

**Outcomes, Predictors and the Qualitative Experience of a Day  
Program and Family Based Treatment in Adolescents with  
Anorexia Nervosa**

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### **Declaration**

This thesis is submitted to The Australian National University in fulfilment of the Doctor of Philosophy (Clinical) degree. The work presented in this thesis, is to the best of my knowledge and belief, original except as acknowledged in the text. The work contained in this thesis has not been submitted for a higher degree at any other institution.

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## **Abstract**

Anorexia nervosa (AN) is characterised by self-induced weight loss, a fear of weight gain, and a disturbance in the perception of one's body image. It can severely affect physical, social, and emotional development and is also one of the most serious and chronic illnesses to affect adolescents and young adults. There has been a shift from treating patients with AN in inpatient settings towards outpatient based treatments.

While there is considerable evidence to support the effectiveness of adult day programs for treating individuals with eating disorders, the use of adolescent day programs is an emerging area. The first study reviewed the outcomes of day program attendance in 39 adolescents with AN and the potential predictors of treatment outcome and drop-out. The results provide support for the effectiveness of day program treatment in adolescents, in terms of improving weight, core eating disorder cognitions and behaviours, and general psychosocial functioning. Findings also suggested the relevance of pre-treatment weight and patient age in impacting on outcome, and pre-treatment weight on completion rates.

In contrast to the limited research around adolescent day programs, a growing evidence base suggests that Family Based Treatment (FBT) should be the first line outpatient treatment for adolescents with AN. The second study aimed to review the impact of length of treatment on rates of cognitive change and outcomes, and predictors of outcome and drop-out in a 'real world' sample of 45 adolescents with AN. The study found support for the notion that completion of all three phases of FBT regardless of the number of sessions, leads to weight restoration, return of menstruation, and improvements in core eating disorder cognitions and behaviours, and general psychosocial functioning. The study also suggested a role for expected body weight and severity of eating disordered cognitions on drop-out rates.

The third study aimed to investigate the effectiveness of FBT ( $n = 45$ ) compared with a day program ( $n = 39$ ) for adolescents with AN, given that a key deficiency in the research is that there have been no clinical trials comparing the effectiveness of FBT with day programs. The findings suggest differences between the two treatment modalities with lower drop-out rates from day program, but improved outcomes in FBT for weight, menses and core eating disorder cognitions and behaviours at completion.

The final study aimed to provide a qualitative investigation into the family experience, including the sibling perspective, of having an adolescent with AN participate in both day program treatment and FBT as this has not been a focus of previous studies. The study was preliminary in nature and due to the small sample size it has been included in Appendix A. Three adolescents, their parents and siblings provided feedback regarding their experiences of participating in both treatment modalities. Their responses indicated that overall each family member considered both treatment modalities to be beneficial in unique and overlapping ways, with most reporting wanting a combination of both treatments.

Overall the results from the four studies suggest that day program and FBT are effective treatments for adolescents with AN in terms of improving physical factors and eating disordered cognitions and behaviours, with a number of factors impacting on treatment outcome and drop-out. Families also found components of both treatments to be beneficial. Clinical implications of the findings and future research directions are discussed.



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## Chapter 1

### Introduction to Anorexia Nervosa

#### Chapter Overview

Eating disorders are serious psychiatric illnesses that can severely affect physical, social, and emotional development (Fisher, Hetrick, & Rushford, 2010; Hay et al., 2014). For many patients, they can become chronic and result in long periods of hospitalisation (Hay et al., 2014). It is common for those with an eating disorder not to seek professional treatment (Hudson, Hiripi, Pope, & Kessler, 2007), and past treatments have not been highly effective (Bulik, Berkman, Brownley, Sedway & Lohr, 2007). Anorexia nervosa (AN) in particular, is one of the most serious and chronic illnesses to affect adolescents and young adults (Beumont & Touyz, 2003; Herpertz-Dahlmann, Bühren, & Seitz, 2011). This chapter will provide an overview of AN, including subthreshold AN (where partial criteria for AN are met), discuss the diagnostic criteria for AN including changes in the latest revision of the *Diagnosics and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association [APA], 2013)*, and review the epidemiology and risk factors for AN. The chapter will conclude by providing a brief overview of the current program of research.

#### Diagnostic Criteria for Anorexia Nervosa

Prior to 2013, one of the most commonly used diagnostic tools for mental disorders was the *DSM-IV-TR (APA, 2000)* which referred to three main types of eating disorders including: anorexia nervosa (AN), bulimia nervosa (BN), and eating disorder not otherwise specified (EDNOS). While not as well known, EDNOS was the most commonly diagnosed eating disorder (Call, Walsh, & Attia, 2013; Eddy, Celio Doyle, Hoste, Herzog, & Le Grange, 2008), and included subthreshold AN where partial criteria for AN were met.

The *DSM-IV-TR* (APA, 2000) specified four diagnostic criteria that an individual must meet to be classified as suffering from AN, and which of these criteria did not need to be met to be diagnosed with EDNOS (see Table 1.1). The diagnostic criteria for AN include self-induced weight loss, a fear of weight gain or being ‘fat,’ some type of body image disturbance (e.g., a disturbance of the way in which one’s body or body parts are experienced), and amenorrhoea. Weight loss is usually achieved by extreme weight control behaviours such as restricted dietary intake, excessive exercise, self-induced vomiting, and/or diuretic and laxative abuse (APA, 2000). In addition to these core diagnostic criteria, many patients with AN exhibit traits such as perfectionism and obsessionality (Beumont, & Touyz, 2003; Hartmann, Thomas, Greenberg, Matheny, & Wilhelm, 2014).

Critics of the *DSM-IV* criteria for eating disorders suggested that it relied too strongly on the diagnostic category of EDNOS (Murphy, Straebl, Cooper, & Fairburn, 2010; Smink, van Hoeken, Oldehinkel, & Hoek, 2014). Despite its intention to comprise a residual category for those who did not fit into any other diagnostic category, studies on community samples of those with an eating disorder found that approximately 70-80% of participants were diagnosed with EDNOS (Le Grange, Swanson, Crow, & Merikangas, 2012; Wade, Bergin, Tiggemann, Bulik, & Fairburn, 2006). Research has found that subclinical eating disorders, such as EDNOS, cause clinically significant distress and impairment, can be as debilitating as AN or BN, and involve serious health consequences (Eddy et al., 2010; Levine & Smolak, 2006; Murphy et al., 2010; Wade & O’Shea, 2014). Therefore, research needs to focus not only on presentations that meet criteria for AN, but also its subthreshold presentations.

Table 1.1

*DSM-IV-TR Diagnostic Criteria for Anorexia Nervosa (AN) and Eating Disorder not Otherwise Specified (EDNOS) (APA, 2000).*

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Anorexia Nervosa (AN)

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- A. Refusal to maintain body weight at or above a minimally normal weight for age and height, for example, weight loss leading to maintenance of body weight less than 85% of that expected or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected.
- B. Intense fear of gaining weight or becoming fat, even though underweight.
- C. Disturbance in the way one's body weight or shape is experienced, undue influence of body weight or shape on self evaluation, or denial of the seriousness of the current low body weight.
- D. In postmenarcheal females, amenorrhoea, i.e., the absence of at least 3 consecutive menstrual cycles. A woman having periods only while on hormone medication still qualifies as having amenorrhoea.

*Specify type:*

*Restricting Type:* During the current episode of Anorexia Nervosa, the person has not regularly engaged in binge-eating or purging behaviour (self-induced vomiting or misuse of laxatives, diuretics, or enemas).

*Binge Eating/Purging Type:* During the current episode of Anorexia Nervosa, the person has regularly engaged in binge-eating or purging behaviour (i.e., self-induced vomiting or misuse of laxatives, diuretics, or enemas).

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Eating Disorder Not Otherwise Specified (EDNOS)

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This diagnosis is given when full criteria for Anorexia Nervosa (or Bulimia Nervosa) are not met. For Anorexia Nervosa this includes:

1. For female patients, all of the criteria for Anorexia Nervosa are met except that the patient has regular menses.
  2. All of the criteria for Anorexia Nervosa are met except that, despite significant weight loss, the patient's current weight is in the normal range.
- 

Given these problems with the *DSM-IV* eating disorder diagnostic criteria, revisions were introduced with the *DSM-5* (APA, 2013), including a number of revisions designed to improve the diagnostic classification of AN (see Table 1.2). Firstly, the *DSM-5* criteria include the criterion of low weight, rather than specifying a single cut-off (previously less than 85% of expected body weight or a body mass index [BMI = kg/m<sup>2</sup>] of less than 17.5), which has the effect of increasing the number of individuals meeting criteria for AN in the

*DSM-5*, rather than EDNOS in the *DSM-IV* system (APA, 2013; Call et al., 2013).

Secondly, there is an additional diagnosis of Atypical AN (APA, 2013), which reduces the focus on being underweight and highlights that an individual can have the behavioural and cognitive features of AN, whilst being in the healthy weight range.

Another subtle but useful change in the criteria is related to a fear of weight gain. Rather than having to articulate a fear of weight gain or being ‘fat,’ as was the case in the *DSM-IV*, in the *DSM-5* it is sufficient that the individual’s behaviour reflects a fear of weight gain. This is particularly useful in cases where there is a lack of insight into the disorder, or in children or younger adolescents who have difficulty verbalising their motivation for their restricted intake (APA, 2013; Call et al., 2013; Madden, Morris, Zurynski, Kohn, & Elliot, 2009).

Finally, the *DSM-5* has removed the criterion of amenorrhoea as a diagnostic indicator for AN because this criterion was not a significant indicator of eating disordered behaviour or cognitions. Women who meet all of the other criteria for AN, and menstruate regularly or irregularly do not differ clinically from those with AN who have amenorrhoea (Attia & Roberto, 2009; Pike, 1998). In addition, this criterion could not be applied to pre- and post-menarchal women, those taking oral contraceptives, and males. However, there is some research that amenorrhoea is important to consider as it is associated with worse outcomes and indicates problems with physical health including bone density (Howard, Evans, Quintero-Howard, Bowers, & Anderson, 1999; Le Grange, Doyle et al., 2012).

As well as changing a number of the diagnostic criteria for AN, the *DSM-5* includes a severity rating which ranges from mild to extreme. Clinicians are encouraged to track patient progress by giving severity ratings based on symptoms and degree of functional impairment (APA, 2013). However, these ratings have received criticism for relying too

heavily on clinician judgement (Call et al., 2013).

There are several advantages of the *DSM-5* criteria for AN including the removal of the amenorrhoea criterion so that the diagnostic criteria are no longer female specific. With the emerging evidence that AN may be more common in males than previously thought, and that there is no difference in eating disordered symptoms between the sexes (Raevuori, Keski-Rahkonen, & Hoek, 2014), the more gender-neutral diagnostic criteria for AN are viewed as a positive step for the identification, diagnosis, and treatment of males with AN.

A further advantage of the *DSM-5* criteria is a decrease in the number of individuals being diagnosed with a residual eating disorder category. Research has found that the *DSM-5* classification has been successful in reducing the number of cases identified as unspecified or other eating disorders compared with the *DSM-IV*, which has led to increased clinical utility in diagnosis (Allen, Byrne, Oddy, & Crosby, 2013b; Call et al., 2013). Other research has found that prevalence rates in adolescents are higher when using the *DSM-5* compared with the *DSM-IV* criteria (Allen, Byrne, Oddy, & Crosby 2013a; Smink et al., 2014).

Notwithstanding these improvements in the diagnostic criteria for AN, the *DSM-5* has received criticism for trying to classify AN, which is a complex illness with many symptom presentations, into a single entity. This criticism stems from the fact that the *DSM-5* retained the *DSM-IV* method of specifying subtypes of restricting or binge eating/purging types. Others have argued that it is common for a person to move between subtypes (or change behaviours; Peat, Mitchell, Hoek, & Wonderlich, 2009), and that it is therefore difficult to classify patients into distinct categories, although the *DSM-5* stipulates that the specified type is based on behaviours in the past three months (APA, 2013). Others



have argued against the *DSM-5* classification entirely, believing that the diagnosis of AN should be based on characteristics which reflect the underlying mechanisms of the illness (Wildes, Forbush, & Markon, 2013). Thus, despite several improvements with recent revisions in the *DSM* classification of eating disorders, debate regarding the criteria continues and will inform future revisions.

Table 1.2

*DSM-5 Diagnostic Criteria for Anorexia Nervosa (AN) and Atypical Anorexia Nervosa (APA, 2013).*

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Anorexia Nervosa (AN)

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Restriction of energy intake relative to requirement, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health. *Significantly low* weight is defined as a weight that is less than minimally normal or, for children and adolescents, less than that minimally expected.

Intense fear of gaining weight or of becoming fat, or persistent behavior that interferes with weight gain, even though at a significantly low weight.

Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

*Specify type:*

*Restricting Type:* During the last 3 months, the individual has not engaged in recurrent episodes of binge-eating or purging behaviour (i.e., self-induced vomiting or misuse of laxatives, diuretics, or enemas). This subtype describes presentations in which weight loss is accomplished primarily through dieting, fasting, and/or excessive exercise.

*Binge Eating/Purging Type:* During the last 3 months, the individual has engaged in recurrent episodes of binge-eating or purging behaviour (i.e., self-induced vomiting or misuse of laxatives, diuretics, or enemas).

*Specify if:*

*In partial remission:* After full criteria for Anorexia Nervosa were previously met, Criterion A (low body weight) has not been met for a sustained period, but either Criterion B (intense fear of gaining weight or becoming fat or behaviour that interferes with weight gain) or Criterion C (disturbances in self-perception of weight and shape) is still met.

*In full remission:* After full criteria for Anorexia Nervosa were previously met, none of the criteria have been met for a sustained period of time.

*Specify current severity:* The minimum level of severity is based, for adults, on current body mass index (BMI = kg/m<sup>2</sup>) (mild: BMI >17, moderate: BMI 16-16.99, severe: BMI 15-15.99, extreme: BMI <15), or, for children and adolescents on BMI percentile. The level of severity may be increased to reflect clinical symptoms, the degree of functional disability, and the need for supervision.

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## Other Specified Feeding or Eating Disorder (OSFED)

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This category applies to presentations in which symptoms characteristic of a feeding or eating disorder that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning predominate but do not meet the full criteria for any of the disorders in the feeding or eating disorder diagnostic class.

For Anorexia Nervosa this includes:

*Atypical Anorexia Nervosa:* All of the criteria for Anorexia Nervosa are met, except that despite significant weight loss, the individual's weight is within or above the normal range.

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### **Epidemiology of Anorexia Nervosa**

Eating disorders can develop at any age, but their typical onset is in adolescence or early adulthood (Hudson et al., 2007; Slane, Klump, McGue, & Iacono, 2014). It is currently estimated that eight in 100 000 people of all ages are diagnosed with an eating disorder each year, with an increased incidence in the 15-19 year old age group (Hoek, 2006; Smink, van Hoeken, & Hoek, 2012). The 15-19 year old female age group accounts for around 40% of all cases (van Son, van Hoeken, Bartelds, van Furth, & Hoek, 2006). It is unclear if the increase in the adolescent age group is related to an increase in presentations or earlier diagnosis and treatment seeking. However, one study suggests that adolescents often experience AN for over two years prior to receiving a diagnosis and commencing treatment (Neubauer et al., 2014). Incidence rates of adolescent eating disorders in Australia may be even higher, with one study finding 21.8 females and 6 males from a sample of 1000 14-15 year olds had recently developed an eating disorder (Patton, Sezer, Coffey, Carlin, & Wolfe, 1999). Of particular concern is the fact that eating disorders are increasing in prevalence in younger adolescents, and with a younger age of onset, with children as young as 5 years old displaying AN behaviours (Gowers, & Bryant-

Waugh, 2004; Madden et al., 2009; Slane et al., 2014). In Australia, the incidence of AN diagnosed in the 5-13 year old age group has been found to be 1.4 per 100 000 per person per year (Madden et al., 2009).

As well as varying reported incidence rates of AN, estimates of the lifetime prevalence rates of AN vary. Problems with prevalence estimates arise because research is usually conducted through treatment sites and not all people who suffer from AN seek treatment (Hudson et al., 2007). Additional variability is due to the definition of AN, with studies investigating prevalence rates for AN including subclinical presentations reporting higher prevalence rates than those that rely on strict AN criteria. Lifetime prevalence rates for AN range from 0.9% to 2.4% for women and 0.3% for men (Hay, Girosi, & Mond, 2015; Hoek & van Hoeken, 2003; Hudson et al., 2007; Patton et al., 1999; Wade, Bergin, Tiggerman, Bulik, & Fairburn, 2006). The lifetime prevalence of AN for male and female adolescents is estimated at 0.3% and 1.2%, respectively (Smink et al., 2014; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011).

It is clear that there is a gender differentiation of incidence and prevalence rates for AN. AN is more common in females, with the ratio rates estimated to be 1:10, however eating disorders are increasing in males (Hudson et al., 2007; Smink et al., 2012). It is suggested that AN in males may be more common than previously thought, due to being under detected in males as a result of factors such as the gender-specific *DSM-IV* diagnostic criteria and the potential for stigma towards male presentations (Keski-Rahkonen, Raevuori, & Hoek, 2008).

### **Burden of Anorexia Nervosa**

AN has a significant cost to the individual and typically leads to impairment in everyday living and poor quality of life (Allen et al., 2013b; Brand-Gothelf, Leor, Apter, & Fennig, 2014; Hudson et al., 2007; Jenkins, Hoste, Meyer, & Blissett, 2011). For example,

patients with current AN symptoms were found to have missed more days of work per year than those who had recovered (Zipfel, Lowe, Reas, Deter, & Herzog, 2000). The burden of AN on the individual, the community, and the health system is as high as that of other major psychiatric illnesses and serious medical disorders (Hay & Mond, 2005). AN is also associated with other comorbid mental health issues including depression, anxiety, obsessive-compulsive disorder and personality disorders, which can further reduce quality of life for the individual (Allen et al., 2013a; Brand-Gothelf et al., 2014; Gabriel & Waller, 2014; Hudson et al., 2007; Young, Rhodes, Touyz & Hay, 2013). Adolescent girls with AN and comorbid anxiety and depression were more likely to experience increased severity of eating disordered symptoms, have a hospital admission, and attempt suicide compared to those without comorbid disorders (Brand-Gothelf et al., 2014), while those who met criteria for the binge/purge AN subtype were more likely to display self injurious behaviour and suicidality (Buhren et al., 2014).

The high costs to the individual and the wider community associated with the illness are also due in part to treatment for AN being financially costly, with affected individuals often requiring lengthy hospital admissions (Stuhldreher, Wild, Konig, Konnopka, Zipfel, & Herzog, 2015). Inpatient treatment is often required for medical stability due to the physical complications of AN. The physical and medical complications associated with AN range from diminished bone mineral density and gastrointestinal problems to severe cardiovascular and pulmonary problems, electrolyte abnormalities, and death (Mitchell & Crow, 2006).

The associated physical and psychological complications mean that AN is typically a chronic illness with a high morbidity rate (Hoek, 2006). Indeed, AN has the highest mortality rate of all psychiatric illnesses (Harris & Barraclough, 1998). The 20-year mortality rate for patients with AN has been found to be as high as 15-20%, although it is

difficult to fully estimate mortality rates in AN due to under-reporting of AN as the cause of death (Muir & Palmer, 2004). The elevated mortality rate associated with AN is due in part to high rates of suicide (Berkman et al., 2006; Beumont, & Touyz, 2003; Ward, Ramsay, Russell, & Treasure, 2014; Zipfel et al., 2000). One study found that approximately one in five of those with AN who died had committed suicide (Arcelus et al., 2011), and the risk for completing suicide for those with AN is 32 times higher than those of the same age with depression (Berkman et al., 2006; Beumont, & Touyz, 2003).

Outcome for AN is variable. Those who are diagnosed at a younger age, and who receive treatment relatively close to onset, are more likely to achieve a good outcome within a short period of time (e.g., within a year), as are those who receive a longer duration of follow up (Steinhausen, 2002). Estimating rates of recovery for AN is difficult due to varying definitions of recovery and symptom reduction. For example, many patients with the restricting type of AN may improve their AN symptoms over time but may develop symptoms of bulimia nervosa (Eddy et al., 2002). The issue of estimating recovery rates for eating disorders is also exacerbated by problems with retention rates in treatment (Hoste, Zaitsoff, Hewell, & Le Grange, 2007).

Overall it is thought that less than half of all patients with AN achieve full recovery with complete symptom reduction, about a third display some symptom reduction, and about 20% of patients with AN remain chronically unwell (Steinhausen, 2002). A range of factors have been investigated as possible predictors of outcome, such as duration of illness, age at diagnosis, and weight at treatment commencement. Some research suggests that purging, length of the illness, and obsessive personality features lead to poorer outcomes (Steinhausen, 2002). However, the findings have been markedly inconsistent such that it is difficult to predict who will recover completely and who will experience a chronic course of the illness (Pike, 1998).

## **Risk Factors for Anorexia Nervosa**

There are many risk factors associated with developing an eating disorder. At a sociocultural level, there has been much emphasis on contemporary Western culture, particularly with its idealisation of thinness, as a risk factor for eating disorders (Keel & Forney, 2013). However, the cultural specificity of AN may have been over-represented with many other risk factors now identified (Herpertz-Dahlmann, Seitz, & Konrad, 2011). There has been a lack of epidemiological studies of AN in non-Western countries in the past (Keel & Klump, 2003; Pike, Hoek, & Dunne, 2014), however increasing research has shown that AN occurs across many different countries, ethnic groups, and cultures (Lee, Lee, Pathy, & Chan, 2005; Nobakht & Dezhkam, 2000; Pike et al., 2014; Hoek, 2006).

A range of psychological risk factors for AN have also been investigated. Displaying characteristics of perfectionism, anxiety, depression, low self esteem, and disturbances in emotion regulation and processing are commonly seen in adolescents with AN and may be risk factors for the development of the illness (Fairburn, Cooper, Doll, & Welch, 1999; Gabriel & Waller, 2014; Hartmann et al., 2014; Hatch et al., 2010; Fitzpatrick, Lesser, Brandenburg, & Lesser, 2011; Le Grange et al., 2014). Dieting in adolescents has been found to be the strongest predictor of developing an eating disorder (Patton et al., 1998).

Interest in potential biological risk factors for AN has increased in recent decades. Research suggests that there is a genetic predisposition for the development of AN (Bulik, 2005; Steinhausen, Jakobsen, Helenius, Munk-Jørgensen, & Strober, 2014), with relatives of someone with AN being 11.3 times more likely to develop AN than relatives of controls (Strober, Freeman, Lampert, Diamond, & Kaye, 2000). The estimated heritability index for developing AN depends on the definition of AN, however estimates range from 28% to 58% (Bulik et al., 2006; Bulik et al., 2010; Kortegeard, Hoerder, Joergensen, Gillberg, &

Kyvik, 2001). Research has also found that differences in neuroanatomical structures and functions may be a risk factor for the development of AN. For example, differences in the volume of the dorsal anterior cingulate cortex may create a vulnerability to the development of AN (McCormick et al., 2008). Other research suggests that those with AN have changes in the neurotransmitters and neuropeptides which regulate eating and weight. Neurochemicals (such as serotonin, leptin, brain-derived neurotrophic factor, and melanocortin-stimulating hormone), which normally reduce food intake are lower in patients with AN compared with controls, while neurochemicals which encourage food intake (such as ghrelin and neuropeptide-Y) are increased (Avena & Bocarsly, 2012; Favaro, Monteleone, Santonastaso, & Maj, 2008; Kaye et al., 2005). A limitation of this research is the difficulty in identifying whether neurochemical abnormalities are a risk factor or a consequence of self-starvation and/or malnutrition. Other research suggests that increased serotonin receptor activity may create vulnerabilities for eating and anxiety disorders. It is hypothesised that this contributes to higher levels of premorbid anxiety, and the restricted intake in AN helps to regulate the increased levels of anxiety (Kaye, Frank, Bailer, & Henry, 2005). Additional possible biological risk factors for AN include maternal dieting behaviour (Allen, Gibson, McLean, Davis, & Byrne, 2014; Le Grange et al., 2014), and perinatal and postnatal factors (Cnattingius, Hultman, Dhal, & Sparen, 1999; Favaro, Tenconi, & Santonastaso, 2006).

### **Overview of the Current Program of Research**

Despite causing significant distress, often specialised treatment for eating disorders is not sought (Hudson et al., 2007), and this has been exacerbated by a lack of available effective treatments (Bulik et al., 2007). High drop-out and compliance rates for AN treatment have also been an issue (Mahon, 2000; Pike, 1998), which may in part be due to reduced motivation to change or engage in treatment given the often egosyntonic nature of



the illness (Beumont, & Touyz, 2003). These limitations in treatment, combined with the prevalence of AN among adolescents, its serious morbidity and mortality, and its often chronic nature combine to underscore the need for effective treatments in this population.

The overarching aim of the current program of research is to provide further clarification of the most effective non-inpatient interventions for adolescents with AN (including its subthreshold variants) in a real-world clinical setting. Chapter 2 will provide an overview of both adult and adolescent day programs for patients with eating disorders, including the admission criteria, advantages and disadvantages of day programs, core treatment programs and the associated outcome data and its limitations. Chapter 3 will then present Study 1, which investigates the outcomes, and the predictors of outcome and drop-out in an adolescent day program for patients with AN. Chapter 4 will then review the historical origins of Family Based Treatment (FBT), discuss the core components of this treatment modality, and then examine the evidence base for FBT, including its strengths and limitations. Chapter 5 will present Study 2, which entails an evaluation of FBT outcomes in a 'real world' setting of adolescents with AN, including assessing the impact of length of treatment on cognitive change, and predictors of outcome and drop-out. Chapter 6 will present Study 3, which will compare FBT with an adolescent day program, and evaluate the two treatments on a number of factors including drop-out rate, length of treatment, percentage of expected body weight, return of menses, eating disordered cognitions and behaviours, and general psychosocial functioning at completion of treatment. The final study is preliminary in nature and has been included in Appendix A. It will investigate the qualitative experience of all family members, including the patient, parents and siblings, after participating in both day program treatment and FBT. Chapter 7

will summarize the findings of the studies, discuss the clinical implications of the findings, and present future directions for research.

### **Summary**

AN is one of the most serious and chronic illnesses to affect adolescents and young adults. It is characterised by self-induced weight loss (achieved by extreme weight control behaviours), a fear of weight gain, and a disturbance of one's body image. Previously, the *DSM-IV-TR* (APA, 2000) diagnostic criteria for AN were widely used, however this led to an overrepresentation of the EDNOS diagnosis. Accordingly, the *DSM-5* introduced changes to the diagnostic criteria for AN (APA, 2013), which has resulted in greater numbers of individuals being diagnosed with AN as opposed to a residual category, including males and those at less severe levels of weight loss (even potentially including those in the healthy weight range).

AN has a typical onset in adolescence or early adulthood, however it is increasing in younger adolescents and children. The disorder carries a significant cost to the individual and to the wider community, and is associated with significant psychological and medical morbidity, and elevated mortality rates. AN is not unique to Western culture and there are a number of potential biopsychosocial predisposing factors. Given the high mortality rate, the severity of the illness, and the increasing onset in younger adolescents, the most effective treatments for adolescents with AN in real world settings need to be identified.

## **Chapter 2**

### **Treatments for Adolescents with Anorexia Nervosa: Day Program Treatment**

#### **Chapter Overview**

This chapter will provide an overview of the historical context of day programs for patients with eating disorders, as well as describing the admission criteria for day programs, the advantages and disadvantages of day programs, and their core treatment components. The chapter will also review the available evidence for adult and adolescent day programs and conclude by discussing the limitations of the current outcome research for day programs.

#### **The Development of Day Program Treatment**

Historically, patients with eating disorders, particularly those with Anorexia Nervosa (AN), were treated via admissions to inpatient units. This was despite studies showing that readmission rates to inpatient units were as high as 30-50% (Pike, 1998). Day programs (or day hospital) initially started as a way to replace inpatient admissions and/or to reduce the length of stay in inpatient settings for patients with eating disorders (Piran, Langdon, Kaplan, & Garfinkel, 1989). Day programs are facilities where patients are provided with assessment and treatment as an outpatient, rather than on an inpatient basis, yet are provided with the same structure and support during the day that they would receive within an inpatient admission. Patients attend the program during the day (typically 3-7 days per week) but are able to return home in the evenings (Rosie, 1987). For the treatment of eating disorders, day programs usually include meal support as well as therapeutic groups (Zipfel et al., 2002).

Day programs have been used to treat a range of mental illnesses (Weir & Bidwell, 2000), and over the past few decades there has been an increase in the number of eating disorder day programs reported in literature. This increase in publications reflects a

worldwide growth in the number of available day programs for people with eating disorders (Lammers, Exterkate, & De Jong, 2007).

### **Day Program Admission Criteria**

Most day programs predominantly target patients with AN, with the primary aim of achieving weight restoration through meal supervision. However, it is also common to have patients with any eating disorder admitted to day programs. For example, one German day program had 65% of patients with Bulimia Nervosa (BN) and only 26% of patients with AN (Gerlinghoff, Backmund, & Franzen, 1998). Indeed, there is a strong argument that day programs should include all patients with an eating disorder and not focus primarily on treating patients with AN given that patients with eating disorders, regardless of diagnosis, display the same maintaining factors when viewed from a cognitive behavioural perspective (Fairburn, 2008). Regardless of diagnosis, day programs are usually offered to those with a severe eating disorder that requires more support than regular outpatient treatment can provide (Stewart & Williamson, 2004a).

However, there is some debate about having patients with different eating disorders attending the same group. It can often lead to difficulties for staff, due to differences in meal options (for those who need to gain, lose or maintain weight) and differences in physical activity levels. Stigma related to some eating disorders (e.g., around weight or behaviours such as bingeing or purging) can also create issues between patients (Thornton, Touyz, Willinge, & La Puma, 2009).

Many day programs have clear inclusion or exclusion criteria for attendance. Around the world, the most common exclusion criteria include severe medical risk, current substance dependence, suicidal risk, psychosis, or an unsafe home environment (such as abuse or homelessness). Some programs also include previous multiple unsuccessful attempts at day program treatment as an exclusion criterion, while others argue that these

are the patients who require ongoing support (Thornton et al., 2009; Zipfel et al., 2002). Day programs also include a weight cut-off, although there is no clear consensus as to what weight criterion should be used for determining the requirement for inpatient treatment. Most day programs treating adults usually suggest the exclusion criterion of a body mass index ( $BMI = \text{kg/m}^2$ ) of less than 16, while those treating adolescents suggest a weight less than 75% of expected body weight (EBW; APA, 2000; Thornton, Beumont, & Touyz, 2002; Stewart & Williamson, 2004a). Based on their findings, Howard et al., (1999) suggest that, in order to increase the effectiveness of day programs, only patients with AN who are weight restored to 90% of EBW, have an illness duration of less than six years, and have experienced amenorrhoea for less than 2.5 years should be admitted. If these criteria are not met, they suggest that a more intensive and supportive inpatient admission is needed. However, this is only possible when the required inpatient services are available.

### **Advantages of Day Programs Compared with Inpatient Treatment**

Traditionally, treatment for eating disorders, particularly AN, was either as an outpatient (typically individual therapy for one hour, once per week/fortnight) or as an inpatient in hospital (Thornton et al., 2002). Over the years, there has been a shift away from inpatient admissions, particularly due to questions about their greater effectiveness relative to other treatment modalities. A review of inpatient admissions for patients with AN found that admissions in the 1990s were associated with increased rates of readmission compared to admissions in the 1970s (Willer, Thuras, & Crow, 2005). One study of 14 inpatient eating disorder units in the UK found that, although inpatient admission led to an increase in BMI and improved physical health, these patients continued to display eating disordered symptoms at a clinical level (Goddard et al., 2013). Other studies have found no difference for patients who have an inpatient admission compared with those who only receive outpatient treatment (Zipfel et al., 2002). For example, Crisp et al. (1991) randomly

allocated adolescent patients with AN to one of three treatment groups: inpatient treatment followed by outpatient individual sessions, outpatient individual/family sessions, or outpatient group therapy. Their results showed that the inpatient admission did not result in greater benefit to the patients compared with the other two conditions. These results have also been replicated in adolescents, where day program attendance was found to be just as effective for weight restoration and maintenance as inpatient treatment at discharge and at 12-month follow-up in adolescents (Herpertz-Dahlmann et al., 2014).

