AN-R | - | 16 |
| B | F | 16 | AN-R | - | 6 |
| C | F | 13 | AN-R | - | 12 |
| D | F | 13 | AN-R | OCPD Traits | 6 |
| E | F | 15 | AN-R | GAD, MDD | 6 |
| F | F | 16 | AN-R | SAD | 3 |
| G | F | 15 | AN-R | - | 9 |
| H | F | 17 | AN-R | - | 6 |
| I | F | 16 | AN-R | OCPD Traits, Depression | 35 |
| J | F | 15 | AN-R | - | 11 |
| K | F | 17 | AN-BP | MDD | 12 |
| L | F | 16 | AN-BP | - | 10 |
| M | F | 14 | AN-BP | - | 7 |
| N | F | 13 | AN-BP | OCPD traits, SAD, Borderline Personality Traits | 5 |
| O | F | 15 | AN-BP | - | 7 |
| P | F | 17 | AN-BP | Borderline Personality Traits, Depression | 8 |
| Q | F | 16 | BN | Depression | 7 |
| R | F | 16 | EDNOS | SAD, MDD | 13 |
| S | F | 15 | EDNOS | GAD, Panic Disorder | 5 |
| T | F | 16 | EDNOS | MDD, SAD | 4 |
| U | F | 16 | EDNOS | - | 6 |
| V | F | 17 | EDNOS | MDD, GAD | 6 |
| W | F | 14 | ARFID | - | 2 |
| X | M | 16 | ARFID | MDD, Panic Disorder | 6 |

Note. AN-R = anorexia nervosa, restrictive type; AN-BP = anorexia nervosa, binge-purge type; BN = bulimia nervosa; EDNOS = eating disorder not otherwise specified; ARFID = acute restrictive feeding intake disorder; OCPD = obsessive compulsive personality disorder; GAD = generalized anxiety disorder; MDD = major depressive disorder; SAD = social anxiety disorder

charge' of nutrition in the FBT model to a supportive role for distress and dysregulation experienced by the patient in the DBT model. Anderson et al. (2015) recently outlined the various philosophical similarities and differences between FBT and DBT along with strategies to guide a combined treatment approach (Anderson et al., 2015). Federici and Wisniewski (2012) suggested that combined FBT and DBT helps family members to focus on supportive acceptance and validation of distress and emotional dysregulation while continuing to enforce eating (Federici & Wisniewski, 2012). Furthermore, they suggested that in clinical practice DBT has the capacity to act synergistically with FBT in cases where there is significant emotion regulation and/or suicidal and self-injurious behavior (Federici & Wisniewski, 2012). Therefore, although these two approaches present some philosophical incongruence, they appear to

complement one another and together provide a novel and effective approach to adolescent eating disorders.

This article examined the implementation of a DBT-informed day hospital program with integration of FBT. Demographic information collected in this study gives us a better idea of the range of patients that may benefit from this treatment model. As a step down from inpatient care and a step up from outpatient care such a setting is particularly useful for those patients that do not require inpatient management, however are not thriving from outpatient treatment and would benefit from increased supervision, structure and support during mealtimes and more frequent therapy sessions.

As is frequently the case with difficult to treat patients, the majority of patients enrolled in the DHP suffered from

Table 3. Admission and discharge weight and percentage ideal body weight

| | Mean | SD |
|-----------------------|-------|------|
| Admission Weight (kg) | 53.87 | 7.33 |
| Discharge Weight (kg) | 56.58 | 7.76 |
| Admission %IBW | 94.8 | 8.2 |
| Discharge %IBW | 99.5 | 8. |

Table 4. Binge-purge status at discharge and readmissions to day hospital

| Patient | Diagnosis | Binge-purge status at discharge | Readmissions to day hospital |
|---------|-----------|---------------------------------|------------------------------|
| A | AN-R | - | - |
| B | AN-R | - | - |
| C | AN-R | - | 1 |
| D | AN-R | - | 1 |
| E | AN-R | - | - |
| F | AN-R | - | - |
| G | AN-R | - | - |
| H | AN-R | - | - |
| I | AN-R | - | - |
| J | AN-R | - | - |
| K | AN-BP | Reduced | - |
| L | AN-BP | Abstinent | 1 |
| M | AN-BP | Abstinent | - |
| N | AN-BP | Abstinent | 2 |
| O | AN-BP | Abstinent | - |
| P | AN-BP | Reduced | - |
| Q | BN | Abstinent | - |
| R | EDNOS | - | - |
| S | EDNOS | - | 1 |
| T | EDNOS | - | - |
| U | EDNOS | - | - |
| V | EDNOS | - | - |
| W | ARFID | - | - |
| X | ARFID | - | - |

comorbid psychiatric disorders. In our program there seemed to be a clinical need to address suicidal thoughts and self injurious behaviour when the program was developed as the clinicians in our program were seeing high numbers of patients with suicidal and self injurious behaviours in their outpatient practices. However, we did not use a specific measure to capture these behaviours to date. This would be an important measure to consider adding to our program evaluation, and also considering a measure to capture any improvement in affect regulation.

Preliminary data indicates that implementing a DBT-oriented DHP with integration of FBT was associated with

improved patient outcomes. Binging and purging were reduced among patients with a diagnosis of AN-BP and BN. Discharge weight as well as percentage ideal body weight for patients in the program was significantly increased from admission. Although patients and parents must commit to a six-week stay, the average length of stay for patients was eight weeks, with some needing much longer lengths of stay. Patients were recommended to stay longer than the contracted six weeks if they had ongoing eating disorder behavior. This could indicate that patients require longer lengths of stay to properly benefit from the day hospital program. The majority of patients did not require readmission to the program within the two year period studied.

These findings are in keeping with findings from a recent review of partial hospitalization program outcome studies, of which the majority were FBT or CBT oriented, which demonstrated that outcomes at discharge were generally positive with significant improvements in body mass index (BMI), reductions in binge/purge frequency, and improvement in depression, anxiety and ED pathology after treatment (Friedman et al., 2016.) These findings are also in keeping with findings from DBT-FBT integrated programs, including significant improvement in overall eating disorder pathology (Federici & Wisniewski, 2012; Murray et al., 2015) and bingeing and purging episodes (Murray et al., 2015).

Ongoing challenges of realizing such a program include modifying the teaching of DBT skills to an adolescent target audience, integrating DBT and FBT therapy and establishing ongoing commitment to program expectations by patients and parents, especially when they disagree with these expectations. Although implementing a DHP for adolescents may be costly, DHP in fact reduce costs when compared to resources associated with inpatient care for patients with eating disorders (Kaplan & Olmsted, 1997). Therefore there would likely be overall cost benefit in this model compared to inpatient care for those who fail outpatient management. We do not have data on whether a DBT informed program would be more costly than an FBT model.

Limitations of the current study include that it is a retrospective chart review with an uncontrolled sample and a small sample size. Furthermore, our DHP includes a number of different treatment components including FBT, DBT, meal prescription and medication prescription, and therefore this limits conclusions that can be made regarding specific components including the role of DBT. Future research should seek to address which components and/or combinations of components are most efficacious in improving patient outcomes.

Despite these limitations and the ongoing challenges of implementing and studying such an extensive program, this preliminary examination indicates that a DBT informed DHP integrated with FBT is associated with improved outcomes for multi-diagnostic adolescents with eating disorders.

Acknowledgements / Conflicts of Interest

The authors have no financial relationships to disclose.

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