In addition to comparable effectiveness, there are a number of advantages to day programs over inpatient admissions. Compared to inpatient wards, day programs are usually able to accommodate a larger number of patients at one time (Zipfel et al., 2002). Day programs are also more cost effective than inpatient programs by reducing the high cost of inpatient care associated with beds, meals, and round the clock staff (Piran, Kaplan et al., 1989; Zipfel et al., 2002). One program found that a day hospital program produced cost savings of 43% of the average inpatient stay, which was a saving of about \$9,645 per patient treated (Williamson, Thaw, & Varnado- Sullivan, 2001). Another study found that a day program was about 34% less expensive per day than an inpatient admission (Herpertz-Dahlmann et al., 2014).

One of the main advantages of day programs is that patients can attend the treatment whilst remaining engaged in their psychosocial environment including study, work, family, and friends. Being able to return home in the evening and on weekends also allows for greater family support (Zipfel et al., 2002). In addition, day programs result in patients having greater exposure to the environmental factors which maintain the eating disorder and therefore provide an opportunity to implement the skills being taught at the day program in everyday life (Thornton et al., 2002). Another advantage is that patients in day

programs are usually more motivated to recover than those in inpatient care and, as such, patients can support each other towards recovery (Zipfel et al., 2002).

### **Disadvantages of Day Programs**

While there are noteworthy advantages of day programs, it is also important to consider their disadvantages. Compared to inpatient programs, day programs have strict exclusion criteria such as a low BMI, so that they do not cater for all individuals with eating disorders (Thornton et al., 2009).

Day programs also provide less structure and support than inpatient admissions. This may benefit some patients but others, particularly those with AN, may require a higher level of supervision and support. This limitation is most evident in terms of the lack of structure outside of the program, which can mean that some patients can continue eating disordered behaviours such as excessive exercise, restricted intake or purging, outside of the day program. Thus, the patient or a family member must be prepared to disclose intake and any compensatory behaviours engaged in when the patient is not attending the day program to optimise the effectiveness of this treatment in reducing eating disordered behaviours (Stewart & Williamson, 2004a; Zipfel et al., 2002).

Day programs may also be difficult to access for those who live long distances from the treatment facility. These patients may need to commute for long periods of time to attend the day program, and this may have adverse implications for treatment (e.g., poor attendance) and psychosocial functioning (Zipfel et al., 2002).

Another limitation of day programs is that patients need to be willing to engage in a group treatment setting and have the necessary social skills to interact in the group (Zipfel et al., 2002). Piran, Langdon et al., (1989) found that those patients who had higher levels of social anxiety, which may have resulted in a reluctance to engage in a group setting, were more likely to drop-out of day program treatment.

Considerations of cost indicate that day programs should only be reserved for those with severe eating disorders (Stewart & Williamson, 2004a). For example, although day programs have been found to be effective for patients with BN (e.g., Olmsted, Kaplan, & Rockert, 1994), there are also less time-consuming, and less costly treatments available such as outpatient cognitive-behavioural therapy (Waller et al., 2014). The length of time day programs require can also be a problem for staff. Cases of ‘burn out’ among staff in day program units have been reported, due to spending large periods of time with clients in groups and at meal times (Piran, Kaplan et al., 1989; Zeeck, Herzog, & Hartmann, 2004).

### **Core Treatment in Eating Disorder Day Programs**

Typically, day programs for patients with eating disorders are open groups which rely on group therapy but also provide some individual therapy. They also have a behavioural focus, usually aiming for weight gain (in underweight patients) and normalisation of eating (Lammers et al., 2007). Reviews of day programs show that, while all programs are different, they share some common factors, including using multidisciplinary teams and group therapy as the primary treatment (Abbate-Daga et al., 2009; Zipfel et al., 2002). This section describes core components of day program treatments.

**Treatment duration and intensity.** Typically, day programs are open-ended, and patients are admitted when necessary and discharged based on their progress (Zipfel et al., 2002; Thornton et al., 2009). Hence, there can be a high degree of variability across patients in terms of their required treatment duration. Reflecting this variability, a review of published day programs reported that the mean length of day program attendance ranged from four to 40 weeks (Zipfel et al., 2002). Given the limited research to date, there are no evidence-based guidelines concerning the optimum length of treatment for day programs (Lammers et al., 2007). However, preliminary findings suggest that treatments of longer



duration are more beneficial to patients. For instance, while one study found that only 59% of patients completed their entire 12-week day program, longer treatment was significantly associated with better outcome (Jones, Bamford, Ford, & Schreiber-Kounine, 2007).

Specifically, those patients who attended for longer showed significantly higher BMI and lower depression scores at the end of treatment compared to those who attended for a shorter duration. Another study similarly found that weight gain was increased with longer length of treatment (deGraft-Johnson, Fisher, Rosen, Napolitano, & Laskin, 2013).

Thornton et al. (2002) suggested that their program did not lead to significant reductions in eating disordered cognitions because patients only attended for a mean of 19.9 days. In support of this, mean treatment length was found to be longer in programs that achieved significant reductions in eating disordered cognitions than those that did not (55 days and 90 days, respectively; Gerlinghoff et al., 1998; Piran & Kaplan, 1990).

There is also limited research concerning the optimum number of days per week that day programs should be run, with programs varying from three to seven days per week (Thornton et al., 2002; Zipfel et al., 2002). Olmsted, Kaplan, and Rockert (2003) found that, compared with a four-day per week day program, the five-day per week day program resulted in better psychological outcomes at the end of treatment and reduced rates of bingeing and purging.

**Meal therapy.** All programs provide meal therapy, which includes supervision and support around meal times (Piran, Kaplan et al., 1989). Patients are usually provided with an individual meal plan created by a dietitian to meet the patient's needs (i.e., weight gain or maintenance). Typically, staff provide meals or patients are asked to bring in their own meals which are then approved by a dietitian. Some programs require staff to eat meals with patients to model appropriate behaviours at meal times and to normalise eating (Thornton et al., 2009). Most programs also use food diaries or monitoring logs to

encourage patients to be accountable for regular eating and food choices when not attending the day program. Staff review these food diaries either in the group format or in individual sessions. Meal therapy also includes exposure to ‘challenging’ foods and eating in social settings. Most programs include exposure to take away food and visits to cafés or restaurants (Thornton et al., 2009).

**Weight goals and monitoring.** Day programs for eating disorders require patients to be weighed regularly. Frequency of weighing varies across programs, from daily to once per week. For patients who are underweight, weight gain is usually a requirement of treatment, and a goal is typically set ranging from 500 grams to 1.8 kilos per week (Thaler et al., 2014; Thornton et al., 2009). Stewart and Williamson (2004a) recommend aiming for an overall weight goal of 92% of EBW for underweight patients.

**Motivational enhancement groups.** Due to the nature of eating disorders and research indicating that motivation to change can be low in patients with eating disorders (Goddard et al., 2013; Ngo & Isserlin, 2014), group sessions are often conducted in day programs to increase motivation to change. One study found that motivation was an important factor in completion of a day program, with less motivated patients being more likely to drop-out before the 12-week program was completed (Jones et al., 2007). They also found that more highly motivated patients had significantly greater reductions in eating disordered behaviours than those who were less motivated.

**Psychoeducation.** Psychoeducation groups are provided to teach patients about eating disorders, including the physical, medical, and psychological effects, as well as the causal and maintaining factors. Education regarding how treatment works, treatment goals, and recovery rates may also be provided (Stewart & Williamson, 2004b). A key component of psychoeducation pertains to nutritional information. Nutrition sessions are provided by

dietitians and include accurate information about nutritional intake, meal plans and, in some cases, cooking classes (Piran, Kaplan et al., 1989; Stewart & Williamson, 2004b).

**Cognitive behavioural therapy (CBT).** Given research supporting the effectiveness of CBT (Fairburn, 2008) for individual therapy, especially for adults with BN and EDNOS (Waller et al., 2014) and in treating adolescents (Dalle Grave, Calugi, Doll, & Fairburn, 2013), CBT is usually adapted for group settings and included in most day programs. Some components of CBT include goal setting, body image improvement (e.g., decreasing the emphasis on weight and body shape, reducing body checking, and increasing body acceptance), and the use of CBT strategies to improve overall psychosocial functioning (e.g., reducing perfectionism, improving self esteem, problem solving, reducing associated psychopathology such as anxiety and affect regulation; Piran, Langdon et al., 1989; Stewart & Williamson, 2004a, 2004b).

**Additional groups.** Given that excessive or compulsive exercise can be a feature of eating disorders (APA, 2013), many day programs include exercise groups to provide patients with guidelines around appropriate amounts and types of exercise, such as yoga or dance (Stewart & Williamson, 2004a). Some day programs also offer art therapy groups where patients are able to use art or another creative outlet to express difficult emotions and to develop an avenue to express themselves without resorting to eating disordered behaviours (Stewart & Williamson, 2004b).

**Individual therapy.** Day programs may also include individual therapy in addition to the treatment groups. Individual therapy is seen as a beneficial part of day programs to provide more focused support for the patient, to allow for a more detailed and individualised case conceptualisation, and to ensure treatment remains client-centred (Stewart & Williamson, 2004b).

**Family involvement.** Most day programs also include sessions with family members or carers to provide feedback about the patient's treatment which is seen as a vital part of treatment that leads to more successful outcomes (Stewart & Williamson, 2004a). Family members providing information to staff regarding the patient's behaviour at home also reduces the secretive nature of eating disorders (Zipfel et al., 2002). Family sessions as part of day program treatments typically include improving family relationships, communication, and problem solving, and allowing family members to develop an understanding of the illness and how to support their unwell family member (Stewart & Williamson, 2004b). It is important to note that, in most cases, family therapy in day programs is different to Family Based Treatment (FBT) for adolescents. Family therapy sessions in day programs are aimed at improving interpersonal relationships within the family (Stewart & Williamson, 2004b), whereas FBT primarily uses the family as a resource to re-feed the young person and cease eating disordered behaviour (Lock, Le Grange, Agras, & Dare, 2001).

### **A Review of Adult Eating Disorder Day Programs**

The number of day programs providing treatment to patients with eating disorders is increasing around the world. The content, structure, and outcomes of past and present published day programs for adults with eating disorders are described in Table 2.1.

Table 2.1

*Overview of Published Day Patient Programs for Adults with Eating Disorders*

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>Australia</b>  <b>The Peter Beumont Centre for Eating Disorders (PBCED)</b>	Thornton et al., (2002); Willinge, Touyz, & Thornton (2010).	Days per week: four.	Focus: psychodynamic approach rather than on a behavioural approach. Content: psychotherapy based program.	<b>Outcomes:</b> <ul style="list-style-type: none"> <li>- Failed to result in behavioural change for patients with AN.</li> <li>- Resulted in 95% of patients losing weight and 64% of patients being readmitted to inpatient units.</li> <li>- Highlighted the need for day programs to aim for behavioural change.</li> </ul>
		Days per week: three. Hours: 10am until 6pm. Meals: four per day. Length: three weeks. Number of patients: ten.	Focus: behavioural change Criteria: medically stable with a BMI over 16. Content: CBT, meal therapy, nutrition, review and planning, body image, communication and self-esteem.	<b>Outcomes:</b> <ul style="list-style-type: none"> <li>- Nineteen patients engaged in an average of 19.9 days (about seven weeks).</li> <li>- Led to a significant amount of weight gain, and decrease in excessive exercise.</li> <li>- No differences on measures of cognitive change such as the drive for thinness scale (DT) on the EDI-2.</li> </ul> <b>Limitations:</b> <ul style="list-style-type: none"> <li>- Dropout rate of around 20%.</li> <li>- Two patients required readmission to an inpatient unit.</li> </ul>

Treatment Facility	References	Treatment Dosage	Program Content	Outcomes
<b>The Peter Beumont Centre for Eating Disorders (PBCED) (cont.)</b>		Days per week: five. Number of patients: six to eight.	Focus: increased days to support patients with BMI of less than 16. Content: motivation therapy techniques, and similar to the three day per week program described above.	Outcomes: <ul style="list-style-type: none"> <li>- Led to significant reduction in eating disordered cognitions, anxiety, depression and improvements in quality of life measures, interpersonal functioning, and self-esteem.</li> <li>- Maintained at three-month follow up.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>- Sample size was only 44 patients and 32% of patients did not complete the program.</li> <li>- Unclear how attending two programs of different length (five days and then three days per week) impacted the results.</li> </ul>
		Days per week: two. Hours: five hours. Length: 6 months.	Focus/ criteria: patients with chronic eating disorders who have engaged in multiple treatment modalities without success (including inpatient admissions and day programs), with an illness duration of 7 years or more. Focus was not on behavioural change. Content: motivational enhancement therapy.	Outcomes: <ul style="list-style-type: none"> <li>- Not described in the literature.</li> </ul>

Treatment Facility	References	Treatment Dosage	Program Content	Outcomes
<b>Canada</b>  <b>Day Hospital Program (DHP)</b>	Maddocks, Kaplan, Woodside, Langdon & Piran (1992); Olmsted et al., (1994); Olmsted et al., (2003); Piran, Langdon et al., (1989); Piran, Kaplan et al., (1989).	Days per week: five (reduced to four days later on). Hours: eight per day. Meals: three per day. Length: two to four months. Number of patients: 12	Criteria: any eating disorder, previous failed attempts at outpatient treatment, motivation to engage and ability to engage in a group therapy setting. Content: eating based groups (e.g. meal therapy, nutrition) and non-eating based groups (e.g. cognitive-behavioural, psycho education).	Outcomes: <ul style="list-style-type: none"> <li>- Significant increase in weight for patients with AN.</li> <li>- Significant reduction in binge eating and purging for patients with BN.</li> <li>- Improved scores on the Eating Disorders Inventory (EDI), and improved symptoms of depression.</li> <li>- Around 70 -80% of patients with BN were symptom free at a 2 year follow up.</li> <li>- Cost effective compared with inpatient.</li> <li>- The five day per week program was more effective for those who were bingeing and purging.</li> <li>- Relapse rate of 31% for patients with BN at two year follow up. Relapse was associated with younger age, frequent purging, and higher score on the Bulimia subscale on the Eating Attitudes Test at commencement of treatment.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>- The published studies are now dated and a description of how the program has changed in the last decade is needed as well as a review of clinical outcomes.</li> </ul>

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>England STEPS Eating Disorder Unit</b>	Jones et al., (2007).	Days per week: four and a half days. Meals: one meal and one snack. Length: 12 weeks. Number of patients: eight.	Focus: nutritional rehabilitation. Criteria: a diagnosis of an eating disorder and being able to maintain a meal plan. Content: CBT focus, interpersonal interventions and creative and movement groups. Individual support also provided.	Outcomes: <ul style="list-style-type: none"> <li>- Significant improvements in BMI, eating disordered cognitions, mood and self-esteem.</li> <li>- Only 59% completed the program.</li> <li>- Motivation scores were higher in those who completed than those who did not complete.</li> <li>- Longer attendance led to higher BMI and lower depression scores.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>- Mean BMI only increased by 1.56 points after 12 weeks resulting in patients with AN remaining underweight.</li> </ul>
<b>The Oxford Adult Eating Disorders Service (OAEDS)</b>	Peake, Limbert, & Whitehead (2005).	Days per week: four Meals: two meals and two snacks per day. Length: up to nine months in three month blocks. Number of patients: eight.	Focus: normalisation of weight, reduced eating disordered behaviour and over evaluation of weight and shape. Content: CBT based, group sessions with one individual session per week and family sessions.	Outcomes: <ul style="list-style-type: none"> <li>- Two thirds of patients completed the program.</li> <li>- Significant improvements in BMI, EDI-2 scores, depression and anxiety scores.</li> <li>- Reduced binges and compensatory behaviours such as purging, laxative use, and excessive exercise.</li> <li>- Over the 8 year period, 17.3% of patients were re-referred to the service.</li> </ul> Limitations <ul style="list-style-type: none"> <li>- Around 44% of the patients with AN still met criteria for AN after attending the program (BMI of less than 17.5).</li> </ul>



<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>England (cont.) Leicester Eating Disorder Service (LEDS)</b>	Birchall, Palmer, Waine, Gadsby, & Gatward (2002).	Days per week: five Meals: two per day Number of patients: ten	Focus: step up from individual outpatient therapy and as a step down from inpatient treatment. Cost effective solution compared to long inpatient stays for patients with severe AN.	Outcomes: - Preliminary results suggest that it is more cost effective than long inpatient stays and may help to reduce readmission rates. Limitations: - Minimal information is available regarding the effectiveness of this program.
<b>Germany Day Clinic Programme (DCP)</b>	Zeeck et al., (2004).	Days per week: five Hours: 8am to 4pm. Meals: two meals and two snacks per day. Length: three months. Number of patients: twelve.	Focus: reduction in symptoms and treating underlying conflicts or personality problems. Criteria: excluded if suicide risk, psychosis, substance abuse, BMI less than 14.5 or if too far to commute. Content: based on a psychodynamic approach with educational and cognitive behavioural components.	Outcomes: - Reduction in bingeing and purging and eating disordered cognitions in patients with BN. - Inpatient resulted in better outcomes with 72% in remission compared with only 50% of day program patients in remission at discharge. - At follow up 50% of day program patients remained in remission. Limitations: - Small sample of 14 patients at follow up. - The recommended first line treatment for BN is self-help or individual therapy using CBT - E (NICE; 2004), therefore comparison of day program and individual therapy for BN would be beneficial.

Treatment Facility	References	Treatment Dosage	Program Content	Outcomes
<p><b>Germany (cont.)</b></p> <p><b>The Centre for Eating Disorders (TCE)</b></p>	Gerlinghoff, et al., (1998).	<p>Days per week: seven.</p> <p>Hours: 8am until 4:30pm.</p> <p>Length: three months.</p> <p>Average was 13 weeks.</p> <p>Number of patients: 24.</p>	<p>Focus: self-management, with trust and cooperation encouraged between patients and staff.</p> <p>Criteria: all eating disorder patients, excluded if suicide risk, substance dependence, or psychotic symptoms.</p> <p>Content: meal therapy, therapy groups including body image, psychotherapy, and family sessions.</p>	<p>Outcomes:</p> <ul style="list-style-type: none"> <li>- Significant weight gain for patients with AN.</li> <li>- Reduction in the number of binges for patients with BN.</li> <li>- Patients with AN showed less improvement with being preoccupied with nutrition and body shape when compared to patients with BN and EDNOS.</li> <li>- Follow up at an average of 17.2 months (ranged from 6-33 months) found only one patient continued to meet criteria for AN while two met criteria for BN.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>- Follow-up group may represent a subset of patients who were more motivated to return to the service or had not relapsed.</li> <li>- Day program is one of four phases (outpatient motivational enhancement, day hospital program, outpatient treatment, and self-help), and it is unclear to which degree the outcomes are due to this component as opposed to the other components.</li> </ul>

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>Italy</b> <b>Day Hospital Programme – The Eating Disorders Centre</b>	Abbate-Daga et al., (2009).	Days per week: five Hours: seven hours per day Meals: two meals per day Length: 24-26 weeks Number of patients: ten.	Focus: weight gain, reduction in eating disordered behaviours, and improving interpersonal functioning. Criteria: DSM diagnosis of AN or BN, medically stable, BMI above 13.5, motivated and be able to participate in a group setting. Content: bio-psycho-social framework with psychodynamic orientation, meal therapy, cognitive behaviour techniques, group, individual and family sessions.	Outcomes: - Described as being similar to other adult programs. Limitations: - Has not published data on outcomes.
<b>Netherlands</b> <b>Amarum</b>	Lammers et al., (2007).	Days per week: five. Hours: seven per day. Meals: two per day.	Focus: cognitive behavioural therapy model. Content: CBT and family or couple therapy.	Outcomes: - Described as being similar to other adult programs. Limitations: - Has not published data on outcomes.

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>South Korea</b>  <b>Day Treatment Program (DTP)</b>	Kong (2005).	Days per week: four. Hours: 8 hours per day.	Content: CBT framework and included some family sessions.	Outcomes: <ul style="list-style-type: none"> <li>- RCT comparing an outpatient day program with a control group who received individual interpersonal psychotherapy (IPT), CBT and pharmacotherapy.</li> <li>- Significant reduction in bingeing and purging, increase in weight, better scores on the EDI -2 and improved depression and self-esteem scores in day program compared with the control group.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>- The sample size was relatively small for a RCT (21 participants in the day program and 22 participants in the control group).</li> </ul>
<b>United States of America</b>  <b>Eating Disorder Program (EDP)</b>	Levitt & Sansone (2003).	Days per week: five. Length: four to five weeks. Number of patients: 20.	Focus: normalisation of eating, identify factors perpetuating the eating disorder, and develop self regulation. Criteria: DSM diagnosis of an eating disorder. Content: CBT based, group format, some family sessions, body image, social skills, art therapy, interpersonal functioning.	Outcomes: <ul style="list-style-type: none"> <li>- Described as being similar to other adult programs.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>- Has not published data on outcomes.</li> </ul>

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>United States of America (cont.)</b>  <b>Our Lady of the Lake Eating Disorder Program (OLOL)</b>	Stewart & Williamson, (2004a); Williamson et al., (2001).	Days per week: five Hours: 9:30am until 6:30pm. Meals: two meals per day. Length: average is 50 days. Number of patients: five to 13.	Focus: weight gain aiming for 1-3 pound gain per week. Criteria: inclusion criteria were repeated failure of other outpatient treatments, weight loss, and body weight of 5-15% below what is expected. Content: CBT, group therapy and some individual and family sessions, as well as a support group for parents and carers.	Outcomes: <ul style="list-style-type: none"> <li>- As effective as inpatient treatment for cost and outcome at completion and one year follow up.</li> <li>- Recovery rates around 63%.</li> <li>- Reduced eating disorder cognitions and weight gain in AN patients.</li> <li>- Shorter duration of illness and older age of onset led to better treatment outcomes.</li> <li>- Higher levels of depression and eating disordered cognitions were found in those with a longer duration of illness.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>- Outcomes measures (e.g. Multifactorial Assessment of Eating Disorder Symptoms) are not commonly used, which creates difficulties when comparing with other studies.</li> </ul>

*Note.* Studies are organised by country.

**Summary of the outcome data for adult day programs.** As shown in Table 2.1, eating disorder day programs include some commonalities between programs, including the use of a cognitive behavioural framework, and a group-based format with some additional individual therapy. Common treatment goals include normalisation of eating disordered behaviour, nutritional rehabilitation, weight gain, identification of maintaining factors, reduction of over evaluation of weight and shape, and improvement in social interaction and self-esteem. Most programs provide pharmacotherapy and are staffed by a multidisciplinary team. There are also a number of differences between programs, with a variable duration of treatment ranging from three to 39 weeks, group sizes ranging from five to 20 patients, and follow-up support ranging from no follow-up to individual or group sessions on a weekly or monthly basis. Most day programs include patients with AN, while a few programs include patients with BN and EDNOS (Abbate-Daga et al., 2009; Thornton et al., 2009; Zipfel et al., 2002).

Research over the past two decades has shown that day programs are as effective for weight gain in adults as inpatient stays (Stewart & Williamson, 2004a; Williamson et al., 2001) while being more cost-effective, and day programs can lead to reduced readmission rates to inpatient units (Birchall et al., 2002). Day programs have also been shown to lead to significant weight gain for patients with AN, and to reduce bingeing and compensatory behaviours such as purging, laxative misuse, and excessive exercise in both patients with BN and AN (Gerlinghoff, et al., 1998; Kong, 2005; Maddocks et al., 1992; Peake et al., 2005; Piran, Langdon et al., 1989; Thornton et al., 2002; Willinge et al., 2010; Zeeck et al., 2004). Research concerning the effectiveness of day programs for reducing eating disordered cognitions is mixed, with some studies showing a reduction (Kong, 2005; Willinge et al., 2010), while

others have found no change in eating disordered cognitions (Thornton et al., 2002), which, as stated previously, may be due to insufficient duration of treatment. Day program participation has also led to improvements in other areas for adult patients, including lower scores on measures of anxiety and depression, and higher scores on self esteem and quality of life measures (Kong, 2005; Maddocks et al., 1992; Piran, Langdon et al., 1989; Olmsted et al., 1994; Willinge et al., 2010).

There are a number of factors that have been found to predict the effectiveness of, and drop-out rates associated with, day programs. In terms of treatment outcome, adult patients with a shorter duration of illness and older age of onset were more likely to have better outcomes at the end of day program treatment (Williamson et al., 2001). Howard, Evans, Quintero-Howard, Bowers and Anderson (1999) also found that illness duration was related to outcomes. They looked at predictors of successful transition from inpatient treatment to day program treatment for patients with AN. They found increased risk of day program failure and inpatient readmission in patients with a longer illness duration (worse for those with an illness duration of six years or more), amenorrhoea (increased risk for those who had amenorrhoea for more than 2.5 years), a BMI under 16.5 at inpatient admission, and a BMI under 19 at day program admission. Other evidence also suggests that those adult patients who start a day program with a lower BMI (in this case, a BMI under 16) are less likely to do well in day program treatment (Zipfel et al., 2000).

Results on the predictors of drop-out from day programs are based primarily on adult patients. One study found that drop-out was related to low starting weight and levels of motivation to change eating disordered behaviours (Jones et al., 2007). Piran, et al., (1989) found that the factors which increased the drop-out rate in their day program were patients being directly referred from an inpatient admission (rather

than referral from an outpatient source) and higher social anxiety. Other studies have found that drop-out from a day program was associated with patients who had more severe bulimia symptoms, personality characteristics indicating deficits in inhibition, and displaying high levels of aggression and extraversion (Franzen, Backmund, & Gerlinghoff, 2004). However, other research in adult day programs has found no significant difference in the level of eating disorder symptoms, depression, self esteem or BMI at commencement of the day program, for those adults who completed treatment compared with those who dropped out (Jones et al., 2007). Thus, further clarification regarding the factors that predict treatment outcome and drop-out in the day program setting is needed.

**Limitations of research on adult day programs.** In addition to limited and conflicting research regarding the predictors of outcome and drop-out, research examining adult day programs for eating disorder patients is limited in terms of investigating the effectiveness of day programs relative to other types of treatment. Specifically, while studies indicate that day programs are a cost- and time-effective treatment compared to inpatient admissions (Birchall et al., 2002; Stewart & Williamson, 2004a), there is limited data comparing day programs with other forms of treatment (e.g., FBT). A small randomised controlled trial (RCT) was completed, comparing day program attendance with individual therapy which included interpersonal psychotherapy (IPT), CBT, and pharmacotherapy (Kong, 2005). Although the results of this RCT were promising for day programs, the sample size was very small (N = 43, 21 patients in day program respectively and 22 in the individual therapy group), and it requires replication on a larger scale. Thus investigating the relative effectiveness of day programs to other evidence-based treatments for eating disorders is a high research priority.



Another limitation in the research relates to the finding that day programs are comparable to inpatient programs in terms of effectiveness, despite the less intensive nature of the former relative to the latter (Birchall et al., 2002; Stewart & Williamson, 2004a; Williamson et al., 2001). However, in some studies this may be an artefact of the differences between patients attending day programs versus inpatient programs, with greater illness severity or lower motivation to change among the latter. For example, patients in outpatient programs, such as day programs, are reported to have higher levels of motivation to engage which may be one reason why day programs achieve the same outcomes as inpatient programs even though the former are less intensive (Crisp et al., 1991). It is also important to note that severity of illness is often not controlled for when comparing inpatient and day programs, which leads to difficulties when making comparisons between the two treatments. Inpatient admission can also involve involuntary patients (Hay et al., 2014; Matussek, & O'Dougherty Wright, 2010), which would also bias outcomes for inpatient admissions.

A final noteworthy limitation to date is the fact that most research on day programs has focused on providing descriptions of these programs, with no clear understanding as to what are the effective elements of treatment that led to behavioural and cognitive change. Given the experience of Thornton et al., (2002), where a psychodynamic approach resulted in 95% of patients losing weight, it could be assumed that an effective ingredient of day programs should be sessions that focus on behavioural change, such as weight gain and meal therapy. However, the other factors that comprise a successful day program need further investigation in dismantling studies. The current wide variety between different programs makes it difficult to compare day programs and to establish what are the most effective

elements of day programs for patients with eating disorders (Lammers et al., 2007). As such, research is needed that evaluates the effectiveness of different types of day programs. For instance, treatment dose in day programs, including hours and meals per day, number of days per week and treatment length, needs to be evaluated. An Australian day program had patients attend a five-day per week program and then step down to a three-day per week program. However, the results of these two day programs were combined, making it difficult to determine what gains were made in treatment based on varying treatment dose (Willinge et al., 2010). This appears to be a common problem in the research, with some programs not specifying which component of treatment (e.g., day program, inpatient combined with day program, individual therapy) is being measured.

### **A Review of Adolescent Eating Disorder Day Programs**

The aforementioned limitations of the research on adult day programs are further compounded in the context of adolescents with eating disorders given that past research has tended to focus on the treatment of adults in day programs. More recently, however, there have been an increasing number of adolescent day programs worldwide reported in the literature, and the results of these are beginning to be published. For example, there are currently a total of six-day programs for adolescents with eating disorders across Canada, although they have not all published their outcome data (Norris et al., 2013). Table 2.2 provides a description and evaluation of published research on adolescent day programs.

Table 2.2

*Overview of Published Day Patient Programs for Adolescents with Eating Disorders*

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>Australia</b>  <b>The Sydney Children's Hospital</b>	Goldstein et al., (2011).	Days per week: three and a half days. Meals: two meals and two snacks per day. Length: 10 week cycles	Criteria: adolescents with AN and EDNOS Content: CBT, motivational enhancement, distress tolerance, nutrition, meal therapy, art therapy and relapse prevention. It also included parent groups for a total of 4 hours per week and sibling sessions.	<p>Outcomes:</p> <ul style="list-style-type: none"> <li>- High completion rate of 92.9%.</li> <li>- Significant weight gain at end of treatment, and at a six month follow up.</li> <li>- At completion 58% of patients maintained their weight at or above the 85% of EBW.</li> <li>- Significant improvements between pre- and post-treatment on the EDI scales of drive for thinness and perfectionism.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>- Small sample size at follow up (17 patients).</li> <li>- Ten patients were admitted as inpatients while attending the day program.</li> </ul> <p>Patients had relatively short duration of illness (average of about one year) prior to day program treatment.</p>

Treatment Facility	References	Treatment Dosage	Program Content	Outcomes
<b>Australia (cont.)</b>  <b>The Southern Health Butterfly Eating Disorders Day Program</b>	Stevens, (2010).	Program content and duration not stated.	Focus: established in 2007 to provide an alternative to inpatient admissions for young people Criteria: aged 12 to 25 years old. Content: not stated.	<b>Outcomes:</b> <ul style="list-style-type: none"> <li>- Preliminary results presented at a conference.</li> <li>- Improvement in eating disorder symptoms and reduced rates of relapse and inpatient re-admissions.</li> <li>- Cost effective compared with inpatient admissions.</li> <li>- Some patients chose not to attend due to the required time away from school or work.</li> </ul> <b>Limitations:</b> <ul style="list-style-type: none"> <li>- Data on outcomes has not been published.</li> </ul> It is unclear whether the reduced rates of relapse are being compared with inpatient treatment or individual outpatient treatment.

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>Canada</b>  <b>The Eating Disorder Day Treatment Program (EDDTP)</b>	Henderson et al., (2014).	Days per week: five. Hours: 8am until 6pm. Length: 12-14 weeks. Number of patients: eight.	Focus: step down program for those discharged from the inpatient program. Content: Maudsley FBT “informed” approach and includes group therapy sessions, nutritional support, meal therapy and parent sessions.	Outcomes: - At discharge and 6 month follow up patients achieved medical stability (86.9% had a BMI over 19), reduction in eating disordered symptomology. Limitations: BMI is not an effective measure of medical stability, particularly in adolescents.
<b>The Eating Disorders Day Hospital program (EDDH)</b>	Grewel, Jasper, Steinegger, Yu, & Boachie (2014).	Days per week: five. Length: individualised to suit each patient. Discharged when goal weight is achieved. Number of patients: eight.	Criteria: medically stable, weight over 80% of EBW, aged 13 to 18 years Content: based on an adapted Family Based Therapy (FBT) approach and requires parents to attend sessions as well as be responsible for their child’s intake and eating disorder symptoms on weekends.	Outcomes: - Those who were taking antidepressant medication and did not purge were more likely to complete the day program. - Drop out rate was 42%. - Start weight did not predict program completion. - Those who took longer to reach 100% of goal weight or exercised excessively stayed longer. Limitations: - All starting weights were high compared with other programs (over 80% of EBW). - Limited detail on outcomes.

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>Canada (cont.) Children's Hospital</b>	Ngo & Isserlin, (2014).	Days per week: four. Hours: 8am until 4pm. Meals: two meals and two snacks per day. Length: based on individual need with an average of 65 days. Number of patients: eight.	Focus: normalisation of eating and improved body image. Criteria: includes inpatients and outpatients aged 13 to 17 years. Content: based on a bio-psycho-social framework with group sessions and individual sessions with family members.	Outcomes: - No significant difference in demographic variables between completers and drop-outs. - Percentage of EBW at admission did not predict successful outcome. Limitations: - Around 71% of patients failed to reach EBW. This may be due to current sample including more unwell patients who have failed or refused other treatment programs (e.g. FBT). - Data was collected over 10 years.
<b>Day program</b>	Girz, Robinson, Foroughe, Jasper, & Boachie (2013).	Days per week: five. Meals: three meals and most snacks per day. Length: average of 149 days.	Focus: Step up from outpatient. Criteria: Aged between 13 to 18 years. Content: included group therapy with FBT sessions and also included weekly multi-family therapy sessions.	Outcomes: - Mean illness duration was 2.5 years. - After 6 months of treatment all patients had achieved 99 to 100% of EBW. - Eating disordered symptoms, depression and anxiety scores significantly reduced. - Parents' self-efficacy increased. Limitations: - Not all patients were underweight at the commencement of the program. - The sample size was only 17 patients.

Treatment Facility	References	Treatment Dosage	Program Content	Outcomes
Spain  The Day Hospital	Lazaro et al., (2011).	Days per week: five. Hours: 2pm til 8:30pm Meals: two meals and one snack per day. Length: two months.	Focus: weight gain and changing disordered eating behaviours. Criteria: adolescents aged 13 to 18 years with AN or BN. Content: meal therapy, nutritional counselling, self-esteem and social skills groups, as well as family meetings.	<p>Outcomes:</p> <ul style="list-style-type: none"> <li>- Improved self-perceptions of body appearance.</li> <li>- Increased social contact.</li> <li>- Improved levels of body satisfaction.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>- The aim of the program was weight gain, however most patients were in the healthy weight range and the program produced only a one point BMI increase in the AN group.</li> <li>- Further data around the effectiveness of the program to change eating disordered cognitions and behaviours needs to be completed.</li> <li>- While the improvements in self esteem and social skills are positive, they could be taught in a group setting rather than a day program which may be less onerous on patients and more cost effective.</li> </ul>

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>United States of America</b>  <b>Our Lady Of the Lake</b>	Stewart & Williamson, (2004a).	Days per week: five Hours: 9:30am until 5:30 or 6:30pm Meals: two meals per day Length: average is 50 days Number of patients: five to 13	Focus: weight gain. Criteria: ages ranging from 10 to 60 years, weight between 85 and 92% of EBW. Content: CBT, group therapy, individual and family sessions, as well as a support group for parents and carers.	Outcomes/limitations: - Research relating directly to the adolescent population has not been described.
<b>University of Michigan Comprehensive Eating Disorders Program (U-M CEDP)</b>	Hoste, (2015).	Intensive outpatient program Days per week: three days. Hours: three hours per day. Meals: two meals and one snack per day	Criteria: aged 8-17 years or 18 to 24 years Content: FBT based Includes meal support, group therapy, family meetings and individual therapy.	Outcomes: - Mean length of stay in the outpatient program was 11.5 days (range of 4-22 days). - Significant increase in % of EBW from 82.1 to 93.1. - Significant improvement in eating disordered behaviours. - Improvement in mood for older patients. Limitations: - Small sample size which did not include all patients (preliminary results).



Treatment Facility	References	Treatment Dosage	Program Content	Outcomes
<p><b>United States of America (cont.)</b></p> <p><b>The Day Treatment Program (DTP)</b></p>	Dancyger, et al., (2003).	<p>Days per week: five.</p> <p>Hours: 9am to 5pm.</p> <p>Length: open ended, average length of stay was 15 weeks.</p>	<p>Criteria: any eating disorder and weight at or above 85% EBW.</p> <p>Focus: awareness and change of eating disordered pathology. Used to prevent hospitalisation or as a step down from hospital admissions.</p> <p>Content: supportive behavioural framework with a multidisciplinary approach. Included group, individual and family therapy with life skills programs, medical, psychiatric and nutritional support.</p>	<p>Outcomes:</p> <ul style="list-style-type: none"> <li>- Included adolescent and young adult sample and despite the adult group having a longer duration of illness, there was no significant difference between the two groups at completion of the program.</li> <li>- Those who stayed longer in the program reported higher levels of depression and eating disordered cognitions at commencement.</li> <li>- Past duration of illness was negatively correlated with maturity fears.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>- Only 49% of patients achieved the goals of the program and 13% required admission to the inpatient unit.</li> </ul>

<b>Treatment Facility</b>	<b>References</b>	<b>Treatment Dosage</b>	<b>Program Content</b>	<b>Outcomes</b>
<b>United States of America (cont.)</b>  <b>Child Partial Hospitalization Program for Eating Disorders (USA)</b>	Ornstein, Lane-Loney, & Hollenbeak (2012).	Days per week: five. Hours: six to eight per day. Length: average of 10.3 weeks.	Criteria: an eating disorder which is impacting on functioning and medical health, aged 8 to 16 years. Focus: family-based approach to treatment and behavioural modification. Content: group based with at least one individual and family sessions. Attendance is reduced as patient gains weight and is transitioned back to school.	Outcomes: <ul style="list-style-type: none"> <li>- Patients were younger than most programs with a mean age of 12 years.</li> <li>- Significant increase in weight, improvement in eating cognitions, mood and anxiety.</li> <li>- Longer length of treatment predicted weight gain but not improvements in psychological assessment measures.</li> <li>- Medication use, demographic variables, prior length of illness and initial % of EBW did not predict outcomes.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>- High rate of non completers (46%) which were excluded from data analysis.</li> <li>- Includes an outpatient program of three days per week for three hours per day, however no distinction around the outcomes for each program.</li> </ul>

*Note.* Studies are organised by country.

**Summary of the outcome data for adolescent day programs.** As shown in Table 2.2, from the few adolescent day programs that have been published, it appears that they range from three days per week to five days per week, with the majority being five days per week. All programs provide meal therapy and group therapy, either based on CBT or FBT frameworks. Program duration ranges from a minimum of six weeks to as long as is required by the patient (Girz et al., 2013; Goldstein et al, 2011; Grewel et al., 2014; Henderson et al., 2014; Herpertz-Dahlmann et al., 2014; Hoste, 2015; Lazaro et al., 2011; Ngo & Isserlin, 2014; Stevens, 2010; Stewart & Williamson, 2004a). They are also used as a step up from outpatient treatment, or as a step down from inpatient treatment, and have been found to be as effective as inpatient admissions (Herpertz-Dahlmann et al., 2014). Although all programs include weight gain as a treatment aim, they also include patients with both BN and AN (Girz et al., 2013; Goldstein et al, 2011; Grewel et al., 2014; Henderson et al., 2014; Herpertz-Dahlmann et al., 2014; Hoste, 2015; Lazaro et al., 2011; Ngo & Isserlin, 2014; Stevens, 2010; Stewart & Williamson, 2004a).

The emerging research on adolescent day programs suggests that they are generally effective for weight gain (deGraft et al., 2013; Girz et al., 2013; Henderson et al., 2014; Herpertz-Dahlmann et al., 2014; Hoste, 2015) and that this weight gain is maintained at six-month follow-up (Goldstein et al., 2011). One exception was a program where the majority of patients failed to gain weight (Ngo & Isserlin, 2014). Adolescent day programs have also been found to lead to a significant reduction in eating disordered cognitions and improvements in body image perceptions (Girz et al., 2013; Goldstein et al., 2011; Henderson et al., 2014; Lazaro et al., 2011). In addition, day programs have been shown to result in a reduction in anxiety and depression scores (Girz et al., 2013; Lazaro et al.,

2011), and are cost-effective compared with inpatient admissions (Ngo & Isserlin, 2014; Stevens, 2010).

**Limitations of research on adolescent day programs.** Research focusing on day programs for adolescents with eating disorders encounters the same difficulties as the adult population. Given that adolescent day programs are an emerging area in the literature, the problems are intensified by a lack of research.

Among the limitations is a lack of research pertaining to the optimum number of hours per day, days per week or length of time that a patient should attend a day program. In addition, most of the current studies only describe a small number of patients, which makes it difficult to generalise the outcomes and further replication is required.

Akin to the adult research, there is a lack of research that compares day programs to alternative treatments, or that compares different types of day programs. Adult day programs generally use a CBT framework for group sessions. In contrast, day programs for adolescents are either CBT-based with parental information sessions or follow an FBT-based model with parents required to re-feed the adolescent at home. Yet, no comparisons of these various approaches to family involvement have been undertaken. As such, it is unclear in adolescent day programs what components facilitate changes in weight and eating disordered cognitions. It may be that parental involvement is the effective ingredient (e.g., the core components of FBT are producing change) and not the day program attendance. For example, Girz et al. (2013) found that the day program led to increased parental efficacy, however parental efficacy has also been shown to be a predictive factor in a patient's recovery from AN in FBT treatment (Robinson, Strahan, Girz, Wilson, & Boachie, 2012). Therefore, day

program treatment for adolescents may actually be measuring parental capacity to support the adolescent rather than the actual content of the day program.

Also similar to the adult literature is the fact that little is known about the predictors of day treatment outcome and drop-out in adolescent populations. This is a noteworthy limitation because, despite overall promising results obtained from day programs for adolescents with eating disorders, research also suggests that day programs are not effective for all patients. The results suggest that at most 87% (Henderson et al., 2014) of patients are able to return to a healthy weight and cease eating disordered behaviours, but at times as few as 29% of patients are weight restored at the end of day program treatment (Grewal et al., 2014). Moreover, treatment drop-out is a problem for day programs (as with other forms of treatment for eating disorders), with studies reporting drop-out rates from adolescent day programs as high as 42% (Grewal et al., 2014). As such, identifying the predictors of outcome and treatment retention for adolescents with eating disorders participating in day programs is needed.

Preliminary results on the predictors of outcome suggest that, contrary to the adult data, start percentage of EBW or BMI does not impact on clinical outcomes (Dancyger et al., 2003; Goldstein et al., 2011; Ngo & Isserlin, 2014; Ornstein et al., 2012). Starting weight in the adolescent age group may not be a predictor of outcome because adolescent day programs require a higher starting weight to be accepted into the program, and hence these studies cover a restricted range in body weight. For example, the day program reported by Dancyger et al., (2003) only accepted patients with a weight above 85% of EBW, whereas some adult day programs accept severely underweight patients with a BMI as low as 13.5 (Abbate- Daga et al., 2009). Few studies in the adolescent age group have examined how factors other than starting weight or BMI impact on day program

outcomes. Only Ornstein et al. (2012) looked at prior length of illness and found that it was not predictive of the effectiveness of day program treatment, which is again inconsistent with the findings on adult patients. Prior length of illness may not be a predictor of outcome in the adolescent age group because, for most adolescents, the onset of the illness is relatively recent, thus again resulting in a restricted range. For example, Ornstein et al., (2012) day program included adolescents with a mean age of 12 and their prior length of illness was a mean of 12 months, compared with an adult day program where the mean length of illness was six years (Willinge et al., 2010).

In addition to insufficient information on the predictors of outcome, research on predictors of drop-out is limited in the adolescent day program population. Indeed, only one study to date has investigated adolescent drop-out, and found that antidepressant medication use and lower levels of purging behaviours were associated with adolescent patients being more likely to complete their day program (Grewal et al., 2014). While not specifically reviewing predictors of drop-out, one study did note that there was no difference in demographic variables between those adolescents who dropped out of day program treatment compared with those who completed the program (Ngo & Isserlin, 2014).

A final limitation in the adolescent day program research pertains to inadequate outcome measures, specifically, assessing whether day programs are effective in bringing about a return of menses. Failure to review return of menses at day program completion may be due to the short duration of some day programs. Limited research suggests that return of menses occurs in 47 to 65% of patients after day program attendance (Dempfle et al., 2013; Grewal et al., 2014; Herpertz-Dahlmann et al., 2014), and that menstruation was related to a higher %

of EBW at 12 month follow up (Dempfle et al., 2013). Given that return of menses is a sign of return to set weight, reversal of bone loss, and resumption of growth in adolescents (Dempfle et al., 2013; Le Grange, Doyle et al., 2012), it is therefore important to consider if adolescent day programs are achieving this important outcome at discharge and at follow up.

### **Summary**

Treatment for AN traditionally required inpatient treatment, however an increase in research has shown that day programs for adults with AN are as effective as costly, long inpatient stays (Birchall et al., 2002; Crisp et al., 1991; Gerlinghoff et al., 1998; Kaplan et al., 1992; Kong, 2005). Research suggests that adult day programs are effective for weight gain, decreasing eating disordered cognitions and behaviours (Gerlinghoff et al., 1998; Kong, 2005; Piran et al., 1989; Zeeck et al., 2004; Willinge et al., 2010), and can lead to improvements in general psychological and social functioning (Levitt & Sansone, 2003; Peake et al., 2005; Willinge et al., 2010). However, there are few studies reviewing longer-term follow up and predictors of outcome and premature treatment termination.

Adolescent day programs for AN are an emerging area, with the limited research conducted to date suggesting that adolescent day programs are as effective as inpatient admissions (Herpertz-Dahlmann et al., 2014), with significant weight gain, a reduction in eating disordered symptomatology (Girz et al., 2013; Goldstein et al., 2011; Henderson et al., 2014; Ornstein et al., 2012), and improvements in general psychological functioning (Henderson et al., 2014; Lazaro et al., 2011; Ornstein et al., 2012). Since the studies are few in number and may have small sample sizes, further research is needed to examine if day program attendance leads to positive outcomes for most AN patients, including weight restoration, return of menses, and reduced eating disordered cognitions and

behaviours. In addition, investigation of whether factors such as weight, eating disordered cognitions and behaviours, prior length of illness, and previous treatment impact on treatment outcome and drop-out are also needed in order to target day program participation to those adolescents where it will be most effective and improve the retention of those at risk of dropping out.



### Chapter 3

#### **Study 1: The Effectiveness and Predictors of Outcome and Drop-out of a Day Program in Adolescents with Anorexia Nervosa**

Anorexia nervosa (AN) is a serious mental illness, which is highly debilitating in terms of its impact on psychological, social, and medical functioning (Gowers et al., 2010; Vitiello & Lederhendler, 2000). Traditional treatment for AN required inpatient treatment, which was often of lengthy duration and costly both to the patient and the health system (Zipfel et al., 2002). Over the last few decades there has been a shift from treating patients with AN in inpatient settings towards outpatient and day patient treatments. Regarding the latter, there has been a marked increase in the number of day programs offered for patients with eating disorders over the past two decades and the outcomes of these programs suggest that they are beneficial in the treatment of adults with eating disorders (Abbate-Daga et al., 2009; Thornton et al., 2009).

Previously there was a lack of research focusing on adolescent day programs for eating disorders (Thornton et al., 2002). However, over the last few years there have been an increasing number of adolescent day programs published in the literature. Preliminary outcome data is similar to that reported in adult populations, with adolescent day programs found to be as effective as inpatient admissions (Herpertz-Dahlmann et al., 2014). Adolescent day programs have been found to produce significant weight gain and a reduction in eating disordered symptomatology (Girz et al., 2013; Goldstein et al., 2011; Henderson et al., 2014; Hoste, 2015; Ornstein et al., 2012). Day programs also support improvements in areas of general psychological functioning such as decreases in comorbid depression and anxiety, and improved self-esteem (Henderson et al., 2014; Lazaro et al., 2011; Ornstein et al., 2012). As with adult day programs, there are a limited

number of follow-up studies for adolescent day programs. However, these initial findings suggest that weight gain is maintained or continued six to 12 months after day program completion (Herpertz-Dahlmann et al., 2014; Girz et al., 2013; Goldstein et al., 2011). A further limitation of the research to date is its inattention to menstrual status. Only a few previous studies have assessed menstrual status and found that approximately 47-65% of patients menstruated after day program treatment (Dempfle et al., 2013; Grewal et al., 2014). As such, research is needed to determine whether adolescent day programs can effectively restore menstruation in those patients who commenced the program with amenorrhoea, in addition to weight restoration, a reduction in eating disorder cognitions and behaviours, and improvement in general psychosocial functioning.

Despite the generally positive results, adolescent day programs have not been found to benefit all (or even most) patients in terms of a full remission, with 13 to 71% of patients continuing to meet criteria for an eating disorder at discharge (Grewal et al., 2014; Henderson et al., 2014; Ngo & Isserlin, 2014). Thus a high research priority is identifying the factors that predict outcome, with a view to assisting treatment selection and modifying day programs to best suit patients' needs. However, there is limited research investigating predictors of outcome in the adolescent group, particularly why some programs fail to produce weight restoration. From the few studies that have examined predictors of outcome in adolescent day programs, results suggest that at least some of the factors that influence outcome are contrary to those found in adult day programs. For instance, percentage of expected body weight (EBW) or body mass index (BMI) at commencement of an adolescent day program does not appear to impact outcomes (Dancyger et al., 2003; Goldstein et al., 2011; Ngo & Isserlin, 2014; Ornstein et al., 2012), which is contrary to the finding in adults which suggests

those adult patients who start a day program with a lower BMI are less likely to do well in day program treatment (Howard et al., 1999; Zipfel et al., 2000). These findings may be related to the relatively recent onset of the illness in adolescents, however further replication is needed.

Ngo and Isserlin (2014) suggest that their day program was not successful in terms of weight gain due to previous failed attempts at treatment and patients presenting with severe eating disorders. Since few studies have reviewed the impact of prior treatment, length of illness or illness severity at commencement of an adolescent day program on outcome, the role of these factors remains unclear. Ornstein et al. (2012) found that duration of illness did not predict outcome, although this may have been due to the young age of patients in their study (8 to 16 years). In terms of illness severity, Dancyger et al., (2003) reported that higher levels of eating disordered cognitions at commencement of day program treatment were related to remaining in the day program for longer. In summary, it is important to review if factors such as EBW, eating disordered cognitions and behaviours, prior length of illness, and previous treatment impact on treatment outcome in order to target day program participation to those adolescents where it will be most effective.

As well as needing further clarification regarding the predictors of outcome, research is also required to understand the predictors of drop-out from adolescent day programs. Treatment drop-out is a problem for day programs, with studies reporting drop-out rates from adolescent day programs as high as 42% (Grewal et al., 2014). Yet few studies have examined predictors of program completion in the adolescent population. Initial results suggest that start weight does not predict program completion, while antidepressant medication use and lower levels of purging behaviours may be associated with lower drop-out rates in

the adolescent population (Grewal et al., 2014). Clearly, further research is needed to establish which factors predict drop-out from adolescent day programs so that patients at risk of prematurely terminating treatment can be targeted.

### **Aims and Hypotheses of the Present Study**

While there is considerable evidence to support the effectiveness of adult day programs for treating individuals with eating disorders, the use of adolescent day programs to treat eating disorders is an emerging area and further outcome data are needed. Moreover, there is only limited (and conflicting) data regarding the predictors of treatment outcome and drop-out from day programs for adolescents. Thus the current study aims to add to the research on the outcomes and predictors of day program treatment for adolescents with eating disorders.

Based on the positive results of previous research on adolescent day programs, it is hypothesised that day program treatment will result in significant weight gain, return of menses (in females with amenorrhoea), a reduction in eating disordered cognitions and behaviours, and an improvement in general psychosocial functioning. Based on the results of other adolescent day programs it is hypothesised that EBW at commencement of day program and duration of illness will not be predictors of treatment outcome. However, there is limited research in the adolescent day program population addressing the impact of age and eating disordered cognitions on outcome and drop-out, and if % of EBW or prior illness duration predict drop-out rates. Therefore, based on research involving the adult population, it is expected that lower % of EBW at commencement of treatment will predict higher drop-out rates.

## Method

### Participants

Inclusion criteria to participate in the study were: medical stability (as assessed by the patient's General Practitioner based on criteria by Baran, Weltzin & Kaye [1995]), diagnosis of AN (binge/purging subtype or restricting subtype) or Eating Disorder Not Otherwise Specified (EDNOS; if weight or menses criteria were not met for AN) (APA, 2000), adolescent or young adult (still living at home), and willingness to participate. Due to a lack of easily accessible inpatient treatment facilities, BMI was not an inclusion/exclusion criterion. Hence patients with low BMIs were accepted into the day program provided they were medically stable and had been given clearance from a medical professional.

Diagnosis was determined by a clinical interview conducted by experienced clinicians prior to starting the day program to ensure that patients met diagnostic criteria for AN or EDNOS using the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000)*. Patients who met criteria for bulimia nervosa or binge eating disorder were excluded from participating in the study. However, using BMI as a basis for diagnosis in adolescents is limited given research suggesting that BMI in adolescents is not indicative of physical health (Trocki, Theodoros, & Shepherd, 1998). While percentiles are more accurate in this regard, there are differences in the way researchers calculate Ideal Body Weight (IBW) or Expected Body Weight (EBW). Most studies use the criterion of 85% of EBW as the cut-off for the underweight range, although there is a lack of clarity regarding how IBW or EBW is calculated (Le Grange, Doyle et al., 2012; Thomas, Roberto, & Brownell, 2009). The current study utilised percentage of EBW calculated as BMI/50<sup>th</sup> percentile BMI for age, sex, and height x 100 (Faust et al., 2013).

Participants in the present study were 39 patients who were admitted consecutively to the day program over a period of 3.5 years. Drop-out was defined as those patients who disengaged from the day program before an agreed termination (i.e., between the patient, parents, and treating team), regardless of the number of weeks attended.

The study received ethical approval from both the ACT Health and the Australian National University Human Research Ethics Committees (documentation pertaining to ethical clearance is contained in Appendix B).

### **Program Description**

The Canberra Eating Disorders Program (EDP) is a public outpatient eating disorders unit which provides assessment and treatment to patients with any eating disorder in the Australian Capital Territory and surrounding areas of New South Wales. The EDP is staffed by three full-time psychologists and social workers, a manager, part-time consultant psychiatrist, dietitian, and teacher.

The EDP day program was modelled on the three-day per week day program at the Peter Beumont Centre for Eating Disorders (Thornton et al., 2002). It was an open group for patients with AN and subthreshold AN (EDNOS), and included a maximum of six patients at any one time. The program ran three days per week, ranging from 3.5 to 5.5 hours per day (hours were increased on days when tutoring was provided by a school teacher) and with three meals per day being provided. There was no set length of treatment, however the program ran on 10-week terms, which was a practical consideration that enabled the program to coincide with school terms rather than an evidence-based one. Program duration was individualised depending on patient progress, and was reviewed and agreed upon by a multidisciplinary team and also by the patient and parents.

Utilising an Enhanced Cognitive Behavioural Therapy approach (CBT-E; Fairburn, 2008), the program aimed to achieve weight restoration or maintenance (for those who were not underweight), normalisation of eating behaviours and attitudes, cessation of compensatory behaviours, return of menses, and improved psychosocial functioning. Table 3.1 provides a description of the groups provided to patients. Patients were also provided with an hour of individual therapy. Patients' parents were invited to attend the weekly individual sessions with their child; however, additional parental sessions were not provided.

Table 3.1

*Group Sessions Provided at the EDP Day Program*

Name	Content
Meal therapy	Supervision and support at meal times Challenging "feared" foods
Weighing	Weekly weight checks Aim of 500 grams to 1 kilogram per week weight gain
Nutrition	Meal planning Nutrition education and counselling
Review and planning	Behavioural experiments Goal setting
Psychological therapy	CBT-E including psychoeducation, body image, perfectionism, interpersonal effectiveness, mood regulation and self esteem Art therapy
Exercise	Promote balanced exercise
Tutoring	School work

**Measures**

The data collection occurred at the commencement and completion of treatment, and included sex, age, weight, height, % of EBW, duration of illness in

months (as calculated by parental report of the onset of symptoms), diagnosis, amenorrhoea, and number of weeks in the day program. It also included the measures described below.

**Health of the Nation Outcome Scales (HoNOS).** The HoNOS assesses the behaviour, impairment, symptoms, and social functioning of people with a severe mental illness (Wing et al., 1998; Wing, Curtis & Beever, 1996). It was developed to be applicable to adults across a variety of diagnoses and settings. The HoNOS is a clinician-rated outcome measure and consists of 12 items that cover a wide range of health and social domains, such as psychiatric symptoms, physical health, functioning, relationships, and housing. Each item is scored from 0 ('no problems') to 4 ('severe problems'), with a maximum total score of 48 and higher scores indicating greater severity of symptoms and impairment. The HoNOS has been used for patients with eating disorders (Bilenberg, 2003; Stevens, 2010).

A version of the HoNOS has been created for young people known as the Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA [Gowers et al., 1999]). The clinician-rated HoNOSCA is a 15-item measure, with the first 12 items being similar to the HoNOS and used to calculate the total score. The final three items relate to the child's environment including school attendance, and concerns regarding parental lack of information regarding mental illness and access to services (Bilenberg, 2003). Only the first 12 items of the HoNOSCA relating to clinical features were used in the present study to allow for comparison with the HoNOS.

The HoNOS and HoNOSCA have been shown to be easy to administer and have demonstrated good reliability, validity, sensitivity to change (Brann, Coleman, & Luk, 2001; Gowers et al., 1999; Gowers, Levine, Bailey-Rogers,



Shore, & Burhouse, 2002; McClelland, Trimble, Fox, Stevenson & Bell, 2000), and internal consistency (Cronbach's alphas ranging from 0.59 to 0.76 [Oiesvold Bakkejord & Sexton, 2011; Pirkis et al., 2005]). They have also shown good predictive validity relating to patient readmission rates and ongoing levels of contact with the service (Kisely, Campbell, Cartwright, Cox, & Campbell, 2010). The HoNOS and the HoNOSCA are widely used across Australia, New Zealand, Canada, and the United Kingdom (Kisely et al., 2010; Pirkis et al., 2005).

**Eating Disorder Inventory-3 (EDI-3).** The EDI-3 (Garner, 2004) is a standardised self-report measure of eating disorder symptoms and associated psychopathology which can be used from age 13 years to adulthood. It includes 91 items which combine to create 12 subscales, six composite scores, and three response style indicators (inconsistency, infrequency, and negative impression). The subscales include: Drive for Thinness, Bulimia, Body Dissatisfaction, Low Self-Esteem, Personal Alienation, Interpersonal Insecurity, Interpersonal Alienation, Interoceptive Deficits, Emotional Dysregulation, Perfectionism, Asceticism, and Maturity Fears. The composite scores include: the Eating Disorder Risk Composite (made up of the Drive for Thinness, Bulimia, and Body Dissatisfaction subscales), Ineffectiveness, Interpersonal Problems, Affective Problems, Overcontrol, and General Psychological Maladjustment. The EDI-3 provides norms for clinical samples and has been shown to be a reliable and valid measure of eating disordered and associated symptomatology (Clausen, Rosenvinge, Friberg, & Rokkedal, 2011; Cumella, 2006; Mizes, Heffner, Madison, & Varnado-Sullivan, 2004).

### **Procedure**

Prior to commencement of the day program, patients and parents attended an initial assessment, which included a clinical interview and administration of

the outcome measures (copies of consent and information forms are included in Appendix C). The self-report (EDI-3) and clinician-rated (HoNOS or HoNOSCA) outcome measures were re-administered when the patient completed their day program treatment. Not all patients provided complete self-report measures at commencement due to refusal ( $n = 8$ ), and at completion of the day program due to refusal or missing follow-ups ( $n = 20$ ). As such, the results presented do not always include the full sample.

### **Statistical Analysis**

To assess outcome, pre-treatment scores on continuous measures were compared with post-treatment scores using paired  $t$ -tests. Percentage of change from pre- to post-treatment for categorical variables was examined using McNemar's test. Predictors of treatment outcome were examined using regression analysis, while an exploratory analysis (due to small sample size) examined predictors of treatment drop-out using logistic regression analysis. SPSS version 22 was used for all analyses, with the two-tailed significance level set at  $p < .05$ .

## **Results**

### **Characteristics of the Sample**

A total of 39 patients started the day program and, of these, 34 patients continued until an agreed upon discharge. Five female patients dropped out of treatment. Table 3.2 shows the characteristics of the sample of patients at commencement of the day program. At the pre-treatment assessment, 10 patients met *DSM-IV-TR* criteria (APA, 2000) for AN restricting type, three patients met criteria for AN binge/purge subtype, and 26 patients met criteria for EDNOS due to not meeting the weight and/or menses criteria for AN. All patients would meet the *DSM-5* criteria for AN or Atypical AN (APA, 2013). Thirteen patients were underweight (less than 85% of EBW for BMI for age and sex), 22 patients were

between 85% and 99% of EBW for age and sex, and four patients were at 100% of EBW for age and sex (despite having lost weight).

Table 3.2

*Description of the Sample at Commencement of the Day Program*

Characteristic	<i>M</i>	<i>SD</i>
Age	15.7	1.73
% EBW	87.15	9.34
Duration of illness (months)	14.1	8.43
Number of weeks attended	14.36	10.42
Characteristic	<i>n</i>	%
Amenorrhoea	25	67.6
Menstruating	7	18.9
On oral contraceptive	5	13.5
Female	37	94.9
Male	2	5.1
AN -Restricting subtype	10	25.6
AN –Binge/purge subtype	3	7.7
EDNOS	26	66.7

*Note.* EDNOS: Eating Disorder Not Otherwise Specified. EBW: Expected body weight. *N* = 39 (except for Amenorrhoea, Menstruating and On oral contraceptive, where *N* = 37)

### **Treatment Outcome**

There was a significant increase in percentage of EBW from commencement of the day program ( $M = 87.15$ ,  $SD = 9.34$ ) compared with completion of the day program ( $M = 93.03$ ,  $SD = 9.65$ ),  $t(33) = 3.47$ ,  $p = .001$ . The mean increase was 5.88 with a 95% confidence interval ranging from 2.44 to 9.32 and the eta squared statistic (.27) indicated a large effect size. Given that

some patients did not need to gain weight, paired samples *t* tests were also completed with only those who needed to gain weight. Of these 13 patients who were less than 85% of EBW at pre-treatment, eight (61.5%) were at 85% of EBW or more at post-treatment, and this increase was significant, with pre-treatment EBW ( $M = 78.28, SD = 5.40$ ) increasing significantly to post-treatment EBW ( $M = 89.42, SD = 11.81$ ),  $t(13) = 3.90, p = .002$ . The mean increase was 11.13 with a 95% confidence interval ranging from 4.98 to 17.29 and the eta squared statistic (.32) indicated a large effect size. However, four patients (10.3%) lost weight during treatment, with the amount of weight loss ranging from 2.2kgs to 5.95kgs.

For female patients, only 18.9% of patients menstruated at the start of day program. By the completion of the day program, 62.2% of patients were menstruating, and McNemar's Test showed that this change was significant,  $p < .001$ .

There was a significant change in patients HoNOS/CA clinician-rated scores from pre- ( $M = 13.02, SD = 6.88$ ) to post-treatment ( $M = 6.94, SD = 5.58$ ),  $t(33) = 4.45, p < .001$ . The mean decrease was 6.08 with a 95% confidence interval ranging from 3.3 to 8.87 and the eta squared statistic (.38) indicated a large effect size. However, three patients (7.7%) experienced an increase in the HoNOS/CA scores, indicating that the clinician perceived the patient's severity to have increased after treatment.

Pre- and post-treatment EDI-3 composite scores including the Eating Disorder Risk Composite (EDRC), Ineffectiveness, Interpersonal Problems, Affective Problems, Over Control, and General Psychological Maladjustment were also compared. As can be seen in Table 3.3, the EDRC showed a significant reduction from pre- to post-treatment,  $t(18) = 2.46, p = .024$ . The mean decrease was 17.68 with a 95% confidence interval ranging from 2.59 to 32.78 and the eta

squared statistic (.25) indicated a large effect size. The Over Control composite scale also reduced significantly from pre- to post-treatment,  $t(18) = 2.17, p = .043$ . The mean decrease was 7.84 with a 95% confidence interval ranging from 0.27 to 15.41 and the eta squared statistic (.21) indicated a large effect size. No other scale scores were significantly different from pre- to post-treatment.

Table 3.3

*Means and Standard Deviations for the Composite Scales from the Eating Disorder Inventory (EDI-3)*

	Pre-treatment		Post-treatment	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Eating Disorder Risk Composite (EDRC)	150.58*	22.01	132.89*	32.73
Ineffectiveness	93.31	17.35	89.95	19.14
Interpersonal Problems	96.47	18.42	97.79	21.52
Affective Problems	100.37	16.46	93.74	18.72
Over Control	101.79*	16.27	93.95*	15.85
General Psychological Maladjustment	451.05	60.43	427.05	77.13

*Note.*  $n = 19$ . \*  $p < .05$

### **Predictors of % of EBW at Completion of the Day Program**

Multiple regression analysis was used to predict the impact of starting % of EBW, age, duration of illness, and eating disordered symptoms (measured by the EDI-3 EDCR score at commencement) on EBW at completion of the day program. As Table 3.4 shows, higher % of EBW and younger age at commencement were significant predictors of higher EBW at completion.

Table 3.4

*Results of the Multiple Regression Analysis for EBW at Completion of the Day Program*

Item	Coefficient	Standard error	<i>t</i> value	<i>p</i>
Duration of illness	-.215	.102	-1.83	.078
EBW at commencement	.437	.125	3.69	.001
Age	-.498	.775	-4.09	.000
EDI-3 EDRC at commencement	-.164	.057	-1.37	.181

*Note.* EBW: Expected body weight. EDI EDRC: Eating Disorder Inventory-3 Eating Disorder Risk Composite.  $R^2 = .701$ , Adjusted  $R^2 = .655$ .  $n = 31$

### **Predictors of Drop-Out From the Day Program**

Logistic regression analysis was used to predict the factors which may have increased the likelihood of drop-out. The results are exploratory in nature given that only five patients (12.8%) prematurely dropped out of the day program. Percentage of EBW and duration of illness at commencement were analysed to see if they predicted treatment non-completion due to the inconsistencies in previous research involving predictors of drop-out. The full model containing all predictors was significant,  $X^2(2, N = 39) = 7.03, p = .030$ , indicating that the model was able to identify treatment non-completers. The model as a whole explained between 16.5% (Cox & Snell R Square) and 30.8% (Nagelkerke R Square) of the variance in drop-out rates and correctly classified 89.7% of cases. As shown in Table 3.5 only % of EBW made a unique significant contribution to the model, indicating that those with a higher % of EBW at commencement of the day program were 1.17 times more likely to drop-out of the program.

Table 3.5

*Results of the Logistic Regression Analysis Predicting Drop-out from the Day Program*

	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Starting % of EBW	.160	.078	4.23	1	.040	1.17	1.01	1.37
Illness duration	.048	.045	1.15	1	.283	1.05	.961	1.15

*Note.* EBW: Expected body weight.

### **Discussion**

The current study aimed to replicate and extend previous research examining the outcomes of day program treatment, as well as the predictors of outcome and drop-out, for adolescents with eating disorders. The results provide additional support for the effectiveness of day program treatment as well as support for the role of higher body weight and younger age in predicting higher body weight at the end of treatment, but with higher body weight associated with a greater likelihood of dropping out of treatment.

### **Findings of the Present Study**

In terms of outcome, the results supported the benefits of the day program for the goal of weight gain or weight maintenance for patients. At the completion of the day program, there was a significant increase in weight for patients, including those who were underweight at commencement. Almost 80% of patients were discharged from the day program with a weight at or above 85% of EBW. This is consistent with past research in adults demonstrating that day programs lead to an increase in BMI (Gerlinghoff et al., 2004; Kong 2005; Zeeck

et al., 2004), and is at the upper end of the results reported for other adolescent day programs. For example, other day programs which are open ended and have a similar treatment length (an average length of stay of around 10-15 weeks), reported 58% to 84% of patients being discharged with their weight at or above 85% of EBW (Dancyger et al., 2003; Goldstein et al., 2001). The weight gain results and high percentage of patients who were discharged at or above the 85% EBW in the current study may reflect relatively high starting weights. They may also reflect high levels of motivation to change (either on the part of the young person or the parents) given that day program attendance was voluntary and those adolescents or families who did not wish to engage were offered individual therapy.

The day program also aimed to restore menses in those patients who started the program with amenorrhoea. At the commencement of day program only 18.9% of female patients menstruated and by the end of the day program this figure had risen to approximately 63%. This change was significant, and it suggests that some physical restoration occurred for a majority of patients through their day program attendance. This finding is similar to that reported in other adolescent day programs (Dempfle et al., 2013; Grewal et al., 2014; Herpertz-Dahlmann et al., 2014), where 47-65% of patients menstruated at completion of the program. Return of menses was not discussed in other adolescent day programs where EBW was considered a sign of returning to physical health. This is concerning given that EBW does not always reflect a return to physical health (Trocki et al., 1998). Thus the current findings extend previous research in supporting the effectiveness of day program treatment for this important outcome variable.



Contrary to the significant increases in weight indices from pre- to post-treatment, the findings on psychological change were inconsistent. There was evidence of a significant reduction in core eating disordered cognitions and behaviours as indexed by the EDI-3 Eating Disorder Risk Composite, which combines the subscales of Drive for Thinness, Bulimia, and Body Dissatisfaction. This finding indicates that the participants perceived a reduction in their eating disordered thoughts and behaviours by completion of the day program. This result is consistent with that obtained by Goldstein et al. (2011) who reported a significant reduction in the EDI-3 Drive for Thinness subscale among adolescents after day program completion. A significant reduction in the EDI-3 composite score Over Control was also found by the end of day program treatment in the current study. The reduction in the Over Control score indicates that patients perceived themselves as less perfectionistic and displayed reduced behaviours related to suffering and self sacrifice for the pursuit of perfectionism. This change is also consistent with a study that found reduced perfectionism in adolescent patients by day program completion (Goldstein et al., 2011).

In contrast, there was no evidence of a significant reduction in the other composite measures of the EDI-3, namely, Ineffectiveness, Interpersonal Problems, Affective Problems, and General Psychological Maladjustment. These findings may reflect the fact that considerable time is needed for change in these psychological constructs. For example, Girz et al. (2013) found that change on psychological measures only occurred after three to six months, while some patients in the current study only attended the day program for two weeks, with a mean attendance of 3.5 months.

The aim of improving general psychosocial functioning was achieved and reflected in a reduction of HoNOS and HoNOSCA scores from the

commencement to completion of day program treatment. The improvement in patient's overall psychosocial functioning may have been due to the day program including groups such as distress tolerance and assertiveness and communication, which were targeted at improving overall psychological and social functioning. These results are in contrast to the EDI-3 composite scores of Ineffectiveness, Interpersonal Problems, Affective Problems, and General Psychological Maladjustment which did not improve significantly after day program attendance. These contradictory results may represent differing opinions of change in psychological functioning (the clinician rated HoNOS/CA compared with the self-report EDI-3). These discrepant findings underscore potential differences in the perceptions of patients and clinicians, and suggest that, although they have been absent to date, research on day programs for adolescents would benefit from the inclusion of clinician-based measures.

In addition to assessing treatment outcome, the present study also sought to identify predictors of outcome. Among these, higher EBW at the commencement of the day program was found to be a significant predictor of higher EBW at completion. This is supported by recent research in adolescent inpatient admissions that suggests that BMI percentile at admission predicted BMI percentile at discharge and follow-up (Focker et al., 2015; Steinhausen, Grigoriu-Serbanescu, Boyadjieva, Neumarker, & Metzke, 2009). Specific to day programs research has found that admission weight did not predict end weight in adolescent day programs (Dancyger et al., 2003; Goldstein et al., 2011; Ngo & Isserlin, 2014; Ornstein et al., 2012). Previous studies of adolescents that have not found a relationship between weight at the commencement and completion of day program treatment may have had a restricted range of weight at commencement which resulted in the non significant findings (e.g., Dancyger et al., [2003])

required a starting weight of 85% of EBW to commence day program treatment). The findings of the current study are consistent with research on adults finding that lower BMI at commencement predicts poorer outcome from day program treatment (Howard et al., 1999; Zipfel et al., 2000).

In addition to pre-treatment EBW, patient age was also a significant predictor of EBW at completion of the day program, with younger patients achieving a higher EBW at the end of the day program. This finding is consistent with one study that found adolescent age at admission to be a predictor of BMI percentile at discharge (Focker et al., 2015). However, there is limited research regarding the impact of age on day program outcomes, especially in adolescents. Yet it is clear that there are differences in the presentation and treatment of eating disorders in adults compared with older and younger adolescents (Ornstein et al., 2012). For instance, younger adolescents report lower levels of motivation to change than adults (Goddard et al., 2013; Ngo & Isserlin, 2014) and therefore most day programs (including the current study) offer sessions where parents can attend or parent groups (e.g., Goldstein et al., 2011). Thus the increase in EBW at completion for the younger age group may reflect higher levels of parental control in the younger age group, which can improve treatment outcomes. In this regard, Family Based Treatment (FBT) is most effective in those under age 19 (Lock & Le Grange, 2013). Given that these considerations are speculative, further research is needed regarding the mechanisms by which adolescent age impacts on the effectiveness of day program treatment.

In contrast to pre-treatment EBW and age, there was no evidence of the EDRC composite score of the EDI-3 at commencement of treatment predicting day program outcome in terms of weight restoration. This suggests that the level of eating disordered cognitions and behaviours at commencement of an adolescent

day program does not impact on weight at completion. There is limited research regarding the impact of severity of illness on adolescent day program outcomes. In contrast to the results of the current study, higher levels of eating disordered cognitions at commencement of a day program were found in a previous study to be associated with patients attending for a longer length of treatment (Dancyger et al., 2003), which may have in turn resulted in higher weight at completion. It may therefore have been the longer length of treatment, rather than higher eating disordered cognitions, that predicted higher weight.

There was a trend ( $p = .078$ ) towards a shorter duration of illness predicting a higher EBW at treatment completion, which may have resulted from limited power. If such a finding is replicated in larger studies on adolescent samples it would be consistent with the adult literature where shorter duration of illness predicts better outcomes (Howard et al., 1999; Williamson et al., 2001).

The present study also sought to examine potential predictors of treatment drop-out as another index of outcome. Drop-out rates from adolescent day programs vary greatly, with previous studies reporting drop-out rates from as low as 7.1% (Goldstein et al., 2011) to as high as 42% (Grewel et al., 2014). The current program had a drop-out rate of 12.8%. The high day program completion rate obtained in the current study may have been due to the relatively higher levels of motivation of the patients given that treatment was voluntary and less motivated patients may have attended individual therapy.

The present study sought to increase awareness of the factors which pertain to drop-out. Those patients with a higher % of EBW at commencement of day program were 1.17 times more likely to drop-out of day program treatment. These findings are in direct contrast to the adult literature which suggests that low starting weight predicts drop-out (Jones et al., 2007). This inconsistency may

reflect the fact that a primary focus of the current day program was weight gain; hence those patients who were attending the day program for weight maintenance may have found the program less tailored to their needs which increased the likelihood of prematurely discontinuing treatment.

### **Limitations of the Present Study and Directions for Future Research**

While the findings of this study highlight the effectiveness of an adolescent day program in achieving weight gain or maintenance, as well as a return of menses, in those with AN, there are some important limitations to consider. First, the current sample is not necessarily comparable to previous day program samples, making comparisons difficult. For example, due to a lack of readily available inpatient services, 10 patients started the day program with a BMI or percentage of EBW that may have been considered too low to engage in the treatment. This feature of the sample must be borne in mind when interpreting the findings, particularly those that are inconsistent with previous research such as the role of lower body weight in predicting improved weight outcomes and a lower likelihood of dropping out.

A second noteworthy limitation is that the sample size was small, and missing data further reduced this number. The small sample size (and its implications for power) mean that the results of the day program need to be interpreted with caution (especially the marginally significant finding regarding illness duration and treatment outcome) and further investigation and replication is needed. Nevertheless, while data collection in clinical settings is often inconsistent, such research provides a valuable insight into ‘real world’ treatment where patients are not excluded for issues such as comorbidity, suicidality or low weight (Norris et al., 2013).

A third limitation is that the current study did not include any follow up of patients after completion of the program. Thus while the findings highlight the effectiveness of an adolescent day program by treatment completion, follow up of patients at least one year later would provide evidence that the gains achieved in the day program were maintained over the longer term.

Finally, the fact that the present study, like the bulk of the research on day programs, is not a controlled trial means that it is unclear as to how the current program directly compares to other promising treatments for adolescents with eating disorders, such as FBT. Such comparisons constitute a high priority for future research in order to identify the most effective treatments for this population.

### **Summary**

Taking into account the small sample size of this study, the findings provide further support for day programs for adolescents with AN and related disorders in terms of weight, core eating disorder cognitions and behaviours, and general psychosocial functioning (at least as assessed by clinicians). The low drop-out rate in the current and other day programs indicates that adolescents can tolerate this treatment modality (Goldstein et al., 2011; Stevens, 2010). Yet there are limited and conflicting findings regarding the predictors of outcome and drop-out from day program treatment for adolescents, with findings from the present study suggesting the relevance of higher pre-treatment weight and younger patient age in impacting on higher weight outcomes, and lower pre-treatment weight on completion rates. Future research should continue to evaluate the effectiveness of day programs (especially in comparison to other treatment approaches) and evaluate the predictors of outcome and drop-out so as to provide the most effective treatment options to adolescent patients with eating disorders.

## Chapter 4

### **Treatments for Adolescents with Eating Disorders: Family Based Treatment**

#### **Chapter Overview**

This chapter will review the historical origins of Family Based Treatment (FBT), and discuss the core components of the model and phases of treatment. The chapter will then examine the evidence base for FBT, including strengths, adaptations to the model, and the limitations of FBT and the current research base.

#### **Family Based Treatment (FBT)**

There is emerging evidence that FBT for adolescents with anorexia nervosa (AN) should be recommended as the first line treatment (Eisler, Lock, & Le Grange, 2010; Lock, 2011; Stiles-Shields, Hoste, Doyle, & Le Grange, 2012). The use of FBT or ‘Maudsley Family Therapy’ as it is also known, became widespread after it was manualised in 2001 (Lock et al., 2001). Current research, including randomised controlled trials, suggest that FBT is the most effective treatment for adolescents with AN, particularly in those under 19 years of age and with an illness duration of less than three years (Eisler et al., 2000; Le Grange et al., 2004; Lock, Couturier, & Agras, 2006; Murray & Le Grange, 2014; Russell, Szmukler, Dare, & Eisler, 1987).

FBT is based on the assumption that parents are the best resource to bring their adolescent with AN back to full health, given their unparalleled knowledge of their child, and their dedication to their child’s wellbeing. The notion that the family is in some way to blame for the development of the AN is strongly opposed. FBT aims to restore the child’s weight and physical health, promote adolescent responsibility around eating, and encourage normal adolescent development free of AN. In short, FBT seeks to empower parents to use all of

their expertise as parents to support their child back to full health and cease all AN behaviours (Lock et al., 2001).

### **History of Family Therapy in the Treatment of Anorexia Nervosa**

Family therapy has been used in the treatment of AN with varying degrees of success over the past 30 years. Previously, family therapy to treat AN involved the family attending treatment whereas FBT views the parents as a resource to help the adolescent fight AN. Despite this difference, FBT draws on some of the theoretical foundations of other types of family therapy (Rhodes & Wallis, 2009).

**Structural family therapy.** The use of structural family therapy in the treatment of AN was first developed by Minuchin et al., (1975). It came from an adapted version of their work with antisocial boys and their families. This approach assumed that the precursor to AN was a family style characterised by rigidity, enmeshment, over-involvement, and conflict avoidance, which was combined with a focus on physical functioning in the child and using the child as a mediator of conflict. In this view, AN develops in early adolescence as a way to change the family dynamics and patterns of interaction which are beginning to deteriorate due to the developmental needs of the emerging adolescent. Once the adolescent has developed AN, the parents refocus their attention and vigilance on the child, who is now more dependent, and AN becomes part of the adolescent and family identity. Indeed, AN functions to stabilise family dynamics. In this view of the illness, the parents were not to blame, but the constellation of dynamics known as the 'psychosomatic family' was viewed as necessary for the development of AN. The aim of treatment was to change the way the family functioned and decrease the importance of and interaction with the illness. It was thought that once the family took an active role in changing the problematic eating patterns, the parental team would realign which would create a reduction in



conflict avoidance and the enmeshed parenting styles. FBT uses elements of structural family therapy including the family meal, elevating parents into the parental position, highlighting intergenerational boundaries, encouraging direct communication between family members, pushing for change, and therapist modelling in session (Lock et al., 2001; Rhodes & Wallis, 2009).

**Systemic family therapy.** Systemic family therapy was developed by the Milan group and placed an emphasis on intergenerational coalitions (Selvini Palazzoli, Boscolo, Cecchin, & Prata, 1980; Selvini Palazzoli, 1974). They took the view that the family of the adolescent with AN seeks to maintain homeostasis in the face of the adolescent trying to develop their own identity. In response to this, it was proposed that families then develop rigid and mechanistic patterns of interaction. Family therapy focused on assisting the families to observe their own patterns of interaction and, through this observation, to make changes. The therapist took the view that the family interactional style was unintentionally due to the parents trying to be protective rather than as a result of dysfunction. Akin to systemic family therapy, FBT takes a non-blaming position, uses circular questioning to promote change, and allows the family to take their own direction as ‘experts’ of their family (Lock & Le Grange, 2013).

**Narrative therapy.** Narrative therapy rejected the view that AN was related to family functioning and instead took the approach that societal pressures encouraged the illness identity in those with AN. Treatment therefore focused on externalising the illness and allowing the patient to recognise and reject the voice of AN. Parents were also told to help the adolescent distinguish his/her voice and beliefs from that of the illness (White & Epston, 1990). FBT takes the externalisation of AN from narrative therapy, however narrative therapy did not

include a focus on weight gain or normalising eating (Lock & Le Grange, 2013; Rhodes & Wallis, 2009).

### **Development of FBT**

Traditionally adolescents with eating disorders were included in adult studies and provided with the same treatment options as adults (Gowers & Bryant-Waugh, 2004). The development of FBT from the Maudsley Hospital in London led to a treatment created solely for adolescents with AN, which focused on including the family in treatment (Lock et al., 2001). As described above, FBT combines some of the theoretical and intervention underpinnings from different types of family therapy. However, FBT is distinctive in that it has been subjected to a number of treatment trials (Le Grange & Eisler, 2008; Rhodes & Wallis, 2009). Paradoxically, since the research into the effectiveness of FBT has grown, research into the family therapies from which FBT was developed have been found to be inaccurate (Eisler, 2005). For example, research has shown that there is no particular family style or dysfunctional family which is related to the development of an eating disorder, and that the families of adolescents with AN are more similar to control groups than to other groups with psychiatric conditions. Moreover, any family dysfunction that is present could be a consequence (rather than a cause) of living with a serious psychiatric illness in a family member (Eisler, 1995; North, Gower, & Byram, 1995).

As such, FBT moves the focus of treatment from the dysfunctional or problematic family to working with the family and harnessing its strengths (Eisler et al., 2010). FBT does not focus on aetiology or the body image disturbance of AN; instead, it aims to create change by exposing the adolescent to feared foods and weight ranges, and restructuring the family system and improving mood and

cognitions through weight restoration (Eisler, 2005; Hildebrandt, Bacow, Markella, & Loeb, 2010; Lock & Le Grange, 2013; Loeb & Le Grange, 2009).

### **Core Components of FBT**

FBT combines both aspects of past family therapy and a number of current theoretical assumptions to treat adolescents with AN. The manual lists five core components to treatment including parental control, parental consistency, externalising the illness, restructuring the family, and sibling support (Lock & Le Grange, 2013).

**Parental control and parental consistency.** In FBT, the therapist takes the view that the causes of AN are unknown or unclear and therefore, early in treatment, the focus is not on aetiology. FBT also resists the view that the family are in some way to blame for the AN; instead, the family are encouraged to dismiss any feelings of guilt. This allows the parents to refocus their attention on re-feeding the adolescent, fighting AN, and being a resource to support their child through recovery. It is thought that the parents have dismissed their natural instincts and allowed a level of accommodation to AN due to the strength and persistence of the AN. Parents are viewed in a positive light and it is assumed that they have the motivation and capacity to support their child's recovery. Parents are also supported to work together as a consistent parental team in eliminating AN behaviours (Lock & Le Grange, 2013; Murray, Wallis, & Rhodes, 2012; Rhodes & Wallis, 2009). Research has found that prompts from parents do lead to increased eating in adolescents with AN (White et al., 2015).

**Externalising the illness.** Separating AN from the adolescent and instead externalising AN as the problem, unites the family towards a common enemy and allows them to focus their energy on fighting AN. Externalisation also reduces blame towards the adolescent who may be perceived to be causing problems for

the family. The therapists use of externalising language models a way to deal with high expressed emotion within the family (e.g., critical comments), which may otherwise be directed at the adolescent. This is a particularly important component given that high levels of parental criticism are related to higher drop-out rates (Le Grange, Eisler, Dare, & Russell, 1992; Szumukler, Eisler, Russell, & Dare, 1985).

**Restructuring the family.** In the early stages of FBT, the focus is entirely on ceasing AN behaviours and treating the illness. Any family conflicts that do not directly impede weight gain are not addressed until weight is restored. However, it is likely that changes will be made to the family structure and dynamics through the process of re-feeding. For instance, the parental alliance will need to strengthen to fight AN, and the communication within the family will improve. The adolescent will also be aligned with the sibling subsystem as parents take charge of the family to support the adolescent to eat (Lock & Le Grange, 2013; Murray, Wallis et al., 2012; Rhodes & Wallis, 2009).

**Sibling support.** Support from siblings, particularly as parents take on the difficult task of re-feeding, was thought to help reduce distress and anxiety in the adolescent with AN. However, to date there is minimal support for this intuitive notion. For instance, the presence or absence of siblings during FBT sessions does not appear to directly impact on outcome (Ellison et al., 2012; Eisler et al., 2000; Le Grange et al., 1992). In addition, one study reviewed each of the five core components of manualised FBT in predicting weight gain, and found a lack of evidence for the notion of the benefits of sibling support (Ellison et al., 2012). Specifically, at the end of each session, the clinician rated parental adherence to the five key areas. It was found that greater adherence to the components of parental control, parental consistency, externalising the illness, and restructuring

the family were associated with greater weight gain in the adolescent. However, sibling support did not predict weight gain.

### **Phases of Treatment in FBT**

FBT involves three distinct phases to support the adolescent's return to full health and recovery from AN: re-feeding, returning control of eating back to the adolescent, and focusing on the development of a healthy identity and 'normal' family life. Although these are clearly defined in the treatment manual (Lock & Le Grange, 2013), in day-to-day practice these phases often overlap.

**Phase 1: Re-feeding the adolescent.** In phase one of FBT, the focus is on treating the AN and re-feeding the adolescent. It is usually the longest phase, ranging from 10 to 15 sessions in the 20-session model set out in the manual (Lock & Le Grange, 2013). The aim of phase one is to bring about weight restoration, usually to at least 90% of expected body weight (EBW), with rapid weight gain of 250 grams to one kilogram per week encouraged. Parents are required to support their adolescent at meal times, take back responsibility for food choices, and present the adolescent with meals that will result in weight gain. If the adolescent also engages in compensatory behaviours, then the parents are encouraged to monitor the adolescent to cease all compensatory behaviours. Each session, the adolescent is weighed and the direction of weight change (loss or gain) will set the agenda for the rest of the session. Re-feeding and ceasing AN behaviours takes precedence over all other areas of the adolescent's life and family functioning.

Notwithstanding the aforementioned lack of empirical evidence to date for the sibling component, siblings are encouraged to provide support for the adolescent while parents take charge of re-feeding. This aims to allow for

structural change within the family; the parents are realigned as the parental team and the adolescent is realigned with his/her siblings.

Additional components include the therapist spending time alone with the adolescent with AN prior to the commencement of the family session in order to enhance the therapeutic alliance between the adolescent and the therapist. The family are also provided with psychoeducation regarding the effects of AN, particularly the medical complications, in an effort to increase the intensity and rate of weight gain. Treatment of any co-morbid illnesses, such as anxiety and depression, is seen as secondary to the need to terminate self-starvation.

**The family meal.** The family meal is usually included as the second session, where the family are asked to bring a meal to the session. The aim of the family meal is to encourage the parents to increase the child's dietary intake so as to consume more than the AN will allow (Lock & Le Grange, 2013; Rhodes, 2003).

The family meal was originally part of Minuchin's approach to treating AN with family therapy (Minuchin et al., 1975). Minuchin and his colleagues would begin family therapy sessions with a meal to allow the observation but also the challenging of family patterns. Parents were encouraged to take charge of food restriction and to stop avoiding conflict. This promoted parents back into the parental role and freed the adolescent from AN. Re-feeding and weight gain were important, however parents were encouraged to focus on the adolescent's bodily functions for only a short period of time. Later on parents were also encouraged to allow eating patterns to return naturally and focus on other issues such as spousal conflict.

In FBT the family meal allows the therapist and the family to review the ground taken by AN in the family home. It also provides an opportunity for the

therapist to coach the parents to have their adolescent eat extra amounts of a challenging food (Godfrey et al., 2015). Parents are also coached to notice and challenge any AN behaviours (e.g., cutting food into small pieces) during the meal. The family meal allows the parents to feel successful at feeding their child and fighting the AN, and it demonstrates to the adolescent that there is no choice in recovery because the parents are determined to overcome the AN (Eisler et al., 2010; Lock & Le Grange, 2013; Rhodes & Wallis, 2009). Interestingly, the family meal may not actually impact on outcome, with a separated model of FBT where the parents and adolescent are seen separately and therefore the family meal is not completed, proving just as effective as the standard version (Eisler et al., 2000; Le Grange et al., 1992).

**Phase 2: Negotiations for a new pattern of relationships.** Phase two of FBT occurs when the adolescent has gained weight (usually to 90-95% of EBW), and is able to eat without parental persuasion (Eisler et al., 2010; Lock & Le Grange, 2013; Murray, Griffiths, & Le Grange, 2014; Rhodes, 2003; Rhodes & Wallis, 2009). This phase usually lasts for two to three months, with sessions held on a fortnightly basis. The adolescent continues to be weighed each session, with continued weight gain expected albeit at a more gradual rate. By this phase, it is expected that the family feels more in control of the AN and the adolescent is not displaying any AN behaviours. Thus the focus of phase two is to shift towards the adolescent with AN assuming greater responsibility for food and eating, including being responsible for meal choices, food preparation, increased variety of food selections, and eating with peers at a developmentally appropriate level. The adolescent is encouraged to reconnect with peers and reengage in previous social and recreational activities. Parents are encouraged to return to their everyday lives

and re-focus on their relationship now that the crisis and intense re-feeding phase is over.

**Phase 3: Adolescent issues and termination.** The final phase occurs when control of eating has been returned to the adolescent, weight restoration is complete and menses (if absent) has returned (Eisler et al., 2010; Rhodes, 2003; Rhodes & Wallis, 2009). It usually consists of two to three sessions held four to six weeks apart. The focus of phase three is to restart the 'normal' adolescent developmental trajectory, which was deviated from as a result of AN. Given that physical health and safety have been re-instated, adolescent issues can now be explored. The family is supported in communicating in relation to, and problem-solving, these issues, with parents encouraged to allow developmentally appropriate independence. If other comorbid illnesses or family or couple issues exist, then they are addressed in phase three, either by the therapist or with appropriate referral. At termination, the family are asked to review the progress they have made throughout the course of treatment, both as a family and as individual family members, and to identify strategies for relapse prevention (Lock & Le Grange, 2013).

### **Review of the Evidence Base for FBT**

Early treatment studies, prior to the manualised version of FBT being widely disseminated, evaluated various forms of family therapy that were similar to FBT, and lent support to the use of family based approaches in the treatment of AN (Ball & Mitchell, 2004; Geist, Heinmaa, Stephens, Davis & Katzman, 2000; Robin et al., 1999). FBT proper has been subjected to a number of randomised controlled trials (RCTs) for adolescents with eating disorders, with the first being conducted prior to the publication of the manual. This first RCT compared FBT to supportive individual therapy and included 80 patients (57 with AN and 23 with



BN) aged between 14 and 55 years (Russell et al., 1987). All patients were also admitted for a 10-week admission prior to the commencement of the trial. FBT was found to be more effective than individual therapy, and led to 90% of patients achieving 85% or more of EBW and 60% of patients experiencing a return of menses. After examining the difference in outcomes for different ages, it was found that FBT was most suitable for adolescents with an illness duration of less than three years, where the illness began before the age of 19 years. At a five-year follow-up study it was found that FBT was again superior to individual therapy (Eisler et al., 1997). Of the adolescents in the FBT treatment group, 90% had a good outcome (based on the Morgan-Russell outcome criteria where a good outcome is defined as weight within 15% of EBW, menstruation, and no bingeing or purging), whereas 50% of those in the individual therapy group continued to experience eating disordered symptoms. However, the version of FBT undertaken in the study differed slightly from the manualised version (Lock & Le Grange, 2013), with only the first two phases of treatment undertaken. In addition, the study included hospitalisation prior to commencing FBT for all patients, and the adolescent sample only reflected the outcomes of 11 patients who received FBT. Therefore, the results need to be interpreted with caution (Strober, 2014).

The next two trials examined different forms of FBT, comparing conjoint family therapy (CFT) with a separated family therapy (SFT) where the adolescent and parents were seen separately (Eisler et al., 2000; Le Grange et al., 1992). In both studies, the therapies achieved positive outcomes, with 60% of patients showing significant improvement in psychological functioning and reduction in eating disorder symptoms. Patients in CFT showed greater psychological improvements, whereas SFT led to greater eating disordered symptom reduction, and the authors suggest that these results may be related to parents in the

separated model continuing to focus on changing eating disordered behaviours once the adolescent was weight restored, whereas the conjoint sessions created discussions around adolescent development.

There have subsequently been a number of RCTs in adolescents with AN comparing different types of FBT, FBT to other types of family therapy, or FBT to a control (placebo or active) group. In one RCT investigating different versions of FBT, optimum length of treatment was reviewed (Lock, Agras, Bryson, & Kraemer, 2005). A short term version of 10 sessions of FBT over six months was compared with the standard long term version of 20 sessions over 12 months, in adolescents with AN. There was no significant difference in outcomes between the groups, which continued at the two- to six-year follow-up (Lock, Couturier, & Agras, 2006), indicating that the short course of treatment was just as effective as the long course. At follow-up, the combined recovery rates of the short and long term groups were positive, with 89% of adolescents with weights above 90% EBW, 91% menstruating, and 74% with Eating Disorder Examination (EDE) scores in the normal range.

Another study randomly allocated adolescents with AN to either FBT or Adolescent Focused Therapy (AFT; also referred to as insight oriented individual psychotherapy; Lock et al., 2010). AFT is an individual therapy which focuses on ceasing eating disordered symptoms through increased awareness and tolerance of emotions, self efficacy and adolescent development. The study had a strict remission criterion of weight gain greater than 95% of EBW and one standard deviation from the mean on the EDE, which may have contributed to its lower recovery rate compared to other studies using more lenient definitions. At the end of treatment there was no significant difference in full remission between treatments, with FBT showing full remission rates of around 42% and almost 23%

for AFT. FBT was more effective than AFT for partial remission (89% compared to 67% respectively), higher BMI percentile, and degree of reduction in EDE scores at end of treatment. At the six- and 12-month follow-ups, FBT was more effective for full remission compared to AFT. AFT also had higher relapse rates and hospitalisations than FBT.

Several studies have compared FBT with individual therapies. The most recent research review found that taken together, the research on FBT suggests that at the end of treatment, the outcomes produced by FBT were similar to other individual therapies (Couturier, Kimber, & Szatmari, 2013). However, at six- to 12-month follow-ups, FBT was significantly better than individual therapy suggesting that FBT may be better at maintaining treatment gains.

Results from a number of case series have also shown that the manualised version of FBT is effective. This approach produced good outcomes in younger children aged 9 to 12 years (Lock, Le Grange, Forsberg, & Hewell, 2006), and weight gain over 20 sessions with an average EBW increasing from 87.6% to 95.2% at end of treatment (Ellison et al., 2012). It was also successful at restoring menses in females who previously had secondary amenorrhoea once weight restored to an average of almost 95% of EBW (Faust et al., 2013). After a mean of 17 sessions, adolescents had a significant increase in percentage of EBW, with 56% achieving a good outcome (>85% EBW and menses), 33% having an intermediate outcome (>85% EBW and intermittent menses), and only 11% having a poor outcome (<85% EBW and no menses). Overall, these findings indicated that FBT produced favourable outcomes in approximately 90% of adolescents (Le Grange, Binford, & Loeb, 2005).

Given the disadvantages associated with inpatient treatment highlighted in Chapter 2, it is important to note that FBT is effective at preventing

hospitalisation (Eisler et al., 2000; Lock et al., 2005), as well as reducing the length of stay in hospital and the number of readmissions to hospital (Le Grange, Lock et al., 2012; Madden et al., 2014; Rhodes & Madden, 2005; Wallis, Rhodes, Kohn, & Madden, 2007).

Importantly for establishing treatment effectiveness (and not only efficacy), FBT has been disseminated in a number of settings and shown to produce similar outcomes as those found in RCTs, with 75-85% of adolescents achieving good outcomes (Couturier, Isserlin, & Lock, 2010; Loeb et al., 2007; Paulson-Karlsson, Engstrom, & Nevonen, 2008).

**Predictors of outcome.** Many studies have sought to evaluate the predictors of outcome in FBT in an attempt to identify the factors which produce the most change. Establishing parental control over the behavioural features of AN is a crucial component of FBT, and it has been shown to be the single most significant predictor of favourable treatment outcome (Ellison et al., 2012). Even the parents' belief in their ability to help their child to recover impacts outcome. That is, in one study higher parental self efficacy predicted reduced adolescent eating disordered cognitions and increased mood at the end of treatment, and higher fathers' self efficacy predicted lower anxiety scores (Robinson, Strahan, Girz, Wilson, & Boachie, 2012).

Furthermore, it could be assumed that younger adolescents would do better in FBT due to higher levels of parental control in the younger age group, and some research suggests that age is a predictor of outcome, with older adolescents less likely to recover by the end of treatment (Le Grange, Lock et al., 2012; Lock, Couturier, Bryson & Agras, 2006). However, other research suggests that age of the adolescent is not a predictor of outcome in FBT (Lock et al., 2005),

with no difference in outcome for younger children or adolescents compared with older adolescents (Le Grange et al., 2005; Lock, Le Grange et al., 2006).

Therapeutic alliance has been shown to be a good predictor of outcome. One study showed that a stronger mother-therapist alliance led to greater adolescent weight gain, however a stronger father-therapist alliance was surprisingly associated with significantly less weight gain, and may be due to therapists inferring that responsibility for feeding is traditionally the mother's role within the family (Ellison et al., 2012). Other research has found that a positive therapeutic relationship with both the adolescent and parents reduces drop-out rates and improves early weight gain (Pereira, Lock, & Oggins, 2006). However with time, behavioural change (such as weight gain) becomes an important factor in maintaining the therapeutic relationship and producing positive outcomes, suggesting a bidirectional relationship between therapeutic alliance and change.

It is clear that early weight gain improves recovery rates (Lock, Couturier, Bryson et al., 2006; Pereira et al., 2006). One study found that a gain of at least 2.88% of EBW by session four predicted treatment success (Doyle, Le Grange, Loeb, Celio Doyle, & Crosby, 2010).

Research investigating the severity of symptoms in predicting treatment outcome has yielded highly inconsistent findings. While early weight gain predicts outcome (Doyle et al., 2010), pre-treatment weight (i.e., percentage of EBW) has not been found to predict EBW at termination (Loeb et al., 2007). Yet other research suggests that the severity of eating disordered symptoms at pre-treatment does impact treatment outcome, although greater symptom severity has been found to variously predict better or worse outcomes. Supporting the former, one study found that those adolescents with higher scores on the EDE Shape

Concern and Restraint subscales as well as the overall global score at the commencement of FBT were more likely to have a return of menses at treatment completion (Faust et al., 2013). In support of the latter, another study found that lower starting body weight and amenorrhoea predicted worse outcomes (Eisler et al., 2000). Those adolescents who display more eating disordered behaviours and stronger eating disordered cognitions may require longer interventions given research demonstrating that they achieve better outcomes with the full 20 sessions rather than a shortened 10-session program (Lock et al., 2005). These more severely affected adolescents may also achieve better outcomes in FBT than AFT (Le Grange, Lock et al., 2012). Some research suggests that the binge/purge type of AN leads to worse outcomes (Le Grange, Lock et al., 2012), however others argue that the presence of purging, did not impact outcomes (Lock et al., 2005). In short, there is conflicting data regarding the effects of symptom severity and type on treatment outcome.

The evidence concerning the impact of past duration of illness on outcome is also mixed. Some studies have found that it does not predict outcome (Lock et al., 2005), while others have shown that a longer duration of illness leads to worse outcomes (Doyle et al., 2010; Le Grange, Lock et al., 2012; Pereira et al., 2006). It has also been found that those who had no previous treatment had better outcomes (Eisler et al., 2000).

Finally, the role of co-morbid psychopathology has been investigated. This research reveals that adolescents with comorbid psychiatric disorders have lower remission rates and worse outcomes than those who do not have a comorbid disorder (Eisler et al., 2000; Lock, Couturier, Bryson et al., 2006).

**Predictors of drop-out.** Drop-out rates in FBT vary but are generally recorded as being around 10-15% in the standard form of FBT (Ellison et al., 2012; Le Grange & Lock, 2005; Le Grange et al., 2005). Drop-out rates in dissemination studies may be slightly higher around 14-25% (Couturier et al., 2010; Loeb et al. 2007).

Research examining predictors of drop-out has identified several potential factors that may be relevant. Paralleling the findings from research on treatment outcome, both comorbidity and parental control have been found to be associated with drop-out. Specifically, those with a comorbid psychiatric illness were more likely to drop-out of treatment (Lock, Couturier, Bryson et al., 2006), while higher rates of drop-out were associated with lower levels of parental control during treatment (Ellison et al., 2012). Treatment duration may also be pertinent, with those families who were randomised to a longer length of treatment (12 months instead of six months) found to be more likely to drop-out (Lock, Couturier, & Agras, 2006).

The complex nature of AN means that FBT therapists are required to work with a team of professionals including psychiatrists, paediatricians, and general practitioners. It appears that a unified treatment team improves outcomes for adolescents in FBT, with those cases where the treating team had poor cohesion and inconsistency being associated with higher drop-out (Murray, Griffiths, & Le Grange, 2013).

Research has also identified several factors which do not appear to impact on retention rates in FBT. Pereira et al., (2006) found that severity of illness (as measured by the EDE subscale scores) did not predict drop-out from treatment. Age, gender, percentage of EBW, and eating disordered cognitions at pre-

treatment (as measured by the EDI-3 Eating Disorder Risk Composite score) also did not significantly predict drop-out from treatment (Ellison et al., 2012).

**Summary of the outcome data for FBT.** Many studies have been completed reviewing the effectiveness of FBT including RCTs, open trials, case studies, dissemination studies, mediator and moderator studies, and meta-analyses (Fisher, Hetrick, & Rushford, 2010). Taken together, these studies indicate that in adolescents with AN, FBT is more effective than other forms of treatment, with between 50-75% of adolescents weight restored at the end of treatment, although most will not have resumed menses (Couturier et al., 2013; Downs & Blow, 2013; Fisher et al., 2010; Le Grange, 2005; Murray et al., 2012). At follow-ups ranging from one to five years, the number of adolescents who have recovered will increase to 60-90%. FBT is more successful in yielding weight gain and reduced behavioural pathology compared to reduced eating disordered cognitions, with 40-74% of adolescents experiencing measurable reductions in eating disordered cognitions (Couturier et al., 2010; Lock, Couturier & Agras, 2006; Lock et al., 2010). Further investigation is required to review what changes are needed to the FBT model to create greater cognitive change in more adolescents. More generally, further research is needed to clarify the predictors of outcome and treatment retention in ‘real world’ studies of FBT compared with other forms of outpatient treatment.

### **Adaptations of FBT**

Since it was originally published, the manualised version of FBT has been adapted into various formats with varying degrees of success.

**FBT for adolescents with BN.** There is emerging evidence that FBT is an effective treatment in adolescents with BN (Le Grange, Crosby, Rathouz, & Leventhal, 2007; Le Grange, & Lock, 2007; Le Grange, Lock, Agras, Bryson, &



Booil, 2015; Le Grange, & Schmidt, 2005; Stiles-Shields et al., 2012). FBT for adolescents with BN is similar to FBT for AN, however the adolescent is encouraged to take more responsibility for symptom reduction by keeping track of and trying to reduce the frequency of binges and purging (Le Grange & Lock, 2007).

**Adaptations to the manualised model.** There have also been modifications to the manualised version of FBT to better support families, particularly those who are geographically isolated, such as intensive family therapy ranging from one to two weeks (Rockwell, Boutelle, Trunko, Jacobs, & Kaye, 2011). For example, a two-week residential program based on the principles of FBT is offered to families with adolescents stepping down from inpatient admissions (Wallis et al., 2013). The aim in this program is to shift the focus of refeeding from hospital staff to parents, increase parental capacity, and reduce hospital readmission rates, particularly in the group of families who may have failed using outpatient FBT. There is also some evidence that providing greater parental support, through parent-to-parent consultations (Rhodes, Baillie, Brown, & Madden, 2008) or online support groups (Binford Hopf, Le Grange, Moessner, & Bauer, 2013), as an adjunct to FBT is beneficial.

**FBT for adults.** Given the effectiveness of FBT in the adolescent population, studies have evaluated if it can be transferred to young adults with eating disorders. The initial RCT found that adolescents achieved better outcomes with FBT than adults (Russell et al., 1987). However, there is emerging evidence that FBT may be at least as effective as other treatments for adults with AN. A case series found that FBT produced weight gain in patients with AN and a reduction in eating disordered cognitions (Chen et al., 2010), and an RCT found that FBT produced superior outcomes compared to the control group in adults, but

no difference when compared with psychoanalytic therapy (Dare, Eisler, Russell, Treasure, & Dodge, 2001). However, no long term follow-up of FBT in the adult population has been completed.

**Multiple family based treatment (MultiFBT).** Since the development of standardised FBT, research has been conducted into the use of FBT in a multi family context in the hope that this would improve outcomes in those who had not responded well to the manualised treatment (Le Grange & Eisler, 2008; Rhodes & Wallis, 2009). Multiple family therapy has been used successfully in other areas where it was thought that bringing families together would improve communication within and between families, with families learning from the experiences of others and thereby creating new interactional patterns (Lacquer, La Burt, & Morong, 1964).

MultiFBT for AN aims to reduce the sense of isolation and helplessness that some families feel, create new perspectives, and promote change and recovery. The structure of MultiFBT is similar to the manualised approach, with the focus initially on parents taking control of re-feeding their adolescent, helping to cease AN behaviours, and then later focusing on returning responsibility to the adolescent and dealing with adolescent issues (Asen, 2002; Dare & Eisler, 2000; Eisler et al., 2000). The MultiFBT approach also focuses on restoring the family interactions that have been interrupted by AN (Whitney & Eisler, 2005). While there is limited evidence for MultiFBT for AN, and the available research has entailed small sample sizes, preliminary results are promising with data showing good patient outcomes, a reduction in drop-out rates compared to standard FBT, and higher satisfaction by parents, patients, and staff compared to standard FBT (Dare & Eisler, 2000; Schmidt & Asen, 2005; Scholz & Asen, 2001; Scholz, Rix, Scholz, Gantcher, & Thomke, 2005).

**FBT based day programs.** FBT has also been adapted for use in day programs for adolescents with eating disorders (e.g. Hoste, 2015). Patients attend a day program with group therapy and meal support during the day, and in the evenings and on weekends parents are required to take responsibility for the adolescents intake and support them to cease compensatory behaviours. Parents and siblings are usually required to attend stand-alone FBT sessions in addition to the adolescent attending the day program. Programs may also include parent or sibling support groups or multi-family therapy. Most programs do not provide details as to whether the day program is during phase one of FBT or if it continues for the entire one year of FBT treatment.

Although only a small number of FBT-based day programs have been published, the results are promising, with reduced eating disordered cognitions and weight gain at the end of day program treatment (Girz et al., 2013; Grewel et al., 2014; Henderson et al., 2014; Hoste, 2015; Robinson et al., 2012; Ornstein et al., 2012). However, drop-out rates are high (42-46%) compared with the standardised version of FBT (15-25%) perhaps because of the time intensity of day program or because the FBT day program is usually offered to those who are struggling with traditional FBT (Ellison et al., 2012; Grewel et al., 2014; Loeb et al., 2007; Ornstein et al., 2012).

### **Strengths of FBT**

In addition to the positive outcomes achieved by standard FBT, and emerging evidence for its variants, FBT has several noteworthy advantages. One strength of FBT is that it is a manualised treatment which can easily be disseminated. A review of eating disorder treatment services for adolescents across Canada found that 91% of programs provide FBT for patients with AN (Norris et al., 2013).

The manualised version of treatment has also been reported as being acceptable and effective by patients and their parents, and 84% would recommend FBT (Krautter & Lock, 2004). In the past, many families reported feeling disempowered and disenfranchised by AN (Whitney & Eisler, 2005), however the opposite is true in FBT, with parents encouraged to develop a sense of control in their child's treatment (Murray et al., 2012). This enhancement of parental control has implications for relapse prevention in that teaching parents to identify and then stop the signs and behaviours of AN also creates an environment where parents are able to support sustained wellness even when contact with the treating team has ended (Lock & Le Grange, 2013; Loeb & Le Grange, 2009). Once adolescents have recovered using FBT, relapse rates are extremely low, at less than 10% (Eisler et al., 2007; Lock, Couturier, & Agras, 2006).

A corollary of enhanced parental control is that recovery is less dependent on the adolescent's intrinsic motivation to change. Adolescents consistently report even lower levels of readiness to change eating disordered symptoms compared with adults (Goddard et al., 2013), which makes individual therapy difficult. FBT has the distinct advantage of not relying on the adolescent being motivated to change and instead uses the parents as the driving force for change (Lock & Le Grange, 2013).

### **Limitations of FBT and its Research Base**

Despite evidence of the notable strengths of FBT, there exist key limitations of FBT and its research base. Among these limitations is the fact that the research on FBT may have resulted in an overstatement of its benefits (Strober, 2014). When reviewing the recovery rates from FBT and only taking into account those who achieve full weight restoration, return of menses, and a change in eating disordered cognitions, the outcomes are much less favourable

than previously presented. For example, Lock et al., (2010) found that only 42% of adolescents achieved full remission from AN after FBT, and while Le Grange et al., (2005) report that around 90% of adolescents in their study had positive outcomes, actually only 56% experienced full recovery from AN. Specifically, while many studies report that FBT is effective at weight restoration, this is usually after an inpatient admission, or when the adolescent is not severely underweight. For instance, one of the first RCTs re-fed patients to 90% of EBW in hospital prior to starting FBT (Russell et al., 1987) and it is common for other programs to discharge adolescents to begin outpatient FBT only after they are weight restored to 80% of EBW (Rhodes & Madden, 2005). It could be argued that these weight-restored patients are not representative of outpatient practice, where adolescents may present as severely underweight and only be hospitalised if they are medically unstable. Hospital admissions during FBT may also inflate the findings attributed to FBT. In some studies a large portion of patients are hospitalised during treatment; in the study by Lock et al. (2005), for example, 23% of patients were hospitalised during FBT, with their data included in the results. One study found that those patients who commenced treatment at a lower EBW gained weight faster in a RCT than in a clinical setting (Accurso, Fitzsimmons-Craft, Ciao, & Le Grange, 2015), further highlighting the need for research investigating the effectiveness of FBT in treating adolescents on an outpatient basis who are at very low weights (Strober, 2014). In addition, most studies also report exclusion criterion that do not match 'real world' practice (e.g., one study excluded a patient for frequent suicidal ideation; Loeb et al., 2007).

Furthermore, many of the RCTs and some dissemination studies include the original authors of the manual as therapists or use therapists who have been trained by them. Using only therapists trained by the authors of the manual limits

the generalisability of the results obtained since it is uncertain if the results are related to the effectiveness of the manualised treatment, which can then be replicated and disseminated, or instead reflect the skill and experience of the therapists (Strober, 2014). As such, further dissemination studies are needed where the original authors of the manual have not trained the therapists.

Combined, the above factors may have inflated the outcomes that can be attained using FBT in ‘real-world,’ outpatient settings. The effectiveness of FBT alone (i.e., without hospitalisation for weight restoration) in these real-world settings is a key research priority. A somewhat related limitation of the FBT research is that the sample sizes are generally very small, with an average of 20 adolescents in each treatment, which again challenges the generalisability of the findings.

The research base on FBT is also limited in providing insufficient clarity regarding the optimum length of treatment. RCTs have been based on the original manual and usually follow the format of 20 sessions over 12 months (Lock et al., 2010; Lock & Le Grange, 2013). There is some evidence that a shorter course of 10 sessions over six months is just as effective as the 12-month course of FBT (Lock et al., 2005), although this may be related to the fact that most research into FBT has included patients who are partially weight restored and therefore do not require a longer treatment length; this research is therefore not representative of the full spectrum of AN severity. Over half of the adolescents who completed FBT reported feeling that they required more treatment than offered in the time-limited protocol (Krautter & Lock, 2004). Yet, since longer treatment length may lead to higher rates of drop-out (Lock, Couturier, Bryson et al., 2006), establishing whether shorter treatments are sufficient, at least for some patients, is an important area of research. It may be that those adolescents who commence

treatment at a lower weight or have stronger eating disordered cognitions require a longer treatment duration.

A key deficiency in the research is that FBT has not been compared to a comprehensive range of evidence-based treatments for adolescent AN. For instance, there have also been no clinical trials comparing the effectiveness of FBT with inpatient admissions, or alternative outpatient programs such as specialised eating disorder day programs (Loeb & Le Grange, 2009).

While research has shown that FBT is more effective than the limited range of treatments to which it has been compared, particularly at longer-term follow-ups, FBT does not lead to recovery for all patients. For example, in a number of RCTs FBT was superior to alternative treatments, however, FBT only led to full remission in less than half of the adolescents at the end of treatment and at the 12-month follow-up (Le Grange et al., 2007; Lock et al., 2010).

Limited outcomes from FBT are particularly evident in terms of an insufficient reduction in eating disordered cognitions (Couturier et al., 2010; Lock, Couturier & Agras, 2006; Lock et al., 2010). This may be a methodological artefact given that studies may not adhere to the manualised version of FBT. For example, many studies report treatment completion as attending the first two phases of FBT or 10 sessions (Couturier et al., 2010; Lock et al., 2005; Lock, Couturier & Agras, 2006), even though the manual clearly defines three phases over 20 sessions (Lock & Le Grange, 2013). This early termination of treatment may not allow for sufficient time for cognitive change to occur. However, the limited cognitive change resulting from FBT may also be an inherent limitation of this approach as it does not target psychological change such as reducing a fear of weight gain or body image disturbance (Lock & Le Grange, 2013; Loeb & Le Grange, 2009). Thus further research is needed to review if FBT, administered

with a high degree of fidelity to the manual, can produce cognitive change for adolescents with AN.

In addition to limited cognitive change, FBT has been criticised for not targeting a broader range of problems. For instance, while many families report that FBT is an acceptable treatment, they also report that they feel the need for the treatment to focus on issues other than AN (Krautter & Lock, 2004). The need to treat comorbid conditions is a view shared by therapists (Couturier et al., 2013). Research has suggested that psychiatric comorbidity in adolescents increases the drop-out rate and reduces the likelihood of good outcomes in FBT (Le Grange, Lock et al., 2012; Lock et al., 2005), yet this comorbidity is not targeted in treatment.

One of the criticisms of FBT is that it may not be effective for all families, such as in those families where family members are highly critical towards the adolescent, although parents of adolescents with AN have been shown to have lower levels of expressed emotion towards the adolescent, compared with some other psychiatric disorders (Le Grange et al., 1992; Szmukler et al., 1985; Vaughn, & Leff, 1976). High levels of expressed emotion in families of adolescents with AN have been shown to lead to higher drop-out rates and poorer outcomes for those who do remain in treatment (Eisler et al., 2000; Le Grange et al., 1992; Le Grange, Hoste, Lock, & Bryson, 2011; Szmukler et al., 1985). However, the separated model of FBT (SFT) where the adolescent and parents are seen separately, has been shown to improve outcomes in families with high expressed emotion (Eisler et al., 2000), suggesting that this adapted version of FBT may be effective for these families. Other families in which FBT may have limited effectiveness are those where parental anxiety is high or assertiveness is



lacking given that parental control has been shown to be the most significant predictor of favourable treatment outcome in FBT (Ellison et al., 2012).

Finally, while the FBT manual encourages the dissemination of this approach, there are also barriers to dissemination. Research suggests that many practitioners are wary of manualised therapy, and FBT is no exception to this with fidelity to the manualised version of FBT variable, particularly in the later phases of treatment (Couturier et al., 2010). Moreover, 95% of therapists have been found to desire further training in FBT. Therapists also report many barriers to practicing FBT, ranging from a lack of support from their organisation to believing that AN as an illness requires more intensive treatment (Couturier et al., 2013; Kimber et al., 2014; Murray, Thornton, & Wallis, 2012). Thus the implementation of FBT into a service may not be straightforward (Wallis et al., 2007).

### **Summary**

FBT is based on the assumption that parents are the best resource to support their adolescent with AN back to full health. FBT aims to restore the child's weight and physical health, promote adolescent responsibility around eating, and encourage normal adolescent development free of AN.

FBT is currently the most effective treatment for adolescents with AN, particularly in those under 19 years of age and with an illness duration of less than three years (Eisler et al., 2000; Le Grange et al., 2004; Russell et al., 1987). It is most effective at weight restoration and reducing behavioural symptoms, although some adolescents are able to achieve full remission with FBT including a reduction in eating disordered cognitions. Although there have been a number of research trials including FBT, further investigations reporting adolescent outcomes from different treatment sites are needed, including areas where

adolescents are not excluded for comorbidity or risk issues, where weight gain is not achieved with the aid of inpatient admissions, and where the therapists have not been directly trained by the original developers of FBT (Fisher et al., 2010; Lock et al., 2010; Murray et al., 2014). It is also of benefit to evaluate if more sessions result in full recovery including greater cognitive change, given the limited impact of FBT in this regard. Furthermore, there are inconsistencies in the research regarding the factors that predict outcome (such as the level of eating disordered symptoms at the commencement of FBT and amenorrhoea), and limited understanding of the factors which predict treatment completion, highlighting the need for further clarification of these issues.

## Chapter 5

### **Study 2: The Effectiveness and Predictors of Outcome and Drop-out of Family Based Treatment in Adolescents with Anorexia Nervosa**

A growing evidence base suggests that Family Based Treatment (FBT) should be the first line outpatient treatment for adolescents with Anorexia Nervosa (AN; Eisler et al., 2010). Studies suggest that FBT is particularly effective for weight gain and physical restoration in those adolescents under the age of 19 years with an illness duration of less than three years (Russell et al., 1987). After FBT, adolescents remain well at one to five year follow-ups (Eisler et al., 1997; Lock, Couturier, & Agras, 2006; Lock et al., 2010). FBT has been effective at creating return of menses at treatment completion and follow-up, with 60-90% of adolescents having achieved return of menses several years post-treatment (Eisler et al., 1997; Faust et al., 2013; Lock, Couturier, & Agras, 2006). FBT has also been disseminated in a variety of settings, and in different populations such as young children and young adults (Couturier et al., 2010; Loeb & Le Grange, 2009; Lock, 2011; Loeb et al., 2007; Paulson-Karlsson et al., 2008).

In contrast to the positive results for weight restoration and physical recovery at the end of treatment, the evidence for cognitive changes is not as robust. Overall, results suggest that a reduction in eating disordered cognitions after FBT is limited, with an average of 50% of adolescents reaching full remission after FBT (Lock & Le Grange, 2014). Some studies report that only 40-74% of adolescents experience a measurable reduction in eating disordered cognitions after completing FBT (Couturier et al., 2010; Lock, Couturier & Agras, 2006; Lock et al., 2010). FBT does not directly target psychological change in AN, such as reducing a fear of weight gain or body image disturbance (Lock & Le Grange, 2013; Loeb & Le Grange, 2009), and this may limit the cognitive change

produced by FBT. A lack of cognitive change after FBT may also be the result of early termination of treatment (e.g., completing only a few sessions or less than the full three phases of treatment; Couturier et al., 2010; Lock et al., 2005; Lock, Couturier, & Agras, 2006), resulting in insufficient time for a reduction in eating disordered cognitions to occur. Thus further research is needed to review if FBT, administered with a high degree of fidelity to the manual and/or with a longer length of treatment, can produce a reduction in eating disordered cognitions for adolescents with AN.

Despite evidence of the notable strengths of FBT, there is some suggestion that the research on FBT may have resulted in an overstatement of its benefits (Strober, 2014). Specifically, FBT studies have failed to report drop-out numbers in the results or have varying definitions of drop-out. Given that the manual outlines three clear phases of FBT (Lock & Le Grange, 2013), it could be argued that drop-out should include any patient who has not completed all three phases of treatment. In contrast, many studies report treatment completion as only needing to complete the first two phases of FBT or 10 sessions (Couturier et al., 2010; Lock et al., 2005; Lock, Couturier, & Agras, 2006). Furthermore, most studies report exclusion criteria that do not match 'real world' practice (e.g., one study excluded a patient for frequent suicidal ideation; Loeb et al., 2007). These factors may contribute to an inflated view of the outcomes that can be attained using FBT in real-world, outpatient settings. The effectiveness of the full three phases of FBT as an outpatient treatment, in these real-world settings, is thus a key research priority.

Also requiring further investigation is clarification regarding the factors that predict treatment outcome from FBT. One study found that those adolescents with lower starting weight, amenorrhoea, and previous treatment had poorer

outcomes following FBT (Doyle et al., 2010; Eisler et al., 2000; Pereira et al., 2006). In contrast, displaying more eating disordered behaviours and cognitions was a predictor for return of menses at treatment completion but also required a longer course of treatment so that it is unclear if it was the higher level of eating disorder symptoms or the longer treatment duration that was associated with a better outcome (Faust et al., 2013; Lock et al., 2005). In addition, there are inconsistent findings in terms of whether longer duration of illness has an impact on outcomes. Le Grange, Lock et al., (2012) found that those adolescents with a longer duration of illness were less likely to recover by treatment completion, and others have also shown that a longer duration of illness leads to worse outcomes (Doyle et al., 2010; Pereira et al., 2006), while Lock et al., (2005) found that duration of illness did not moderate outcome between short or long treatment lengths. It is unclear why the inconsistencies given that the studies all had a similar mean age of patient with approximately a 12-month history of the illness, and further investigation into the impact of illness duration on outcomes is needed.

Age of the adolescent at commencement of FBT has also been considered as a potential predictor of outcome. Some research suggests that age is a non-specific predictor of outcome, with older adolescents less likely to recover by the end of treatment (Le Grange, Lock et al., 2012; Lock, Couturier, Bryson et al., 2006). However other research suggests that age of the adolescent is not a predictor of outcome in FBT (Le Grange et al., 2005; Lock et al., 2005; Lock, Le Grange et al., 2006), with no difference in outcome for younger children or adolescents compared with older adolescents (Le Grange et al., 2005; Lock, Le Grange et al., 2006). There is a clear need for further research to clarify if age of the adolescent is a predictor of outcome in FBT.

As well as predictors of outcome, research has begun to focus on identifying the factors which lead to drop-out. Given the above-mentioned problems with definitions of drop-out or treatment completion, drop-out rates in FBT vary but are generally recorded as being approximately 10-15% (Ellison et al., 2012; Le Grange & Lock, 2005). Studies have found that drop-out rates are increased among those with a comorbid psychiatric illness (Lock, Couturier, Bryson et al., 2006), when treatment professionals are not aligned with the model (Murray et al., 2013), and when families were randomised to a longer length of treatment (Lock, Couturier, & Agras, 2006). Conversely, drop-out decreased when parents have more control over the illness (Ellison et al., 2012). There are also a number of factors which did not impact on retention rates in FBT, including the severity of illness (Ellison et al., 2012; Pereira et al., 2006), age, gender, and percentage of EBW at admission (Ellison et al., 2012). However, many studies exclude those families who have dropped out of treatment when reviewing outcomes (Fisher et al., 2010; Murray et al., 2014). Therefore, further investigation into factors which may impact drop-out such as age, past duration of illness, eating disordered cognitions, starting weight, and length of treatment need to be conducted.

In summary, FBT is most effective at weight restoration and reducing behavioural symptoms, although some adolescents are able to achieve full remission with FBT including a reduction in eating disordered cognitions. Although there have been a number of research trials evaluating FBT, further investigations reporting adolescent outcomes from different treatment sites is needed, including areas where adolescents are not excluded for comorbidity or risk issues, where weight gain is not achieved with the aid of inpatient admissions, and where treatment is delivered by more varied therapists. Also requiring further

research is determining whether completing the full three phases of the manualised FBT, with no limit on the number of sessions, results in full recovery including greater cognitive change. Moreover, the predictors of outcome and drop-out (e.g., age of the adolescent, past duration of illness, eating disordered cognitions, starting weight, and length of treatment) from FBT require further clarification given the inconsistencies characterising this research.

### **Aims and Hypotheses of the Present Study**

The current study aims to add to the research on the outcomes and predictors of treatment outcome and drop-out from FBT for adolescents with AN in a real-world setting. Based on the results of previous research, it is hypothesised that completion of all three phases of FBT will result in significant weight gain, return of menses (in females with amenorrhoea), a reduction in eating disordered cognitions, and an improvement in general psychosocial functioning. Given the research in past FBT studies, it is expected that lower starting weight at commencement of treatment will lead to poorer outcomes and a longer length of treatment. Previous studies have reported inconsistencies when reviewing if prior length of illness and age at treatment commencement impacts on outcomes and therefore no predictions will be made. Age of the adolescent, as well as past duration of illness, number of sessions, eating disordered cognitions, and starting weight will also be examined as predictors of outcome. Past research reviewing predictors of drop-out in FBT has yielded inconsistent results, and has included varying definitions of drop-out. Therefore, no definitive hypotheses around predictors of drop-out are made for the current study. Instead, the factors of percentage of EBW, illness duration, age, and eating disordered cognitions at commencement of FBT will be explored as potential predictors of drop-out.

## Method

### Participants

Participants in the present study were 45 adolescents with eating disorders who engaged in FBT at the Canberra Eating Disorders Program. Inclusion criteria to engage in FBT were: medical stability, diagnosis of AN (binge/purging subtype or restricting subtype) or EDNOS (if weight or menses criteria were not met for AN). Diagnosis was determined by a clinical assessment interview conducted by experienced clinicians using the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000)*. Using the current *DSM-5* criteria, all patients would have met criteria for AN or Atypical AN (APA, 2013). The current study utilised percentage of EBW (% of EBW) calculated as BMI/50<sup>th</sup> percentile BMI for age, sex and height x 100 (Faust et al., 2013). Due to a lack of easily accessible inpatient treatment facilities, % of EBW was not an inclusion/exclusion criterion. Hence patients with low % of EBW were accepted into outpatient treatment provided they were medically stable and had been given clearance from a medical professional. Drop-out was defined as those families who did not complete the full three phases of FBT (regardless of the number of sessions attended), as defined by the treatment manual (Lock & Le Grange, 2013). The study received ethical approval from both the ACT Health and the Australian National University Human Research Ethics Committees (refer to Appendix B, and copies of the consent and information forms are included in Appendix C).

### Program Description

The Canberra Eating Disorders Program (EDP) is a public outpatient eating disorders unit which provides assessment and treatment to patients with any eating disorder in the ACT and surrounding NSW. All clinicians were provided with the manual (Lock et al., 2001), and attended a two-day workshop



on FBT. FBT provided to adolescents and their families was based on the standard manualised version of FBT (Lock & Le Grange, 2013), however there was no limit on the number of sessions.

### **Measures**

The data collection occurred at the commencement and completion of treatment, and included sex, age, weight, height, % of EBW, duration of illness (months), diagnosis, amenorrhoea, and number of sessions attended. It also included the measures briefly described below. However, see Chapter 3 for a full description of the measures.

**Health of the Nation Outcome Scales (HoNOS).** The HoNOS is a clinician-rated measure which includes 12 items to assess the behaviour, impairment, symptoms, and social functioning of people with mental illness, with higher scores indicating greater severity of symptoms and impairment (Wing et al., 1998; Wing, Curtis & Beevor, 1996). The Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA) is used for children and adolescents and includes an additional three items which assess the child's environment including school attendance, concerns regarding parental lack of information around mental illness or access to services (Gowers et al., 1999). However, to allow for comparison with the HoNOS, only the first 12 items of the HoNOSCA were used. Both the HoNOS and HoNOSCA have been used for patients with eating disorders (Bilenberg, 2003; Stevens, 2010).

**Eating Disorder Inventory-3 (EDI-3).** The EDI-3 (Garner, 2004) is a standardised self-report measure which provides objective scores of eating disordered symptoms and associated psychopathology. The EDI-3 produces 12 subscale scores, six composite scores and three response style indicators (inconsistency, infrequency, and negative impression).

## Procedure

Prior to commencement of FBT, patients and parents attended an initial assessment, which included a clinical interview and administration of the outcome measures. The self-report (EDI-3) and clinician-rated (HoNOS or HoNOSCA) outcome measures were re-administered when the patient completed treatment. Not all patients completed self-report measures at commencement due to refusal ( $n = 4$ ), and being too young ( $n = 3$ ), and at completion of treatment due to refusal ( $n = 3$ ), missing follow-ups (drop-out;  $n = 14$ ), and age ( $n = 3$ ). As such, the self-report measures presented do not always include the full sample.

## Statistical Analysis

The study included both completer and intention-to-treat analyses. To assess outcome, pre-treatment scores on continuous measures were compared with post-treatment scores using paired  $t$ -tests, and effect size was calculated using Cohen's  $d$ . Percentage of change from pre- to post-treatment for categorical variables was examined using McNemar's test. To allow for clinically relevant interpretation of the outcome, the Morgan-Russell outcome criteria (Morgan & Russell, 1975) were used. These include three criteria, namely, 'good outcome' (weight within 15% EBW, menstruation, no bingeing or purging), 'intermediate outcome' (weight within 15% EBW, no bingeing or purging but amenorrhoea), and 'poor outcome' (weight below 85% EBW, bingeing/vomiting once per week or more). Predictors of treatment outcome were examined using regression analysis, while an exploratory analysis (due to small sample size) examined predictors of treatment drop-out using logistic regression analysis. SPSS version 22 was used for all analyses, with the two-tailed significance level set at  $p < .05$  for all analyses.

## Results

### Characteristics of the Sample

A total of 45 patients engaged in FBT and of those 14 (31.1%) ended treatment prematurely (without completing all three phases of FBT). Treatment was not limited to 20 sessions and instead followed the core components and three phases of FBT outlined in the manual (Lock & Le Grange, 2013). The number of sessions was dependent on the goals of each phase being achieved, (e.g. weight gain in phase one may have taken longer than the 10-15 sessions outlined in the manual) and therefore treatment ranged from four to 57 sessions. No therapeutic techniques beyond those outlined in the manual were provided.

Fifteen patients were underweight (less than 85% of EBW for BMI for age and sex), 24 patients were between 85% and 99% of EBW for age and sex, and six patients were at 100% of EBW for age and sex (despite having lost weight), with weights ranging from 69.95% of EBW to 104.7% of EBW. A total of 11 patients (24.4%) were hospitalised for medical stabilisation prior to commencing FBT. Despite the small sample size, independent *t*-tests were completed to determine whether there were any significant differences between those who were hospitalised for medical stabilisation prior to commencing FBT and those who were not hospitalised, with the results showing no significant difference for % of EBW at commencement of treatment,  $t(43) = .679, p = .501$ , or at treatment completion,  $t(43) = -.042, p = .967$ . Table 5.1 shows the characteristics of the sample of patients at commencement of treatment.

Table 5.1

*Description of the Sample at Commencement of FBT*

Characteristic	<i>M (SD)</i>	<i>Range</i>
Age (years)	14.96 (1.89)	8-18
% of EBW	89.0 (8.44)	69.95-104.7
Duration of illness (months)	11.31 (6.69)	3-26

  

Characteristic	<i>n</i>	<i>%</i>
Amenorrhoea	29	70.7
Menstruating	9	22
On oral contraceptive	3	7.3
Female	41	91.1
Male	4	8.9
AN -Restricting subtype	27	60.0
AN –Binge/purge subtype	5	11.1
EDNOS	13	28.9

Note. EDNOS: Eating Disorder Not Otherwise Specified, EBW: Expected body weight.  $N = 45$  (except for Amenorrhoea, Menstruating and On oral contraception, where  $N = 41$ )

**Treatment Outcome**

For those who completed treatment ( $n = 31$ ), FBT led to weight gain with overall percentage of Expected Body Weight (% of EBW) post-treatment scores ( $M = 101.03$ ,  $SD = 6.73$ ) increasing significantly from pre-treatment scores ( $M = 87.92$ ,  $SD = 8.79$ ),  $t(30) = -9.46$ ,  $p < .001$ , and with 26 (83.8%) adolescents who completed treatment finishing with an EBW at or above 95% of EBW. The mean increase was 13.11 with a 95% confidence interval ranging from 10.28 to 15.93 and the eta squared statistic (.75) indicated a large effect size. However, those who dropped out of treatment ( $n = 14$ ) did not gain a significant amount of weight, with no significant difference between pre-treatment % of EBW ( $M =$

91.50,  $SD= 7.29$ ) and % of EBW at drop-out ( $M= 92.39$ ,  $SD= 9.50$ ),  $t(13) = -.569$ ,  $p = .579$ . In addition, five (35.7%) of the 14 who dropped out of treatment lost weight. Including both those who completed treatment and those who dropped out, 30 (66.7%) adolescents ended their treatment with an EBW at or above 95% of EBW.

Including the full sample of female patients, at commencement of FBT, only 9 adolescents (22%) menstruated, but at termination of FBT, 32 adolescents (78%) menstruated. McNemar's Test showed that this change was significant,  $p < .001$ .

Based on the Morgan-Russell outcome criteria, at the termination of FBT (excluding 3 [7.3%] patients on the contraceptive pill), 85.7% of adolescents experienced a 'good outcome' (weight within 15% EBW, menstruation, no bingeing or purging), 7.1% had an 'intermediate outcome' (weight within 15% EBW, no bingeing or purging but amenorrhoea), and 7.1% experienced a 'poor outcome' (weight below 85% EBW, bingeing/vomiting once per week or more). It is important to note that 10 (22.2%) adolescents commenced treatment satisfying the criteria for a 'good outcome' ( $n = 4$  of those who completed treatment;  $n = 6$  of those who dropped out of treatment). Nevertheless, the change from adolescents classified as having a 'good outcome' from pre- to post-FBT was significant ( $p < .001$ .) according to McNemar's Test.

There was a significant change in HoNOS/CA clinician-rated scores for those who completed FBT, with significant reductions from pre-treatment ( $M= 10.41$ ,  $SD= 5.09$ ) to post-treatment ( $M= 3.39$ ,  $SD= 3.65$ ),  $t(30) = 6.89$ ,  $p = .001$ . The mean decrease was 7.03 with a 95% confidence interval ranging from 4.94 to 9.11 and the eta squared statistic (.61) indicated a large effect size. However, those who dropped out of treatment did not improve on HoNOS/CA scores, with

no significant difference between pre-treatment ( $M= 11.85, SD= 4.55$ ) and post-treatment scores ( $M= 13.00, SD= 7.41$ ),  $t(13) = -.547, p = .593$ .

As shown in Table 5.2, for those who completed treatment, pre- and post-treatment EDI-3 composite scores all improved significantly after FBT, including the Eating Disorder Risk Composite (EDRC), Ineffectiveness, Interpersonal Problems, Affective Problems, Over Control, and General Psychological Maladjustment. A total of 18 out of 21 (85.7%) adolescents had a reduction in their EDRC raw score at completion of FBT. No post-treatment EDI-3s were completed by those who dropped out of FBT.

Table 5.2

*Descriptive Statistics and t-test Results for the Eating Disorder Inventory (EDI-3) Composite and Subscale Scores.*

	Pre-treatment		Post-treatment		<i>n</i>	95% CI for Mean Difference	Cohen's <i>d</i>	<i>t</i>	df
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Eating Disorder Risk Composite (EDRC)	149.04	28.19	117.04	24.93	21	19.67, 44.32	0.59*	5.41*	20
Ineffectiveness	96.34	19.22	80.47	18.28	23	5.62, 26.11	0.32*	3.21*	22
Interpersonal Problems	103.37	17.81	89.16	17.27	24	6.21, 22.20	0.37*	3.67*	23
Affective Problems	98.82	17.50	87.00	19.96	23	4.27, 19.37	0.32*	3.24*	22
Over Control	96.95	15.07	86.04	14.02	23	3.27, 18.54	0.29*	2.96*	22
General Psychological Maladjustment	454.50	58.66	388.70	71.09	20	28.53, 103.06	0.42*	3.69*	19

Note. \*  $p < .05$

### Predictors of % of EBW in FBT

Multiple regression analysis was used to predict the impact of starting % of EBW, age at commencement, length of illness, eating disordered cognitions (measured by the EDI-3 EDCR score at commencement), and number of sessions attended on % of EBW at termination of FBT (including those who completed and dropped out of treatment). As Table 5.3 shows, all factors explain 31.6% of the variance in % of EBW at termination of FBT treatment. Of these factors, a higher % of EBW at commencement and greater number of sessions attended made a significant contribution to higher post-treatment % of EBW, with a marginally significant contribution by lower EDI-3 EDCR scores at treatment commencement.

Table 5.3

*Results of the Multiple Regression Analysis for % of EBW at Termination of FBT.*

	Coefficient $\beta$	Standard error	<i>t</i> value	<i>p</i>
Age at commencement	-.007	.698	-.048	.962
Number of sessions	.360	.093	2.44	.021
Duration of illness	-.026	.191	-.177	.861
% of EBW at commencement	.540	.150	3.67	.001
EDI-3 EDRC at commencement	-.287	.045	-1.97	.058

Note. % of EBW: percentage of expected body weight. EDI-3 EDRC: Eating Disorder Inventory-3 Eating Disorder Risk Composite.  
 $R^2 = .414$ , Adjusted  $R^2 = .316$ .  
 $N = 36$

### Predictors of Drop-Out From FBT

Logistic regression analysis was used to predict the factors which may have increased the likelihood of drop-out. Percentage of EBW, age, duration of illness, and eating disordered cognitions (measured by the EDI-3 EDRC score) at



commencement were analysed to see if they predicted treatment non-completion. The full model containing all predictors was significant,  $X^2(4, N = 36) = 21.86, p < .001$ , indicating that the model was able to identify treatment non-completers. The model as a whole explained between 45.5% (Cox & Snell R Square) and 64.3% (Nagelkerke R Square) of the variance in drop-out rates and correctly classified 88.9% of cases. As shown in Table 5.4, EDI-3 EDRC scores and % of EBW at treatment commencement made unique significant contributions to the model, indicating that those with a higher EDRC score at commencement of FBT were 1.15 times more likely to drop-out of treatment and those with a higher starting % of EBW were 1.2 times more likely not to complete the full three phases of FBT.

Table 5.4

*Results of the Logistic Regression Analysis Predicting Drop-out from FBT.*

	$\beta$	S.E.	Wald	df	$p$	Odds ratio	95% C.I. for odds ratio	
							Lower	Upper
Age (at commencement)	-.481	.495	.944	1	.331	.618	.234	1.63
% of EBW (at commencement)	.184	.093	3.92	1	.048	1.2	1.0	1.44
EDRC (at commencement)	.141	.057	6.04	1	.014	1.15	1.02	1.29
Duration of illness	-.042	.084	.250	1	.617	.959	.813	1.13

*Note.* % of EBW: Percentage of expected body weight. EDRC: EDI-3 Eating Disorder Risk Composite.  
 $N = 36$

## Discussion

The current study aimed to replicate and extend previous research examining the outcomes and predictors of outcome and drop-out for FBT among

adolescents with AN. The results provide support for FBT leading to physical restoration, reduced eating disordered symptoms, and improved psychosocial functioning. The findings also indicated that a greater severity of eating disordered cognitions and higher % of EBW at commencement of FBT increased drop-out, while commencing FBT at a higher % of EBW, experiencing a lower severity of eating disordered cognitions, and attending more FBT sessions predicted a greater % of EBW at completion of treatment.

### **Findings of the Present Study**

In terms of outcome, 66.7% of the entire sample (treatment completers and drop-outs) ended their course of FBT with an EBW at or above 95% of EBW. The results supported the benefits of FBT leading to weight restoration for those adolescents who completed the full three phases of FBT, with 83.8% of adolescents who completed treatment finishing with an EBW at or above 95% of EBW. These results are consistent with other studies, for example, those obtained by Lock, Couturier, Bryson et al., (2006) where at follow up of 83% of the original treatment sample after completing FBT, 89% of adolescents were at or above 90% of EBW. These results also suggest that for those who complete treatment, FBT is effective for weight restoration even without the aid of hospitalisation for weight restoration. However, it is important to note that the current study included 24% of patients who had a hospitalisation for medical stabilisation prior to commencing FBT. This is despite the fact there were no significant differences in % of EBW at commencement or completion of FBT between those who were hospitalised and those who were not.

In contrast, those who dropped out of treatment ( $n = 14$ , 31.1%) showed no significant increase between EBW at commencement of FBT and EBW at the point when they prematurely terminated therapy (with five of these patients losing

weight during their course of FBT). Given that the first phase of FBT is heavily focused on weight gain, these results may suggest that those who were not gaining weight assumed that treatment was failing and therefore terminated therapy. This idea is consistent with research demonstrating that a weight gain of at least 2.88% of EBW by session four predicts treatment success (Doyle et al., 2010), and that early weight gain improves recovery rates (Lock, Couturier, Bryson et al., 2006; Pereira et al., 2006).

As well as the positive outcomes for treatment completers in terms of weight restoration, the current study sought to determine if FBT is effective for return of menses and this was confirmed. At commencement of FBT, only 9 female adolescents (22%) menstruated but at termination of FBT, 32 adolescents (78%) had a return of menstruation. This is consistent with past studies which have shown that FBT leads to return of menses in approximately 60-90% of adolescents (Eisler et al., 1997; Faust et al., 2013; Lock, Couturier, & Agras, 2006; Russell et al., 1987). While some of these percentages included results after a period of follow-up (e.g., Russell et al., 1987; Eisler et al., 1997), the results from the current study suggest that return of menses is possible for the majority of adolescents during the course of FBT.

In addition to weight gain and return of menses, the study reviewed adolescent outcome based on the Morgan-Russell outcome criteria. By termination of FBT, 85.7% of the full sample (i.e., treatment completers and drop-outs) experienced a 'good outcome,' 7.1% had an 'intermediate outcome' and a further 7.1% experienced a 'poor outcome.' This is in contrast to other studies which have shown lower recovery rates such as 56% of patients achieving a 'good outcome,' 33% with an 'intermediate outcome', and 11% with a 'poor outcome' (Le Grange et al., 2005). The higher rates of a 'good outcome' reported in this

study may reflect the high number of adolescents who commenced treatment already in the 'good outcome' category, including those who dropped out of treatment. It does highlight the limitations of the Morgan-Russell criteria which rely heavily on physical symptoms. Thus there is a need for other factors such as behavioural and cognitive changes to be taken into account when defining outcomes.

Given the emphasis on the physical changes achieved as a result of FBT, the current study also aimed to investigate whether or not FBT is effective in improving overall psychological functioning for adolescents. The HoNOS/CA clinician-rated scales indicated that those who completed FBT displayed improved overall psychological functioning. These improvements were also supported by the self-report EDI-3 scales of Ineffectiveness, Interpersonal Problems, Affective Problems, Over Control, and General Psychological Maladjustment, which were all significantly reduced at treatment completion. The results of these measures indicate that FBT led to improved overall psychiatric and social functioning for those who completed the treatment. Previous research has also found that completion of FBT can lead to improvements in social functioning (Couturier et al., 2010; Paulson-Karlsson et al., 2008). In contrast to the positive results achieved by treatment completers, those who dropped-out of treatment had no change in their HoNOS/CA scores. This indicates that the clinician perceived those who dropped out of treatment not to have made any significant improvements in overall psychological functioning.

In addition to the positive changes seen in psychological and social function for those who completed FBT, the study demonstrated that there was a significant reduction in core eating disordered cognitions and behaviours as indexed by the EDI-3 Eating Disorder Risk Composite (EDRC) among those who

completed treatment (treatment non-completers did not complete the EDI-3 at termination of FBT and therefore their results could not be analysed). The EDRC combines the subscales of Drive for Thinness, Bulimia, and Body Dissatisfaction. As well as the change being significant, a total of 85.7% of adolescents who completed FBT had a reduction in their EDRC score which suggests they perceived an improvement in their eating disorder cognitions. This rate is higher than reported in other studies, where a reduction in eating disordered cognitions was seen in 40-74% of adolescents (Couturier et al., 2010; Lock, Couturier, & Agras, 2006; Lock et al., 2010). The typically low levels of cognitive change observed in other studies may have been due to premature termination of treatment or not completing the full three phases of FBT. For example, Couturier et al., (2010) considered completion of FBT as completing the first two phases of treatment or attending more than 10 sessions. The lack of completion of the final phase of FBT or shorter treatment in past studies may have resulted in insufficient time for a reduction in eating disordered cognitions to occur. The current results highlight the need to retain adolescents in treatment so that they complete all three phases of FBT if cognitive change is to occur.

As well as assessing weight, menstrual, and psychosocial outcomes, the present study sought to identify predictors of outcome. It was found that % of EBW and (marginally) EDRC at treatment commencement, and number of FBT sessions attended were unique predictors of % of EBW at termination of FBT. Lower eating disordered cognitions and behaviours at commencement led to higher % of EBW at completion, which may have been significant with a larger sample. This finding may be due to the fact that less eating disordered symptoms at commencement of FBT is likely to make weight restoration and the re-feeding phase of FBT easier.

Overall, however, % of EBW at commencement and number of sessions made the most significant contribution to predicting % of EBW at termination of FBT in the current study. Those who commenced treatment at a higher EBW were more likely to terminate FBT at a higher EBW, and this may have occurred because they had less weight to gain. This is consistent with other research that suggests lower starting weight leads to poorer outcomes (Doyle et al., 2010; Eisler et al., 2000; Pereira et al., 2006). The current study also found that those adolescents who attended more sessions were more likely to have a higher % of EBW at termination of FBT. This is in contrast to other studies that have found a short term version of FBT to be just as effective as the 20 session version of FBT (Lock et al., 2005; Lock, Couturier, & Agras, 2006). This discrepancy may have been due in part to the fact that patients in the current study did not undergo a period of inpatient weight restoration and therefore benefited from an extended period of FBT. Additionally, the present study differs from those of Lock and colleagues by the fact that it was undertaken in a clinical, rather than a research, setting. Since underweight patients have been shown to gain weight faster in RCTs compared with clinical settings (Accurso et al., 2015), patients in the current study may have benefited from a longer course of treatment to reach EBW. Allowing FBT to continue past the standard 20 sessions may be a consideration for outpatient settings where inpatient weight restoration is not possible prior to the commencement of FBT. This is a view shared by some adolescents, with over half reporting that they required more treatment than offered in the time-limited protocol (Krautter & Lock, 2004).

It appears that a shorter duration of illness was not a significant predictor of a higher % of EBW at termination of FBT. The findings of the current study reflect the results of previous research which suggest that past duration of illness

may not have a direct impact on outcomes (Doyle et al., 2010; Lock et al., 2005; Pereira et al., 2006). The mean duration of past illness in the current study of 11 months was similar to that reported in other studies of adolescents which ranged from 8 to 12 months (Couturier et al., 2010; Le Grange, Lock et al., 2012; Lock et al., 2010). This restricted range in illness duration may have contributed to the non-significant findings. In addition, the current results suggest that age did not significantly predict % of EBW at termination of FBT. This is in contrast to previous findings where age was a non specific predictor of outcome, with older adolescents less likely to do well in FBT (Le Grange, Lock et al., 2012; Lock, Couturier, Bryson et al., 2006). The reasons for these inconsistent results are unclear (given that the patients in the current study had similar mean age and duration of illness as other studies [e.g. Le Grange, Lock et al., 2012]), but may have been due to the limited analysis in the study which only reviewed age as a predictor of % of EBW at completion. Future research should review if age is a predictor of various types of outcome such as weight, menses and eating disordered thoughts and cognitions.

The present study also sought to examine potential predictors of treatment drop-out from FBT. Partially replicating the predictors of outcome, eating disordered cognitions and behaviours (measured by the EDI-3 EDRC score) at treatment commencement made a unique contribution to predicting treatment drop-out. More specifically, higher EDRC scores at commencement were associated with a greater likelihood of terminating treatment prematurely. This is in contrast to other research which has found that severity of the illness did not impact retention rates in FBT (Ellison et al., 2012; Pereira et al., 2006), and suggests that those with higher eating disordered symptoms have difficulty tolerating the treatment and are more likely to drop-out of treatment. The findings

in this study may reflect the lack of inpatient admissions for weight restoration (compared to medical stability), which would result in some symptom reduction prior to commencing FBT. Many of the past studies have included prior weight restoration through hospitalisation (e.g., Russell et al., 1987) and future research should focus on examining if prior inpatient weight restoration can increase retention rates in FBT for those with severe eating disordered cognitions and behaviours.

Another predictor of drop-out was % of EBW at commencement of treatment, with those who commenced treatment at a higher % of EBW being more likely to terminate treatment prematurely. This is an interesting finding given that starting with a higher % of EBW predicted a higher % of EBW at post-treatment, but it seems it leads to higher drop-out rates, with those who dropped out of treatment having a higher starting % of EBW than those who completed treatment (mean 91.50 vs. 87.92, respectively). Previously, % of EBW was thought not to have an impact on completion rates (Ellison et al., 2012). It has been assumed in past studies that those who drop-out of treatment have a 'poor outcome' (Strober et al., 2014), however in the current study many of those who did not complete the full three phases of FBT commenced treatment in the 'good outcome' category. Treatment drop-out may actually reflect a lack of a sense of urgency in phase one to gain weight and may mean that the patient or parents are less likely to comply with the goals of FBT and find it difficult to tolerate the treatment. Reviewing treatment outcomes and acceptability of FBT for those with Atypical AN, where weight maintenance rather than re-feeding is necessary, would help to clarify if treatment acceptability for FBT is lower among those not requiring weight restoration.



In contrast, age and duration of illness were not significant predictors of drop-out from FBT. This is consistent with other studies suggesting they did not have an impact on completion rates (Ellison et al., 2012). These results may reflect the fact that in the current study, as in the Ellison et al. (2012) study, the patients were under 18 years of age with a short illness duration, both of which are viewed as the optimum target group for FBT (Lock & Le Grange, 2013; Russell et al., 1987). This may result in clinicians selecting this group for treatment, resulting in a restricted range in age and illness duration so that they do not predict retention rates.

### **Limitations of the Present Study and Directions for Future Research**

While the findings of this study highlight the effectiveness of FBT for weight restoration, return of menses, reduction in eating disordered cognitions, and an improvement in overall psychiatric and social functioning for those who completed the full three phases of treatment, there are some important limitations to consider. Firstly, while the study showed that successfully completing all three phases of FBT led to cognitive change or a reduction in eating disordered cognitions, the sample did not include EDI-3s from all adolescents. This was due to the fact that some adolescents refused to complete the EDI-3, some missed follow up sessions as a result of prematurely terminating therapy, and some adolescents/children were too young to complete the EDI-3. Not having EDI-3 data for the full sample may have biased the results as some adolescents may have refused to complete the EDI-3 due to still experiencing a high level of eating disordered cognitions. This concern is underscored by the findings that higher EDI-3 scores at treatment commencement predicted a greater likelihood of premature drop-out, meaning that those adolescents with the greatest cognitive disturbance were not included in the analyses assessing cognitive change.

Moreover, the mean illness duration of patients was less than a year, which may have impacted on the severity of eating disordered cognitions being experienced. Therefore the positive results concerning cognitive change found in the current study may actually reflect, at least in part, prior illness duration rather than treatment effectiveness. Further investigations into cognitive change in FBT should be conducted to determine if the high rates of cognitive improvement found in this study can be replicated with a complete sample size and with varying rates of prior illness duration.

A second noteworthy limitation is that the sample size was small, and results of a small sample size combined with missing data (and its implications for power) should be interpreted with caution. The 'real world' nature of this study means that the clinicians were not blind to the completion status of patients when undertaking clinician-rated outcome measures and stringent statistical measures usually associated with RCTs, such as inter-rater reliability, were not possible. While data collection in clinical settings is often inconsistent, the small sample size indicates that further investigation and replication is needed in these 'real world' treatment settings. In addition, it is important to note that because this was a 'real world' sample of patients, it included 24.4% of patients who had previously been hospitalised for medical stabilisation prior to commencing FBT. While these patients were hospitalised for medical stabilisation and not for weight restoration, the hospital admission may have had an effect on treatment. For example, the hospital admission may have increased the intensity in phase one of FBT and motivated parents in the re-feeding of their child. In addition, EBW at commencement of treatment was relatively high, with only one third of patients being underweight at commencement of FBT, which may have contributed to the positive results. Further investigation regarding how prior hospitalisation (whether

for medical stability or weight restoration) and EBW at commencement of FBT impacts on treatment outcome and drop-out is needed.

Thirdly, only a limited number of predictors of outcome and terminating treatment prematurely were analysed in the present study, indicating that future research would benefit from examining additional constructs. For instance, past research has shown that settings where the treating team had poor cohesion and inconsistency led to higher drop-out rates (Murray et al., 2013). The EDP does not have medical staff as part of the unit and relies on external providers such as GPs and paediatricians to provide medical monitoring. Therefore, problems with collegial alliance between the treating team and the medical professionals may have also increased drop-out rates in the current study.

Another limitation of the present study is that it did not include a longer-term follow-up of the adolescents. While the current findings highlight the effectiveness of FBT for those who completed all three phases of treatment, a longer-term follow-up would provide evidence that the gains are maintained, or that there is continued improvement, as found in past research (Eisler et al., 1997; Lock, Couturier, & Agras, 2006).

Finally, the present study altered the manualised version of FBT by allowing an unlimited number of sessions. Past studies have also altered the manualised definition of treatment completion for FBT, for example, considering completion of FBT as completing the first two phases of treatment or attending more than 10 sessions (Couturier et al., 2010; Lock et al., 2005; Lock, Couturier & Agras, 2006). While treatment in the current study adhered to the main concepts and three phases of FBT outlined in the manual, allowing patients and families to continue treatment until they chose to end treatment rather than completing the standard 20 sessions, means that the findings of the study may not

reflect the effectiveness of the manualised version of FBT. In addition, the present study did not report on the findings of a comparison group. It is important to consider how the outcomes achieved in FBT compare to other treatments offered for adolescents. While a few RCTs have been completed comparing FBT to other forms of individual therapy (e.g., Lock et al., 2010), further investigation is needed comparing FBT in 'real world' treatment settings to other forms of outpatient therapy such as individual therapy and day programs.

### **Summary**

Taking into account the small sample size of this study, the missing data, and the adaptation of the manualised version of FBT by allowing an unlimited number of sessions, the findings provide preliminary support for the notion that completion of all three phases of FBT leads to improvements for adolescents with AN in terms of weight restoration, return of menstruation, core eating disorder cognitions and behaviours, and general psychosocial functioning. There have been conflicting results regarding predictors of outcome and drop-out from FBT, with the present study suggesting that commencing FBT at a higher % of EBW and experiencing a lower severity of eating disordered cognitions, as well as attending more FBT sessions predict a greater % of EBW at termination of FBT, while a greater severity of eating disordered cognitions and higher % of EBW at commencement of FBT increases the likelihood of terminating treatment prematurely. Future research should continue to evaluate the effectiveness of FBT in 'real world' settings, especially compared with other outpatient adolescent treatments.

## Chapter 6

### **Study 3: The Effectiveness of a Day Program Compared with Family Based Treatment for Adolescents with Anorexia Nervosa**

Family Based Treatment (FBT) is currently recommended as the first line treatment for adolescents with Anorexia Nervosa (AN; Eisler et al., 2010). This recommendation is based on promising results suggesting that FBT is efficacious in the adolescent population and this is particularly true for those under the age of 19 years with an onset of less than three years (Russell et al., 1987). FBT has been shown to be effective for weight restoration, return of menses, and physical recovery (Eisler et al., 1997; Faust et al., 2013; Lock et al., 2006; Lock et al., 2010), and can lead to a reduction in eating disordered cognitions for some patients (Couturier et al., 2010; Lock, Couturier, & Agras, 2006; Lock et al., 2010). FBT has also been disseminated in a variety of settings, and in different populations such as young children and young adults (Couturier et al., 2010; Loeb & Le Grange, 2009; Lock, 2011; Loeb et al., 2007; Paulson-Karlsson et al., 2009).

Despite the above-mentioned promising results, there is currently a lack of research comparing FBT to other forms of intensive outpatient treatment, such that the recommendation that it be considered first line treatment for adolescents with AN may be premature. To date, FBT has been investigated in adolescents with AN comparing different types of FBT, FBT to other types of family therapy, or FBT to other types of individual therapy. For instance, the first RCT compared FBT to supportive individual therapy, where FBT was found to be more effective than individual therapy at completion and again at a five-year follow-up (Eisler et al., 1997; Russell et al., 1987). Another study found that, compared to another form of individual therapy (Adolescent Focused Therapy), FBT was more effective for full remission at six- and 12-month follow-ups (Lock et al., 2010).

Subsequently, a review by Couturier et al., (2013) found that FBT produces outcomes similar to individual therapy at the end of treatment, however is more effective at six- to 12-month follow-ups.

Further research comparing FBT to a more comprehensive range of evidence-based treatments for adolescent AN is lacking, in particular, day programs. Given that AN is one of the most serious psychiatric illnesses with high mortality rates, especially when intervention in the early stages is not provided or not effective (Bulik et al., 2007; Harris & Barraclough, 1998), finding the most efficacious treatments should be a research priority. Reviews of studies for AN suggest that further research is needed across the various forms of psychotherapeutic interventions, particularly those that include a multidisciplinary treating team (Bulik et al., 2007).

The need to evaluate FBT relative to other approaches is further underscored by some limitations with FBT. For instance, many adolescents do not respond to FBT, with research demonstrating that for patients with higher levels of negative expressed emotion or for separated families, FBT results in higher rates of drop-out, lower rates of physical restoration, and longer treatment length (Eisler et al., 2000; Le Grange et al., 1992; Lock, Couturier, Bryson et al., 2006; Szmukler et al., 1985). The findings from Study 2 (see Chapter 5) also suggest that a greater severity of eating disordered symptoms and higher % of EBW at commencement of FBT increase the likelihood of terminating treatment prematurely. In addition, patients who attend more FBT sessions as well as those patients who commence FBT at a higher % of EBW, and experience a lower severity of eating disordered cognitions, could be expected to experience a greater % of EBW at completion of FBT. For most patients, FBT has also produced less than ideal rates of eating disordered cognitions at treatment completion (Le

Grange & Lock, 2005; Couturier et al., 2010; Ellison et al., 2012; Lock et al., 2010; Strober, 2014). Therefore, it is important to review FBT compared to other forms of intervention to offer an alternative treatment to those families for whom FBT is inadequate.

In addition to the research comparing FBT to various forms of individual therapy, adaptations to the manualised version of FBT have been studied. The most common adaptations to the model are multifamily programs (Dare & Eisler, 2000; Scholz & Asen, 2001; Scholz et al., 2005), or group based treatments such as dialectical behaviour therapy (DBT; Johnston, O’Gara, Koman, Wood Baker, & Anderson, 2015), and using FBT combined with another group based treatment option such as a day program (Girz et al., 2013; Grewel et al., 2014; Henderson et al., 2014; Robinson et al., 2012; Ornstein et al., 2012). In particular, FBT-based day programs involve adolescents attending a day program which includes group therapy and meal support, while the family also engages in traditional FBT. The initial studies indicate that the FBT-based day programs are effective for weight gain and producing a reduction in eating disordered cognitions. However, these day programs appear to have high drop-out rates (42-46%) compared with the standard version of FBT (15-25%; Ellison et al., 2012; Grewel et al., 2014; Loeb et al., 2007; Ornstein et al., 2012) and it is often unclear if they are used as a first line treatment or for those who have failed more traditional FBT. While FBT-based day programs may be beneficial, research examining the effectiveness of FBT compared to traditional day programs is also needed.

As with FBT, there is a lack of research comparing day programs to other outpatient treatments. The literature reviewing standard and FBT-based day programs for adolescents is an emerging area. The limited number of studies which have been published indicate that adolescent day programs are as effective

as inpatient admissions (Herpertz-Dahlmann et al., 2014), produce significant weight gain, result in a reduction in eating disordered symptomatology (Girz et al., 2013; Goldstein et al., 2011; Henderson et al., 2014; Ornstein et al., 2012), and lead to improvements in general psychological functioning (Henderson et al., 2014; Lazaro et al., 2011; Ornstein et al., 2012). Day programs were initially developed as a way to reduce long inpatient admissions for patients with eating disorders and therefore most research has focused on comparing the effectiveness of day programs to inpatient admissions. Aside from comparing day programs to inpatient admissions, studies related to day programs for patients with eating disorders have either not included comparison groups (Zipfel et al., 2002) and/or have utilised small sample sizes (e.g., 40 patients in a randomised controlled trial by Kong [2005]), thereby making it difficult to ascertain the effectiveness of day program treatment relative to other evidence-based interventions for adolescent AN such as FBT.

### **Aims and Hypotheses of the Present Study**

Given that a key deficiency in the research is that there have been no clinical trials comparing the effectiveness of FBT with day programs, the aim of the current study is to provide a first step in comparing the effectiveness of manualised FBT and day program treatments for adolescents with AN. Limited past research suggests that day programs are more effective than individual therapy, however there is currently no research comparing day programs to group based or family therapies. Based on limited research assessing FBT based day programs for adolescents, it is hypothesised that there will be no difference between the two treatments on outcome measures. The two treatments will be compared on a number of factors including drop-out rate, length of treatment (number of sessions or days attended), and changes in percentage of expected



body weight (% of EBW), return of menses (in females with amenorrhoea), eating disordered cognitions and behaviours, and general psychosocial functioning from the commencement to end of treatment.

## **Method**

### **Participants**

The present study included adolescents who participated in treatment at the Canberra Eating Disorders Program over a period of seven years. This included 39 adolescents who participated in the day program (as described in Study 1, Chapter 3) and 45 adolescents who participated in FBT (as described in Study 2, Chapter 5). Inclusion criteria to participate in either treatment were: medical stability and diagnosis of AN (binge/purging subtype or restricting subtype) or EDNOS (if weight or menses criteria were not met for AN). Diagnosis was determined by a semi-structured clinical assessment interview conducted by experienced clinicians using the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000)*. Using the current *DSM-5* criteria, all patients would have met criteria for AN or Atypical AN (APA, 2013).

Drop-out from the day program was defined as those patients who disengaged before an agreed termination (i.e., between the patient, parents, and treating team), regardless of the number of weeks attended. Drop-out from FBT was defined as those families who did not complete the full three phases of FBT (regardless of the number of sessions attended), as defined by the treatment manual (Lock & Le Grange, 2013).

The study received ethical approval from both the ACT Health and the Australian National University Human Research Ethics Committees (documentation pertaining to ethical clearance is contained in Appendix B, while copies of the consent and information forms are included in Appendix C).

## **Design**

A non-randomised controlled trial study design was used. Randomisation to treatment type was not possible because the two treatments were offered consecutively at the Canberra Eating Disorders Program, with day program treatment being offered for the first 3.5 years and FBT being offered for the next 3.5 years. Research has highlighted the need for ‘real world’ research trials in addition to randomised controlled trials in the AN population (Treasure & Kordy, 1998). The therapists in both programs had varying experience in treating patients with eating disorders and were part of a multidisciplinary team that included social workers, occupational therapists and psychologists.

## **Measures**

Data collection occurred at the commencement and completion of treatment, and included sex, age, weight, height, percentage of expected body weight (% of EBW; calculated as  $\text{BMI}/50^{\text{th}}$  percentile BMI for age, sex, and height x 100 [Faust et al., 2013]), duration of illness in months (calculated from when patients or family members reported the onset of the disorder), diagnosis, amenorrhoea, and number of day program days attended or number of FBT sessions attended.

Several questionnaires were also administered including the Health of the Nation Outcome Scales (HoNOS [Wing, Curtis & Beevor, 1996]) or Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA [Gowers et al., 1999]), and the Eating Disorder Inventory-3 (EDI-3). The HoNOS is a 12-item, clinician-rated measure to assess the behaviour, impairment, symptoms, and social functioning of people with a severe mental illness including patients with eating disorders and the HoNOSCA is a version for young people (Bilenberg, 2003; Stevens, 2010; Wing et al., 1998). The EDI-3 (Garner, 2004) is a

standardised self-report measure of eating disorder symptoms and associated psychopathology. A full description of the outcome measures is contained in Chapter 3.

### **Procedure**

Prior to commencement of either treatment program, patients and parents attended an initial assessment, which included a clinical interview and administration of the outcome measures. A description of the day program content is contained in Chapter 3, while a description of FBT is presented in Chapter 5. The self-report (EDI-3) and clinician-rated (HoNOS or HoNOSCA) outcome measures were re-administered when the patient completed treatment. In both the day program and FBT samples, not all patients completed the self-report measures at commencement due to refusal (day program,  $n = 8$ ; FBT,  $n = 4$ ) and age (FBT,  $n = 3$ ). Again at completion of treatment, not all patients completed the self-report measures due to refusal and missing follow-ups (drop-out) (day program,  $n = 20$ ; FBT,  $n = 17$ ) and age (FBT,  $n = 3$ ). Therefore the results of the self-report measures do not always include the full sample of each treatment program.

### **Statistical Analysis**

The study included a completer and an intention-to-treat analysis. To assess outcome for categorical variables (return of menses at end of treatment and drop-out) percentages between treatment types were examined using the Chi-square independence test. Length of treatment between the two groups was compared using independent  $t$ -tests. A series of two-way within-between subjects analysis of variance (ANOVAs) were performed for the full sample and then excluding drop-outs to assess the impact of treatment (day program or FBT) on % of EBW, HoNOS/CA scores and EDI-3 composite scores at pre- and post-

treatment. SPSS version 22 was used, with the two-tailed significance level set at  $p < .05$  for all analyses.

## Results

### Characteristics of the Sample

A total of 39 patients participated in the day program and 45 patients and their families participated in FBT. At the pre-treatment assessment, for those in day program, 13 (33.3%) patients met *DSM-IV-TR* criteria (APA, 2000) for AN, and 26 (66.7%) patients met criteria for Eating Disorder Not Otherwise Specified (EDNOS) due to not meeting the weight and/or menses criteria for AN. For those in FBT, 32 (71.1%) patients met *DSM-IV-TR* criteria (APA, 2000) for AN, and 13 (28.9%) patients met criteria for EDNOS due to not meeting the weight and/or menses criteria for AN. Table 6.1 shows the characteristics of both samples at commencement of the day program and FBT.

Independent *t*-tests and chi square tests were completed to ensure there were no significant differences between the two groups on demographic and clinical characteristics at treatment commencement. There were no significant differences for any of the characteristics including menstruation at commencement (excluding males and those on the contraceptive pill),  $X^2(1, n = 70) = .000, p = 1.0, \phi = -.02$ ; prior hospitalisation,  $X^2(1, n = 84) = .162, p = .687, \phi = -.07$ ; percentage of EBW at commencement of treatment,  $t(82) = -.279, p = .781$ ; age at commencement of treatment  $t(82) = 1.73, p = .087$ ; duration of illness  $t(82) = 1.69, p = .095$ ; and gender,  $X^2(1, n = 84) = .808, p = .681, \phi = -.07$ .

Table 6.1

*Mean (SDs) Demographic and Clinical Characteristics at Commencement of the Day Program and FBT*

Characteristic	<i>M (SDs)</i>	
	Day Program	FBT
Age	15.7 (1.73)	14.96 (1.89)
% of EBW	88.48 (9.7)	89.0 (8.44)
Duration of illness (months)	14.1 (8.43)	11.31 (6.69)
	<i>n (%)</i>	
Characteristic	Day Program	FBT
Amenorrhoea	25 (67.5)	29 (70.7)
Menstruating	7 (18.9)	9 (22)
On oral contraceptive	5 (13.5)	3 (7.3)
Female	37 (94.9)	41 (91.1)
Male	2 (5.1)	4 (8.9)
Weight < 85% of EBW	13 (33.3)	15 (33.3)
Weight between 85% and 99% of EBW	22 (56.4)	24 (53.4)
Weight > 99% of EBW	4 (10.3)	6 (13.3)
Hospitalisation prior to treatment	12 (30.8)	11 (24.4)
	N = 39	N = 45

*Note.* EBW: Expected body weight.

### **Treatment Outcome**

A Chi-square test for independence indicated that there was a significant difference between treatment groups for drop-out rates with a small effect size,  $X^2(1, n = 84) = 3.99, p = .046, \phi = -.218$ . Only five (12.8%) of the day program patients ended treatment prematurely, whereas 14 (31.1%) of FBT patients terminated treatment without completing the full three phases of FBT. Day program patients dropped out of treatment after an average of 4.2 days, whereas

those in FBT dropped out after an average of 10.8 sessions.

When reviewing the full sample (i.e., both completers and drop-outs), there was a significant difference in the number of sessions attended for FBT ( $M = 18.77$ ,  $SD = 13.6$ ) compared with number of days attended in the day program ( $M = 26.8$ ,  $SD = 20.6$ ),  $t(64) = 2.07$ ,  $p = .043$ , and Cohen's value ( $d = .51$ ) suggested a moderate effect size. When excluding those who dropped out of treatment, there was a trend towards a significant difference in the number of sessions attended for FBT ( $n = 31$ ) ( $M = 22.35$ ,  $SD = 13.9$ ) compared with the number of days attended in the day program ( $n = 34$ ) ( $M = 30.11$ ,  $SD = 20.03$ ),  $t(63) = 1.79$ ,  $p = .077$ . In addition, for those who completed treatment, there was a significant difference in the number of weeks attended. Those patients in day program attended for less weeks ( $n = 34$ ;  $M = 15.85$ ,  $SD = 10.34$ ) than those in FBT ( $n = 31$ ;  $M = 40.22$ ,  $SD = 20.20$ ),  $t(43.77) = -6.033$ ,  $p < .001$ , and Cohen's value ( $d = -1.518$ ) suggested a large effect size.

For the full sample of female patients 62.2% % of the day program patients experienced menstruation at the end of treatment, and 78% of FBT patients menstruated. A Chi-square test for independence (with Yates Continuity Correction) indicated that this difference was not significant,  $X^2(1, n = 70) = .92$ ,  $p = .33$ ,  $\phi = -.15$ . For those who completed treatment (and when excluding those on the contraceptive pill), Fisher's Exact Probability Test showed that there was a significant difference ( $p = .025$ ) in menstruation for females between the two treatment groups, with 96% of those in the FBT group menstruating at completion compared with 70.4% of the day program patients.

A mixed within-between subjects ANOVA was conducted to assess the treatment types (day program and FBT) on % of EBW at pre- and post-treatment for both the full and completer samples. For the full sample, there was no

significant interaction between treatment type and change from pre- to post-treatment for % of EBW, Wilks' Lambda = .97,  $F(1, 82) = 2.91$ ,  $p = .092$ ;  $\eta^2 = .03$ . There was a main effect for time, Wilks' Lambda = .59,  $F(1, 82) = 55.77$ ,  $p < .001$ ;  $\eta^2 = .41$ , showing that for both day program and FBT patients, % of EBW weight increased from pre- to post-treatment. The main effect for treatment type was not significant,  $F(1, 82) = 1.74$ ,  $p = .191$ ;  $\eta^2 = .02$ , suggesting no difference for % of EBW between day program and FBT patients.

For those who completed treatment (i.e., excluding drop-outs), there was a significant interaction between treatment type and change from pre- to post-treatment for % of EBW, Wilks' Lambda = .85,  $F(1, 63) = 10.67$ ,  $p = .002$ ;  $\eta^2 = .145$  (indicating a large effect size). The main effect for time was also significant, Wilks' Lambda = .46,  $F(1, 63) = 73.71$ ,  $p < .001$ ;  $\eta^2 = .54$ , as was the main effect for treatment type,  $F(1, 63) = 5.5$ ,  $p = .022$ ;  $\eta^2 = .08$ . These results suggest that for those who completed treatment, where they commenced with similar % of EBW by the completion of treatment FBT patients finished with a higher % of EBW than day program patients. The mean % of EBW scores at the commencement and end of treatment in the day program and FBT conditions for both the full sample and completers are shown in Table 6.2.

To review the impact of treatment type (day program and FBT) on HoNOS/CA scores at pre- and post-treatment for both the full and completer samples, a mixed within-between subjects ANOVA was completed. For the full sample, there was no significant interaction between treatment type and change from pre- to post-treatment on HoNOS/CA scores, Wilks' Lambda = .97,  $F(1, 82) = .338$ ,  $p = .563$ ;  $\eta^2 = .004$ . The main effect for treatment type was also not significant,  $F(1, 82) = .82$ ,  $p = .368$ ;  $\eta^2 = .01$ , indicating no difference for HoNOS/CA scores between day program and FBT patients. There was a main

effect for time, Wilks' Lambda = .71,  $F(1, 82) = 33.73$ ,  $p < .001$ ;  $\eta^2 = .29$ , suggesting that for both day program and FBT patients, HoNOS/CA scores significantly decreased from pre- to post-treatment.

For those who completed treatment (i.e., excluding drop-outs), there was no significant interaction between treatment type and change from pre- to post-treatment on HoNOS/CA scores, Wilks' Lambda = .99,  $F(1, 63) = .297$ ,  $p = .588$ ;  $\eta^2 = .005$ . The main effect for time was significant, Wilks' Lambda = .52,  $F(1, 63) = 57.4$ ,  $p < .001$ ;  $\eta^2 = .47$ , suggesting that for those who completed day program or FBT, HoNOS/CA scores significantly decreased from pre- to post-treatment. The main effect for treatment type was also significant,  $F(1, 63) = 8.65$ ,  $p = .005$ ;  $\eta^2 = .121$ , indicating a difference for HoNOS/CA scores between day program and FBT patients. Mean HoNOS/CA scores at the commencement and end of treatment in the day program and FBT conditions for both the full sample and completers are shown in Table 6.2.



Table 6.2

*Means (SDs) for % of EBW and HoNOS/CA Scores for the Full Sample and Treatment Completers for the Day Program and FBT at Pre-Treatment and Post-Treatment*

	<i>M (SD)</i>			
	Pre-treatment		Post-treatment	
	Day Program	FBT	Day Program	FBT
Full Sample				
% of EBW	88.48 (9.7)	89.03 (8.44)	94.32 (9.46)	98.34 (8.59)
HoNOS/CA	12.3 (6.99)	10.86 (4.92)	6.82 (5.86)	6.37 (6.75)
	Pre-treatment		Post-treatment	
Treatment completers	Day Program	FBT	Day Program	FBT
% of EBW	87.14 (9.34)	87.92 (8.79)	93.03 (9.65)	101.03 (6.73)
HoNOS/CA	13.02 (6.88)	10.41 (5.09)	6.94 (5.58)	3.38 (3.66)

*Note.* % of EBW: Expected body weight.

Mean EDI-3 scores (for the completer sample) at pre- and post-treatment in the day program and FBT groups are shown in Table 6.3. Only analyses on the completer sample were undertaken for the EDI-3 scores given that no EDI-3s were completed at the end of treatment for those who dropped out. To evaluate if there were significant differences between treatment groups for the EDI-3 Eating Disorder Risk Composite (EDRC) scores for those who completed treatment, mixed within-between subjects ANOVAs were completed. The interaction between treatment type and change from pre- to post-treatment on EDRC scores approached significance, Wilks' Lambda = .90,  $F(1, 34) = .338$ ,  $p = .06$ ;  $\eta^2 = .09$ , with a significant main effect for time, Wilks' Lambda = .55,  $F(1, 34) =$

28.04,  $p < .001$ ;  $\eta^2 = .45$ , and a trend towards a significant main effect for treatment type,  $F(1, 34) = 3.83$ ,  $p = .059$ ;  $\eta^2 = .101$ . EDRC scores reduced for both groups across time, however FBT patients had lower EDRC scores at treatment completion compared with day program patients. In addition, the interaction between treatment type and change from pre- to post-treatment on EDI-3 General Psychological Maladjustment (GPM) scores was significant, Wilks' Lambda = .85,  $F(1, 33) = 5.6$ ,  $p = .024$ ;  $\eta^2 = .145$ , with a main effect for time, Wilks' Lambda = .633,  $F(1, 33) = 19.15$ ,  $p < .001$ ;  $\eta^2 = .37$ , but not for treatment type,  $F(1, 33) = 2.69$ ,  $p = .110$ ;  $\eta^2 = .07$ , indicating that GPM scores for day program and FBT were similar at pre-treatment, but at post-treatment those in FBT had lower GPM scores.

Table 6.3

*Means (SDs) for the Eating Disorder Inventory (EDI-3) Composite Scores of Eating Disorder Risk Composite (EDRC) and General Psychological Maladjustment (GPM) for the Day Program and FBT at Pre-Treatment and Post-Treatment.*

	<i>M (SD)</i>			
	Pre-treatment		Post-treatment	
	Day Program	FBT	Day Program	FBT
Eating Disorder Risk Composite (EDRC)	150.58 (22.01)	149.04 (28.19)	132.89 (32.73)	117.04 (24.93)
General Psychological Maladjustment (GPM)	451.05 (60.43)	454.50 (58.66)	427.05 (77.13)	388.70 (71.09)

## Discussion

The current study aimed to compare the effectiveness of day program treatment and FBT for adolescents with AN. More specifically, the study aimed to compare the effectiveness of each program based on a number of physical measures including % of EBW and return of menses at the end of treatment, and on potential improvements in eating disordered cognitions and measures of general psychosocial functioning. The study also sought to compare if there were differences in premature termination of treatment between day program treatment and FBT.

### Findings of the Present Study

The current study found that FBT was associated with a significantly higher rate of drop-out compared with day program treatment. Only 12.8% of day program patients ended treatment prematurely, whereas 31.1% of FBT patients terminated treatment before completing all three phases of FBT. The drop-out rates of the day program in the current study are consistent with other studies employing CBT-based day programs for adolescents, such as Goldstein et al., (2011) who reported a drop-out rate of 7.1%. In contrast, FBT-based adolescent day programs have reported drop-out rates as high as 42% (Grewel et al., 2014). Studies evaluating the use of FBT in specialist research settings report drop-out rates around 10-15% (Le Grange & Lock, 2005; Le Grange et al., 2005), however dissemination studies report higher drop-out rates of around 14-25% (Couturier et al., 2010; Loeb et al. 2007). These higher drop-out rates in dissemination studies are consistent with the premature termination rate of 31.1% in FBT in the current study. The significant difference between drop-out rates from the day program and FBT in the current study, in addition to the results of past studies, suggests that research is needed to clarify the patients and families for whom FBT may be

less well-suited and/or methods for optimising the delivery of FBT (at least when administered outside of specialist research settings) to reduce these elevated drop-out rates. Tempering this positive aspect of day program treatment is its greater resource demand relative to FBT. That is, patients who completed FBT in the present study received a mean 22 hours contact hours with professionals, whereas day program treatment ranged from 3.5 to 5.5 hours per day for a mean of 30 days (105-165 hours), making it considerably more time intensive for staff. This is an important consideration when evaluating the two treatments.

At the present stage of research, the reasons underlying the higher drop-out rates for FBT relative to day program treatment are unclear. One possibility is that implementations of FBT outside of specialist research settings are comprised of patients who are more unwell and/or may be undertaken with less rigour. Results from Accurso et al., (2015) suggest that this may be the case, where patients who commenced treatment at a lower % of EBW gained weight slower when FBT was administered in a clinical setting rather than a RCT. Alternatively, research has suggested that FBT is not suitable for all families (Strober et al., 2014), and factors such as high levels of negative expressed emotion and comorbid psychopathology may increase drop-out rates in 'real-world' treatment settings. Another possibility may be related to the age appropriateness of FBT. Recent research suggests that adaptations to the model are needed depending on the developmental stage of the adolescent (Dimitropoulos et al., 2015), although there was no evidence that age was related to drop-out from FBT in the current research program (see Study 2, Chapter 5). Clearly further research into treatment acceptability of FBT in particular is needed.

In addition to drop-out rates, the current study aimed to determine if there were differences in treatment length between day program treatment and FBT.

The current study was unusual in that there was no maximum treatment length for either program, such that treatment could be extended depending on clinical need. The manualised version of FBT posits 20 sessions as standard (Lock & Le Grange, 2013). The results of the current study suggest that this may be insufficient for some adolescents with AN, given that 17 participants (37.8%) attended more than 20 sessions of FBT. While there is a lack of research regarding optimum treatment length for day program attendance (Zipfel et al., 2002), patients in the current study attended a range of 3-89 days. This high level of variability suggests that it may be inadvisable to pre-determine the recommended length of day program treatment. When comparing treatment length between conditions using an intent to treat analysis, patients in the day program participated in significantly more days/sessions than those who participated in FBT. When comparing treatment length between conditions using an intent to treat analysis, patients in the day program participated in significantly more days/sessions than those who participated in FBT. Since this significant difference disappeared when conducting completer analyses, it may reflect the possibility that more unwell patients (who therefore required longer treatment) dropped out of day program treatment.

In terms of outcome measures, a number of physical factors were assessed in comparing the two treatments including % of EBW and menstruation. For the intent to treat analyses conducted on the full sample, there were no significant differences between the two treatments on either % of EBW or return of menses, with both treatments resulting in significant improvements on these outcome measures. However, for those who completed treatment, FBT appeared to be more effective than day program treatment for both weight and menstruation at the end of treatment. The results of the current study showed that for females (excluding

those on the contraceptive pill) 96% of those who completed FBT experienced menstruation, whereas approximately 70% of day program patients menstruated. In addition, when reviewing those who completed treatment, patients in FBT ended with a higher mean % of EBW ( $M = 101\%$  of EBW) than patients in the day program ( $M = 93\%$  of EBW). This difference in post-treatment weight occurred even though patients in both treatments had comparable pre-treatment weights ( $M = 87\%$  of EBW). Thus the more positive results of FBT cannot be attributed to these patients being less unwell (at least in terms of weight status) after the more unwell patients dropped out of treatment.

The results from the current study are consistent with rates reported in past studies with day programs reporting return of menses in approximately 65% of adolescents (Grewal et al., 2014), and patients weight restored to around 85% of EBW at treatment completion (Dancyger et al., 2003; Goldstein et al., 2001). The results for treatment completers are also consistent with past studies of physical restoration in FBT, with 60-90% of adolescents experiencing a return of menses, and weight restoration to at or above 90% of EBW (Eisler et al., 1997; Faust et al., 2013; Russell et al., 1987).

The finding that FBT (provided patients complete the treatment) may be more effective than day program treatment for weight restoration and a return of menses is perhaps not surprising given that the highest priority in phase one of FBT is a focus on re-feeding, weight gain, and physical restoration (Lock & Le Grange, 2013). The results may also reflect differences in treatment length with those who completed the day program attending an average of approximately 15 weeks, whereas those in FBT attended for an average of approximately 40 weeks, thus allowing greater time for weight restoration and resumption of menses to occur for those patients who attended FBT. These results may also reflect

differences in the meal supervision of each treatment. FBT involved parents supervising all meals, whereas day program treatment only included meal supervision by staff three days per week. It would be beneficial for future research to compare the results of an FBT based day program with a CBT based day program to develop a better understanding of the components that lead to improved outcomes; this design would help to demonstrate any additive benefits of parental supervision of meals while holding other aspects of the intervention more constant.

The study also aimed to compare FBT and day program treatment on eating disorder specific and general measures of psychological functioning. The results suggested that when using either an intent to treat or a completer analysis, there was no significant difference between the clinician-rated HoNOS/CA scores of patients in day program treatment versus FBT, however there was a significant change in treatment time with both programs showing a reduction in scores from pre- to post-treatment. Thus clinicians perceived that both programs resulted in an overall comparable improvement in psychosocial functioning. That FBT was able to match day program treatment in this regard is an interesting finding given that FBT does not directly target the patient's psychosocial functioning or co-morbid disorders (Lock et al. 2001), whereas the day program did provide groups such as distress tolerance and assertiveness and communication, which were directly targeted at improving overall psychological and social functioning.

In addition to the clinician-rated measure of psychological functioning, the self-report EDI-3 composite General Psychological Maladjustment (GPM) score showed a significant difference between the patients who completed the day program and those who completed FBT. In the completer analysis, patients commenced treatment in both groups with similar scores on the GPM scale, but

FBT patients ended treatment with significantly lower scores than those in the day program. This finding suggests that FBT led to greater improvements in eating concerns and general psychological functioning as the GPM scale is considered an overall evaluation of eating disordered symptoms and psychological maladjustment (Garner, 2004). The improvement in scores in FBT suggests that those who completed the full program of FBT experienced positive changes in terms of feeling more socially connected, as well as improved self-esteem, ability to articulate their emotions, and general functioning. This is consistent with other research which has shown that patients report feeling more emotionally connected after engaging in FBT (Krautter & Lock, 2004). The greater improvements in GPM scores in the FBT relative to the day program group need to be considered with some degree of caution, however, given that these findings do not include those who dropped out of treatment and are inconsistent with the lack of a significant group difference in patients' psychological functioning from the perspective of clinicians (as indexed via the HoNOS/CA).

The EDI-3 Eating Disorder Risk Composite (EDRC), which combines the subscales of Drive for Thinness, Bulimia, and Body Dissatisfaction and is a more specific measure of eating disordered behaviours and cognitions, showed a marginally significant ( $p = .06$ ) difference between patients who completed day program treatment and FBT, favouring a greater reduction in the latter group. If found to be significant in studies with higher power, this suggested finding of the relative benefits of FBT over day program treatment on the EDI-3 scales constitutes a somewhat unexpected result given that the day program, like most other eating disorder day programs (Abbate-Daga et al., 2009; Zipfel et al., 2002), provided treatment groups targeting factors such as mood regulation and interpersonal effectiveness to enhance psychological functioning. In contrast, FBT



does not directly target psychological change (Lock & Le Grange, 2013; Loeb & Le Grange, 2009), with the core components of FBT focused on weight related outcomes (Ellison et al., 2012). One possible interpretation of this finding is that much of the psychological disturbance seen in adolescents with AN may be secondary to their compromised medical state as starvation can lead to psychological disturbances including low mood, irritability and social withdrawal (Kalm & Semba, 2005). FBT may produce greater psychological change due to directly targeting starvation, as well as addressing the disturbance in family functioning stemming from the AN.

### **Limitations of the Present Study and Directions for Future Research**

There are several important limitations of the study that must be acknowledged in interpreting the results. Firstly, the fact that the present study was not a randomised controlled trial means that there may have been other factors which influenced the outcomes and drop-out rates, rather than the specific treatments. For example, the current study did not collect a reason for drop-out and can only hypothesise that the reduced number of drop-outs in day program compared with FBT may reflect the treatment offered by the service at the time to patients and families. More specifically, it is possible that the day program was associated with lower drop-out rates because adolescents were offered the alternative option of individual therapy, resulting in those who commenced the day program having higher levels of commitment to this treatment modality and therefore being less likely to terminate treatment prematurely. In contrast, FBT was offered as the only treatment for adolescents, which may have resulted in some families commencing treatment due to feeling that there were no other treatment options rather than a high level of commitment to this approach. In addition, day program may have higher retention rates because patients can

potentially avoid meal therapy at home, whereas FBT requires parents to continue meal therapy outside of sessions. While the findings of the present study are beneficial as a starting point, randomised controlled trials comparing FBT and day program treatments are now warranted in order to remove the potential effects of non-treatment factors on drop-out rates or outcomes.

A second noteworthy limitation is that the sample size in both treatment groups was relatively small. While sample size of the current study compares favourably with other studies (e.g., a review found that the mean sample size of treatment studies for AN is 23 patients [Bulik et al., 2007]), it was nevertheless small which has implications for power and the generalisability of the findings.

Relatedly, while this non-randomised controlled trial presents evidence from 'real world' practice - an area lacking in both day program and FBT research - the nature of the study meant that there was missing data and incomplete follow up. This further reduced the sample size and means that the results of some outcome measures need to be interpreted with caution. The results of the EDI-3, in particular, may have been biased as they were not completed by all patients at treatment completion and therefore may represent a subsample of those who felt more positive after engaging in the treatment. The fact that FBT had a higher rate of drop-out than day program treatment may therefore have contributed to its more positive outcomes on the EDI-3. While this concern is mitigated by the finding that both groups were comparable on these measures at the commencement of treatment, it is still possible that the FBT completer sample constituted a healthier group on variables that were not measured (e.g., motivation to change which is known to predict lower eating disorder symptoms and reduced general psychopathology [Clausen, Lübeck, & Jones, 2013; Dray & Wade, 2012]).

A fourth limitation is that the uncontrolled, rolling length of treatment in both treatment programs, which was determined by the clinician, patient and family, makes comparisons of the two treatments difficult. While those patients who completed day program attended more sessions than those who completed FBT, treatment in FBT lasted more than double the number of weeks that day program did, and therefore length of time may have impacted the outcomes. Also as previously mentioned, contact with the clinician in day program compared with FBT was unbalanced in terms of contact hours, and findings should take this into account.

Finally, the current study did not include any longer-term follow up of patients after completion of either of the programs. Therefore, while the findings suggest that, if patients complete treatment, FBT produces greater improvements than day program treatment in the outcomes of expected body weight, menstruation, and some measures of psychosocial functioning, follow up of patients over the longer-term is needed to determine if these improvements are sustained over time. This is of considerable importance given the high rate of relapse in AN (Steinhausen, 2002). It is difficult to predict whether day program or FBT would result in lower rates of relapse given the limited follow-up studies conducted on adolescent day programs. However, there have been a number of follow-up studies with adult patients suggesting that gains made through FBT are maintained or improved two to six years later (Eisler et al., 1997; Lock et al., 2010; Lock, Couturier, & Agras, 2006). In contrast, only one day program study for adolescents completed a follow-up, where weight gain was found to be maintained over six months (Goldstein et al., 2011). Given the involvement of families in FBT and the high level of parental meal supervision compared with day program treatment, it is possible that day programs could result in higher rates

of relapse compared with FBT. However, research involving longer term follow-up is needed.

### **Summary**

This preliminary study was the first to compare day program treatment and FBT in adolescents with AN. The findings suggest that while FBT may lead to higher rates of drop-out, if patients can be retained in treatment this treatment modality is associated with greater improvements than day program treatment in physical restoration and various measures of psychosocial functioning and eating disordered cognitions and behaviours. This is despite the fact that it is less demanding in its use of healthcare resources. Given the preliminary nature of this study, future research should continue to evaluate the effectiveness of outpatient treatments for adolescents, including day programs, FBT, and combined versions of both, to provide the most effective treatment options for adolescent patients with eating disorders.

## Chapter 7

### Summary and Conclusion

#### Chapter Overview

The overarching aim of the current program of research was to provide further clarification of the most effective and acceptable outpatient interventions for adolescents with AN (including its subthreshold variants) in a ‘real-world’ clinical setting. More specifically, the research program sought to evaluate the effectiveness of day program treatment and Family Based Treatment (FBT) for adolescents with Anorexia Nervosa (AN), as well investigating the predictors of outcome and drop-out from these treatment modalities, and obtaining the perspectives of patients, parents, and siblings who have experienced both of these treatment approaches. This chapter will begin by providing a summary of the current state of research on day program treatment and FBT for adolescents with AN, before highlighting the key contributions of the present research program and directions for future research.

#### **Current Field of Research on Treatment for Adolescents with Anorexia Nervosa**

Recent decades have witnessed a reduction in inpatient admissions with the development of day program treatment for eating disorders. Day programs are now commonly used to support patients with AN (Piran, Langdon et al., 1989), providing meal support and therapy groups (Zipfel et al., 2002). Outcome data from day programs suggest that they are an effective way to treat patients with AN (Abbate-Daga et al., 2009; Thornton et al., 2009). Increasing research in the area of adolescent based day programs suggests that they are beneficial in producing significant weight gain and a reduction in eating disordered

symptomology (Girz et al., 2013; Goldstein et al., 2011; Henderson et al., 2014; Ornstein et al., 2012).

As well as day program for adolescents, research suggests that Family Based Treatment (FBT) is a well-established, efficacious treatment for adolescents with AN (Lock, 2015). FBT is a manualised treatment for adolescent AN (Lock & Le Grange, 2013). FBT relies on the family, especially the parents, to support their adolescent to recover from AN. Research suggests that FBT is currently the most effective treatment for adolescents with AN, particularly for weight restoration and behavioural change (Eisler et al., 2000; Le Grange et al., 2004; Russell et al., 1987). However, research suggests that results for eating disordered cognitions are less favourable, with only 40-74% of patients achieving a clinical reduction in eating disordered cognitions at treatment completion (Couturier et al., 2010; Lock, Couturier, & Agras, 2006; Lock et al., 2010).

While much has been learned from the growing research base for day program treatment and FBT in adolescents with AN, there remain notable inconsistencies and gaps within the research. Among these is a need to identify the predictors of outcome and treatment retention for both the adolescent day program and FBT population. In addition, few studies have compared either day program treatment or FBT with other outpatient treatment modalities and none have directly compared these two approaches. Moreover, no studies have ascertained the perspectives of patients, parents, and siblings who have experienced both day program treatment and FBT, and as such are in a unique position to offer insight into these interventions.

### **Study 1: The Effectiveness and Predictors of Outcome and Drop-out of a Day Program in Adolescents with Anorexia Nervosa**

The first study aimed to contribute to the research on the outcomes and predictors of day program treatment for adolescents with eating disorders, despite the promising results obtained in previous research (e.g., Girz et al., 2013; Goldstein et al., 2011; Henderson et al., 2014; Herpertz-Dahlmann et al., 2014; Lazaro et al., 2011; Ornstein et al., 2012 ), the fact remains that the use of adolescent day programs to treat eating disorders is still an emerging area and further outcome data are needed. Moreover, there is only limited (and conflicting) data regarding the predictors of treatment outcome and drop-out from day programs for adolescents.

The results of Study 1 provide further support for the use of day programs for adolescents with AN and its subthreshold presentations. Day program treatment was successful for physical restoration for most patients, with almost 80% of patients achieving a weight at or above 85% of EBW at treatment completion, and 70% achieving return of menses. The findings around psychological change suggested that day program was beneficial for a reduction in self-reported core eating disorder cognitions and behaviours, and for general psychosocial functioning as assessed by clinicians. The day program also had a low drop-out rate which highlights that the vast majority of adolescents can tolerate this treatment modality. However, those patients in the day program chose to attend this treatment over individual therapy and therefore the low drop-out rates may reflect motivation to engage rather than the effectiveness of day programs in retaining patients.

The findings of this study also highlighted the relevance of pre-treatment weight and patient age in impacting on outcome, with those who commenced

treatment at a higher % of EBW and younger age completing treatment with a higher % of EBW. Yet those who commence treatment with a higher % of EBW are also more likely to terminate treatment prematurely, suggesting that day program treatment should be modified to better engage this at-risk group. For example, rather than focusing on weight restoration, day programs could be modified to include a separate module focused on healthy eating and weight maintenance for those who do not require weight gain. Future research should continue to evaluate the factors that impact treatment outcomes and retention rates to better target treatment to those who are most at risk of poorer outcomes and drop-out. For example, minimal research has been undertaken on the issue of motivation to change as a predictor of treatment outcome in adolescents, although evidence from the adult literature indicates that greater readiness to change at the commencement of treatment generally predicts lower eating disorder symptoms at the end of treatment (Dray & Wade, 2012).

While the findings of this study did indicate the effectiveness of an adolescent day program for those with AN, there are some important limitations to consider. A relatively small sample size, missing data and a lack of follow up indicated that the results need to be interpreted with caution and further investigation and replication is needed. Future research to evaluate the effectiveness of adolescent day programs in comparison to other outpatient treatment approaches would be especially beneficial.

### **Study 2: The Effectiveness and Predictors of Outcome and Drop-out of Family Based Treatment in Adolescents with Anorexia Nervosa**

Although there have been a number of research trials evaluating FBT, Study 2 aimed to provide further investigation of adolescent outcomes from a 'real world' treatment site, and where the full three phases of the manualised FBT,



with no limit on the number of sessions, were completed. The study also aimed to further evaluate rates of cognitive change in this population (given that the rates of cognitive change have not been as successful as those for weight restoration from FBT). This is particularly important in light of treatment being extended depending on clinical need, which may provide the necessary treatment dose to effect cognitive change. Finally, Study 2 sought to add clarification to the factors that predict outcome and drop-out.

The results of Study 2 suggest that completion of all three phases of FBT leads to improvements for adolescents with AN in terms of weight restoration, return of menstruation, core eating disorder cognitions and behaviours, and general psychosocial functioning. The study also found that commencing FBT at a higher % of EBW and experiencing a lower severity of eating disordered cognitions and behaviours, as well as attending more FBT sessions, predicted a greater % of EBW at termination of FBT. Combined, these results suggest that alternative treatments to FBT (e.g., inpatient admission) or adaptations of FBT (e.g., day programs or family admissions) may be needed for patients who are more severely compromised in terms of their weight and eating disordered cognitions and behaviours, as well indicating that longer retention of patients in FBT is associated with an improved outcome. Further research should focus on reviewing if more sessions, or even an unlimited treatment length, leads to improved physical restoration and cognitive change.

In terms of retaining patients in FBT, the results indicated that greater severity of eating disordered cognitions and behaviours and higher % of EBW at commencement of FBT increase the likelihood of terminating treatment prematurely. Suggestions for potentially increasing the retention of these at-risk patients could include the addition of individual or group therapy alongside FBT,

thereby reducing the focus on weight in phase one and instead targeting psychological change including reducing eating disordered cognitions and behaviours in the adolescent.

It is important to note that Study 2 included a number of limitations which have a bearing on the interpretation of the results, such as an uncontrolled treatment length, relatively small sample size, missing data on self-report outcome measures, and a lack of follow up. In addition, the sample included a small number of patients who prior to commencing FBT, had been hospitalised for medical stability. Although this hospitalisation was not for weight restoration, the impact of prior admission on treatment outcome and drop-out in FBT requires further investigation. Furthermore, the study did not include a treatment comparison group; investigating the effectiveness of FBT compared with other outpatient treatments such as day program treatment would be especially useful in this regard.

### **Study 3: The Effectiveness of a Day Program Compared with Family Based Treatment for Adolescents with Anorexia Nervosa**

Accordingly, given that a key deficiency in the literature is that there have been no clinical trials comparing the effectiveness of FBT with day programs for AN, the aim of Study 3 was to compare the effectiveness of manualised FBT and day program treatment for adolescents with AN. The generally positive outcomes obtained in Study 1 and 2 for day program treatment and FBT, respectively, indicate that it is timely for these two efficacious interventions to be directly compared.

The findings of Study 2 suggest that FBT results in higher drop-out rates than day program treatment, and that day program treatment resulted in greater treatment length. When treatment drop-outs were included in the analyses, there

were no significant differences between day program treatment and FBT in terms of weight gain, return of menses, and clinician-rated levels of psychosocial functioning. In contrast, when drop-outs were excluded, FBT was associated with greater improvements than day program treatment in physical restoration for both weight and menstruation at the end of treatment. FBT was also superior to the day program for improving self-rated general psychological functioning and, marginally ( $p < .06$ ), for eating disordered cognitions and behaviours. These more positive outcomes for FBT compared with day program treatment for those who complete treatment, together with the significantly higher rate of drop-out from FBT, indicate that identifying strategies for retaining patients in FBT is a high research priority. Given that patients and parents report wanting individual therapy in addition to FBT (Krautter & Lock, 2004), future research should evaluate the effectiveness of adding individual therapy in phase three of FBT in terms of improving retention rates.

There are several important limitations of this study that must be acknowledged in interpreting the results (including small sample size, missing data, and the fact that it was not a randomised controlled trial) and these factors may have influenced treatment outcome and retention rates. In addition, both treatments included uncontrolled treatment length which may have impacted outcomes, and no follow up of patients was completed. Given the preliminary nature of this study, future research should continue to evaluate the effectiveness of outpatient treatments for adolescents, including day programs, FBT, and combined versions of both, to provide the most effective treatment options for adolescent patients with eating disorders.

## Conclusion

AN has one of the highest mortality rates of all psychiatric illnesses (Harris & Barraclough, 1998; Hoek, 2006), a finding that underscores the need to prioritise research investigating the most effective treatments for adolescents with AN. Taking into account the limitations of the studies, the results of the current program of research suggest that both day program and FBT are effective and acceptable treatments for adolescents with AN. The research provides support for both adolescent day programs and FBT in terms of producing physical restoration, an improvement in core eating disorder cognitions and behaviours, and general psychosocial functioning, even in a 'real world' clinical setting.

The present findings also highlight the need to continue to evaluate the predictors of outcome and drop-out from both day program treatment and FBT with the aim of targeting treatment to those where it will be the most beneficial and potentially modifying these treatment modalities to improve outcomes and retention. In this regard, the current results suggest that patients with a lower weight at pre-treatment are at risk of a poorer outcome from both day program treatment and FBT, but that those with a higher weight at pre-treatment are at risk of prematurely terminating both treatments. Therefore future research needs to consider adaptations to the treatments, such as targeted individual therapy in addition to the program or combining FBT and day program, to better support these high risk patients and increase retention rates.

In a direct comparison of day program treatment and FBT, the findings suggest that these interventions are comparable if drop-outs are included, with drop-out rates significantly higher in FBT compared with day program treatment. However, for patients who complete the full course of treatment, the results suggest that FBT is associated with greater improvements in physical restoration,

general psychological functioning, and eating disordered cognitions and behaviours relative to day program treatment. Study 4 (in Appendix A) suggests that reviewing the patient and family perspectives of both treatments also highlights that both FBT and day program treatment are generally acceptable interventions, with positive (and some negative) features, and that families feel that the two treatments may be complementary. Overall, the results of the current research program suggest that future research should focus on continuing to compare and combine day program treatment and FBT, and evaluate variants of both in order to maximise the effectiveness and acceptability of these treatment modalities for adolescents with AN and their families.

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**Appendices**

**Appendix A****Study 4: A Qualitative Investigation of Day Program and Family Based Treatment in Anorexia Nervosa: Patient, Parent, and Sibling Perspectives**

#### **Study 4: A Qualitative Investigation of Day Program and Family Based Treatment in Anorexia Nervosa: Patient, Parent, and Sibling Perspectives**

Anorexia nervosa (AN) is characterised by self-induced weight loss (achieved by extreme weight control behaviours), a fear of weight gain, and a disturbance in the perception of one's body image (APA, 2013). It is also one of the most serious and chronic illnesses to affect adolescents (Beumont & Touyz, 2003). Despite the fact that AN has one of the highest mortality rates of all psychiatric illnesses (Harris & Barraclough, 1998; Hoek, 2006), treatment is often not sought (Hudson et al., 2007), and there are currently high drop-out rates in treatment (Mahon, 2000; Pike, 1998). These factors highlight the importance of understanding the patient and family perspective of treatment, with the aim of refining these treatments to optimally meet patient and family needs.

Day programs are now commonly used to support patients with AN (Piran, Kaplan et al., 1989), providing meal support and therapy groups (Zipfel et al., 2002). Outcome data from day programs suggest that they are an effective way to treat adolescent patients with AN (Girz et al., 2013; Goldstein et al., 2011; Grewel et al., 2014; Henderson et al., 2014; Herpertz-Dahlmann et al., 2014; Hoste, 2015; Lazaro et al., 2011; Ngo & Isserlin, 2014; Stevens, 2010; Stewart & Williamson, 2004a). Despite many studies reviewing the efficacy, cost effectiveness, and content of day programs (e.g., Abbate-Daga et al., 2009), there has been little research into the patient and/or family experience and acceptability of day programs. This lack of research is exacerbated in the adolescent population where day programs for eating disorders are an emerging area.

There is currently a lack of research evaluating the overall experience of adolescent patients and parents after participating in day program treatment for

AN. The few studies that have been published often present the overall experience of attending a treatment service, which may include multiple treatment modalities, as well as the day program component (Clinton, Almlof, Lindstrom, Manneberg, & Vestin, 2014; Federici & Kaplan, 2008). This makes interpretation related to day programs difficult, however the results do suggest that patients find day program treatment helpful due to social support including support from staff and other patients, and learning to tolerate negative emotions. Thus more comprehensive and specific qualitative investigation concerning the parent, adolescent and family perspective relating to the experience of day program treatment is needed.

More generally research reviewing the patient and parent experience has involved those participating in all treatment types, including inpatient and outpatient treatment, rather than after receiving a specific treatment modality. Results of these studies suggest that while parents are generally satisfied with treatment, adolescents have often reported negative perceptions of the need to attend treatment, perhaps due to the illness. Adolescents also reported that family involvement and therapist expertise in the area were important aspects of treatment (Bezance & Holliday, 2013; Clinton et al., 2014; Federici & Kaplan, 2008; Halvorsen & Heyerdahl, 2007; Roots, Rowlands, & Gowers, 2009; Westwood & Kendal, 2012).

Another evidence based treatment for adolescents with AN is Family Based Treatment (FBT). It is a well-established, efficacious treatment for adolescents with AN (Lock, 2015). FBT is a manualised treatment for adolescent AN (Lock & Le Grange, 2013) that relies on the family, especially the parents, to support their adolescent with AN back to full health. While there have been many studies evaluating the effectiveness of FBT, there are few qualitative studies

investigating patient and family member experiences of this treatment modality, a limitation that has been previously noted (Strober, 2014).

One of the few qualitative studies reviewing the family experience of FBT was conducted by Krautter and Lock (2004). They reviewed the patient and parents' experience once FBT was completed, and found that the majority of patients and parents described FBT as being an effective treatment in terms of leading to recovery from AN. Parents and patients described a number of factors which they considered to be the most helpful components of treatment, including the family spending time together, the re-feeding process, learning to separate the illness from the child, and building therapeutic rapport. When asking what they disliked about treatment, some parents and adolescents reported that there was nothing unhelpful about FBT, while others reported feeling that treatment was too short, focused exclusively on AN, lacked individual therapy, and that sibling involvement was unnecessary. Despite these factors, 84% of parents and patients combined, said they would recommend FBT to other people. Mothers had the most favourable perceptions towards FBT, with 94% suggesting that they would recommend FBT to another family, whereas 84% of fathers and 72% of adolescents would recommend FBT. Families also perceived a change in relationship dynamics between all family members after treatment, with 70% believing this change was positive.

Subsequent research has supported these results regarding the generally high acceptability of FBT for adolescents with eating disorders (Paulson-Karlsson, Nevenon, & Engström, 2006; Rhodes, Brown, & Madden, 2009; Zaitsoff, Doyle, Hoste, & Le Grange, 2008). The addition of attending a parent-to-parent consultation as part of FBT was also viewed as a positive experience by parents, where they felt less isolated and more empowered (Rhodes et al., 2009).

However, these favourable results need to be interpreted with caution as often only those who have successfully completed treatment are willing to complete feedback forms, potentially biasing the results towards those who perceived the treatment in a favourable light. For instance, in the Krautter and Lock (2004) study, the sample only included 74% of families who had successfully completed the full course of treatment, and in addition another 12% of families who dropped out of treatment did not participate in the qualitative study.

Another limitation is that many of these studies failed to consider the experience of siblings. While parents stated that they found sibling involvement to be unnecessary (Krautter & Lock 2004), adolescents in other studies have indicated that they would have preferred more sibling involvement in treatment, acknowledged that the illness marginalised their siblings (Lindstedt et al., 2015), and siblings have reported being provided with more knowledge as a positive (Withers et al., 2014). While the experience of the sibling in the caring role has been explored by other studies (e.g., Dimitropoulos, Klopfer, Lazar, & Schacter, 2009), currently, there has been limited research into the sibling's perspective of different treatment modalities and how these different treatments impact on siblings. One study has reviewed the sibling experience in FBT and found that siblings described it as a positive experience due to feeling engaged in treatment and improving connections within the family unit (Withers et al., 2014). Further investigation into how siblings perceive different treatments such as day program and FBT is required to gain a wider understanding of the family experience of treatment for AN in adolescents.

It is also important to note, that despite the promising results of FBT shown in randomised controlled trials and the acceptability studies, 51% of participants in the Krautter and Lock (2004) study felt that they needed to have



more treatment once they had completed the 20 sessions of FBT. Results of other studies also suggest that for adolescents, FBT may not be considered an optimal dose or type of treatment. For example, adolescents have reported that they prefer individual sessions in addition to the family sessions (Lindstedt et al., 2015; Clinton et al., 2014; Halvorsen & Heyerdahl, 2007; Roots et al., 2009). More recently Lindstedt et al., (2015) reviewed the adolescent experience of receiving individual therapy and/or FBT for AN. Their results indicated that adolescents often felt forced into treatment and forced into including their families in the treatment. Nevertheless, they reported that parental involvement was a positive aspect of treatment that encouraged recovery outside of the treatment setting.

Despite the limited number of qualitative investigations into the family experience of FBT, there have been a number of parents who have published their own story. For example, Parent and Parent (2008) present their daughter's story of recovery using FBT, as a case study for other families and health professionals to gain a better insight into the family perspective of FBT. They described FBT as an effective, intensive, short term treatment for AN and highlighted positives such as enhanced parental control, physical recovery through re-feeding, improvements in the family dynamics, and a return to normal adolescent development for their daughter, with these improvements sustained in the 12 months after treatment completion. While promising, clearly further research is needed to harness broader views of the family and patient experience of FBT.

In summary, to date there has been a lack of qualitative research into the family experience of having an adolescent with AN participate in day program treatment. Only a few studies have investigated the adolescent and parent experience of FBT, however these studies have failed to examine the sibling perspective. Importantly, no previous study has compared the experiences of

patients and family members who have taken part in both day program treatment and FBT. Research suggests that understanding the acceptability of treatment for patients with eating disorders and their families is just as important as reviewing the effectiveness of these treatments (Newton, 2001).

### **Aims of the Present Study**

Further investigation into how all family members including the patient, parents, and siblings, perceive participating in the different treatment modalities of day program treatment and FBT is required to gain a broader understanding of the family experience of treatment for AN in adolescents. The aim of the current study is to therefore investigate how adolescents, their parents, and siblings who have experienced both day program treatment and FBT, perceived their treatment experiences.

## **Method**

### **Participants**

Participants were three families recruited from the Canberra Eating Disorders Program (EDP), which is a public outpatient eating disorders unit. Two of the adolescents were aged 16 years and met *DSM-IV-TR* (APA, 2000) criteria for a diagnosis of AN restricting subtype, and the other adolescent was aged 17 years and met *DSM-IV-TR* criteria for a diagnosis of AN bingeing/purging subtype. All three adolescents were female and from intact families. The three adolescents initially engaged in the adolescent day program. After a period of recovery, all three adolescents relapsed and engaged in FBT as day program treatment for adolescents was no longer offered at the service. They therefore have a unique perspective of having participated in both day program treatment and FBT. The study was undertaken at the time of completion of FBT, at which

point all three adolescents had experienced a return of menstruation, and were weight restored to at least 95% of expected body weight.

In addition to the three patients, all family members participated in the study including six parents (mother and father of each adolescent) and four siblings (two brothers for one adolescent, two brothers for another adolescent, and the third adolescent was an only child). The study received ethical approval from both the ACT Health and the Australian National University Human Research Ethics Committees (see Appendix B).

### **Measures and Procedure**

At the completion of FBT, the adolescent with AN and their family members were invited to complete a questionnaire concerning their experiences of treatment. The questionnaire was designed to capture the adolescent, parent, and sibling perspectives of each treatment and their overall experience. More specifically, items assessed the positive and negative aspects of day program, the positive and negative aspects of FBT, the similarities and differences of each treatment, and advice they would provide to others after their experiences (see Appendix D for the full questionnaire and consent forms). Participants were asked to include their role (patient, parent or sibling) but remained anonymous to allow for greater honesty about their experiences.

## **Results**

### **The Experience of Participating in Day Program Treatment**

The participants identified a range of positive aspects relating to day program attendance. Mothers, fathers, and siblings felt that the most important benefit of day program treatment was having others care for the adolescent with AN. They all reported that they felt a sense of support from having professionals involved, especially in relation to focusing on challenging feared foods. Parents in

particular highlighted a sense of relief while their child was engaged in day program treatment:

*Mother: It took some of the pressure off us having to deal with re-feeding.*

*Father: It was a break from constantly having to monitor her.*

In contrast, patients described the primary advantage of day program treatment as affording the opportunity to meet other patients with AN. They reported this as being beneficial because they felt connected with the other patients (helping them to feel more understood and less isolated) and it also highlighted a desire to change as they confronted the severity of illness experienced by other patients with AN:

*Patient: People going through similar things...that you're not alone.*

*Patient: Seeing sufferers and not wanting to be like that.*

Despite minimising a sense of isolation being a valued aspect of day patient treatment, in other ways this modality was also reported to increase a sense of isolation due to the time commitment entailed. This disadvantage was noted by the patients, parents, and siblings alike. All participants reported that day program attendance resulted in isolation from peers, and difficulty with attending school and completing required school work. The patients and their siblings also described feeling that day program treatment led to the patient being isolated from the family unit:

*Patient: Day program seemed to 'cut off' the family.*

*Sibling: We didn't have as much of an insight into how she was taking it.*

In addition, parents and patients described the negative effects of interacting with other patients (in addition to the positive effects noted by patients as stated previously), in terms of potentially exacerbating eating disorder symptoms:

*Patient: I also felt it wasn't really helpful for me to be surrounded by other sufferers at some points...hate to say it but anorexics are competitive!*

*Mother: In touch with other clients therefore reinforcing negative attitudes.*

### **The Experience of Participating in FBT**

All family members reported that participating in FBT led to everyone feeling connected and included. The patients, parents, and siblings also indicated that during FBT they felt they had clearly defined roles and were able to unite to fight against AN, rather than fighting the patient:

*Patient: Becoming closer with my family, knowing they were always there to support me and they began to understand what was me and what was the disorder.*

*Sibling: We had much more of a say and an insight into her experience.*

*Mother: Everyone knew where we were up to and could help and encourage.*

*Father: The inclusive nature of the discussions that involved the siblings also. It also provided an avenue for her [the patient] to raise issues with us in a controlled supportive environment.*

The main negative aspect of FBT, which was reported by all family members, was the cost of attending therapy for other family members. This cost included the time away from work and school, but also the extra pressure that targeting AN placed on family members and their relationships with one another:

*Patient: It meant that the battle with AN became family versus AN 24/7 because the parents had to take the initiative with the eating as well as helping to stamp out or correct other habits.*

*Sibling: It led to some fights and disagreements which caused some tension at home.*

*Mother: Hard to get all of the family to attend the meetings.*

*Father: The impact on schedules and activities for other family members, a small price to pay.*

### **Comparing the Experience of Day Program and FBT**

When asked to compare the two treatments, a number of common themes emerged. All family members agreed that both treatments challenged the eating disorder (particularly with exposure to feared foods) and families felt supported by the treating clinicians:

*Mother: Both involved seeing a therapist and setting goals around food and other eating disordered behaviours.*

*Father: Similarities: professional support.*

All family members, particularly the patients and the siblings, reported that they found FBT to be more inclusive and supportive of ‘real world’ recovery relative to day program treatment:

*Patient: FBT and day program both involved food challenges and goal setting but to me FBT seems to better reflect reality as you set goals with family and friends that can be carried out in real life and so you don't feel as scared of going out into the real world as you do when you leave the day program. It's also nice not having a rigid meal plan that you get stuck in and can't go outside of.*

*Sibling: The day program is based solely on the patient, while the FBT focused a lot on the family and their opinion of the disorder.*

*Mother: The day program was unrealistic in that parents/carers were not involved in the goal setting and so couldn't help the sufferer see goals through. Also the meal plan is restrictive and rigid. FBT involves everyone in goal setting so they are more likely to be achieved and eating is aimed more at being like the rest of the family (eventually) and variety.*

*Father: Initially the day program provided a lifeline... but this system should be carefully weaned off quite soon to follow a more flexible approach (realistic) like the FBT program.*

This latter comment indicated a role for each of the treatment modalities. Indeed, all family members reported that they would recommend both treatments to families in the same situation, and found participating in both treatments beneficial. Parents and siblings highlighted the need to seek professional help, engage in treatment, and continue even when the process is difficult:

*Sibling: Don't give up, if you stick to it, it'll get better in time.*

*Father: Not to let the condition dictate to the family. Set goals, an inch at a time initially. You may have to be cruel because if the family doesn't stick together the condition will play off one member against another. Be weak, you lose. Stand firm, you win, eventually!*

Although the families reported a combination of both treatments to be beneficial, mothers, siblings, and patients said they would recommend FBT to other families over and above day program, due to the inclusive nature of FBT.

*Adolescent: I know that I could not have come this far without my family because when I could no longer fight, they fought for me.*

*Mother: FBT has worked well for us. It's hard work, but set the goals and take on the battles. The whole family being on the same wave length is really important.*

*Sibling: To do family based therapy, as it means that whole family has an opinion, the whole family gains knowledge on the disorder, and the disorder seemed to disappear faster.*

## **Discussion**

The current study sought to examine the patient, parental, and sibling perspectives of completing day program treatment and FBT for adolescents with

AN. The qualitative analysis of the three families' responses indicated that overall each family member considered both treatment modalities to be beneficial in unique and overlapping ways, with most reporting wanting a combination of both treatments. In addition, there were also components of each treatment that the families felt could be improved.

### **Findings of the Present Study**

More specifically, one of the positive aspects of both day program treatment and FBT reported by parents and siblings was a feeling of support from health professionals. This is unsurprising given that therapist expertise in the area has previously been reported as an important factor in treatment acceptability (Clinton et al., 2014; Federici & Kaplan, 2009; Halvorsen & Heyerdahl, 2007; Roots et al., 2009).

Parents and siblings also highlighted meal supervision and the challenging of feared foods as useful components of both day program treatment and FBT. These factors are considered essential elements for recovery from AN (Hildebrandt et al., 2010), and were clearly viewed by family members as important steps towards recovery. Meal supervision and exposure to feared foods during day program treatment may also have been viewed as a positive as it may have reduced the number of meal conflicts at home.

In contrast to parents and siblings, patients did not report the challenging of feared foods as a positive component of day program treatment, perhaps due to it being among the most challenging aspects of the program and one which they were required to do without family support but in the presence of others struggling with the same issue. Indeed, the negative aspects of undertaking treatment with others experiencing AN was noted by the patients and parents given the competitive and perfectionistic nature of those with AN and the



susceptibility of adolescents to peer influences (Beumont, & Touyz, 2003; Gardner & Steinberg, 2005; Hartmann et al., 2014). The impact of other patients' illness behaviours has not been described in other qualitative research (e.g., Federici & Kaplan, 2009) but this may simply reflect a lack of research on the patient experience of group-based programs.

This is not to suggest that connecting with other sufferers was without its positive aspects, with the patients reporting that meeting other patients with AN was a key positive feature of day program treatment. They reported this as being beneficial because they felt connected with the other patients and it also highlighted a desire to change. This appears to be a common experience in day programs. For example, Federici and Kaplan (2009) found that patients in their day program reported that meeting other people in the same situation allowed them to be open and share their experience of the illness.

While patients, parents, and siblings listed noteworthy advantages of day program treatment, they also described a range of negative aspects. In addition to the potential negative influence of others with AN, all family members reported that day program treatment led to a sense of isolation for family members. They indicated that day program participation resulted in the patient being isolated from peers and the family unit, reduced attendance at school, and reduced time to complete school work. While one of the reported advantages of day programs compared with inpatient admissions is to allow for less disruption in psychosocial functioning (Zipfel et al., 2002), it appears that patients and their families do not feel this advantage when compared with other outpatient treatment options. Siblings also highlighted that they felt isolated from their sister's treatment at the day program and this created a sense of disconnection within the family. These findings concur with previous results indicating that patients believed AN

marginalised their siblings (Lindstedt et al., 2015), and parents have reported requesting additional information sessions for siblings (Goodier et al., 2013). The current results would indicate that the family members can feel disconnected from each other during day patient programs, and this is particularly so for siblings.

In contrast, family connection was a notable advantage of FBT. Patients, parents, and siblings all described that during FBT they felt connected, that treatment was inclusive, and that each family member had a clearly defined role in overcoming AN. These results are consistent with previous research on patient, parent, and sibling satisfaction after completion of FBT, where positives of treatment are reported as spending more time together and an improvement in family dynamics (Krautter & Lock, 2004; Paulson-Karlsson et al., 2006; Withers et al., 2014). However, these results may not be unique to FBT, and may be a consequence of having a family member with AN, rather than a direct result of treatment. Prior research has found that siblings report a closer family unit as a result of having a sibling living with AN (Dimitropoulos et al., 2009). Nevertheless, since these observations were not made in relation to day program treatment in the current study, it is possible that FBT is particularly beneficial for family cohesion.

As with day program treatment, the advantages of FBT could also be disadvantageous. That is, although the inclusion of family members in FBT was highlighted as a key benefit, an identified negative feature of FBT was the extra input that was required from families, including time away from work and school, and pressure on relationships from re-feeding. These results are in contrast to other studies which have suggested complete patient and parent satisfaction with FBT as a treatment modality, with some parents unable to report any negative aspects associated with FBT (Krautter & Lock, 2004; Paulson-Karlsson et al.,

2006). These results may reflect the fact that the current study directly asked for negatives associated with each treatment. Interestingly, despite sibling involvement being suggested as unnecessary by some parents (Krautter & Lock, 2004), in the current study this was not mentioned and siblings reported their attendance as a positive factor in FBT.

While an identified disadvantage of FBT, any burden stemming from family involvement was explicitly noted by one participant as being worth it given the beneficial impact of FBT on AN symptoms and family connectedness. In past research siblings also highlighted difficulties with family members becoming angry after sessions, difficulties at meal times, and pressure to fulfil the supportive sibling role (Withers et al., 2014). These problems with FBT were not suggested by the siblings in the current study and may reflect the siblings' previous treatment experience of day program, or may reflect that siblings felt positive about FBT due to the adolescent recovering from AN. Indeed, the patients, parents, and siblings described FBT as being a more inclusive treatment compared with day program treatment. Mothers, siblings, and patients reported that they would recommend FBT over day program treatment, due to its inclusive nature (while acknowledging that both treatments were beneficial and that they would recommend both to others). The results of the current study highlight the importance of considering sibling perspectives in treatment and suggest that siblings want to be included in treatment, that patients and parents feel that sibling attendance is important, and that this further strengthens the family unit. Furthermore, all family members reported that the involvement of family members in FBT was more encouraging of 'real world' recovery compared with day program attendance. This finding is consistent with the results of Lindstedt et al., (2015) where adolescents reported that FBT encouraged recovery outside of

session. Likewise, Federici and Kaplan (2009) found that day program participants reported that they felt treatment did not sufficiently prepare them for discharge or the difficulties of recovery outside of the program.

### **Clinical Implications**

The results of the current study indicate that family members, including patients, parents, and siblings alike, found positive aspects in both FBT and day program treatments for adolescents with AN and would recommend both treatments to other people. While FBT is currently recommended as a first line treatment when the evidence indicates it (for those who are under 19 years of age, with an illness duration of less than 3 years, and for those families with low levels of expressed negative emotion; Eisler et al., 2007; Russell et al., 1987; Strober, 2014), for those who do have high levels of expressed negative emotion in the family or do not successfully gain weight in the early stages of FBT (Doyle et al., 2010; Eisler et al., 2000), other options are necessary, such as day program treatment.

While research typically evaluates treatments against one another, the families in the current study highlighted that FBT and day program treatment may be complementary treatments in terms of their respective advantages. Specifically, day program was reported to be positive due to creating exposure to feared foods, providing support in the form of a shared experience with other adolescents with AN, and offering professional support. FBT was described as positive because it provided an inclusive treatment for the entire family, as well as offering exposure to fear foods and professional support. A few studies (Girz et al., 2013; Henderson et al., 2014) have now combined the two treatments and have reviewed outcome data relating to FBT-based day programs for adolescents. In addition,

future research needs to focus on examining the adolescent, parent and sibling experience of FBT-based day programs.

### **Limitations of the Present Study and Directions for Future Research**

While the key findings of this qualitative study emphasise the importance of including siblings in treatment, and that families find both FBT and day program treatments acceptable for a range of different reasons, there are some important limitations to consider. Firstly, the small sample size makes generalisations and comparisons with other studies difficult. For instance, each of the patients in the present study had initial positive outcomes from day program treatment and FBT. Thus of interest would be also gaining the perspectives of patients who experience poor outcomes or drop-out of treatment.

Another limitation was that the participants were provided with specific questions to answer in written format. While this was done so that participants could remain anonymous and therefore encourage honest responding, it precluded the possibility of asking follow-up questions to obtain more detailed responses. To improve on the current study, future research should include a larger sample with patients, parents, and sibling's perspectives being explored through a structured or semi-structured interview.

Another noteworthy limitation is that the families in the current study all successfully completed FBT whereas they had relapsed following day program treatment. This difference in treatment outcomes, combined with the period of time since day program attendance, may have made participants view FBT in a more favourable light. Thus the comparisons between day program treatment and FBT must be interpreted with a high degree of caution.

The current study presented the adolescent, parent, and sibling perspectives of participating in FBT and day program treatments for AN, and

future research would benefit from continuing to review the qualitative experience and acceptability of other outpatient based treatments for adolescents. In particular, research should focus on comparing and reviewing the adolescent, parent, and sibling experiences of standard FBT compared with FBT-based day programs.

### **Summary**

The current study emphasised the importance of reviewing the family perspective of day program treatment and FBT for adolescents with AN in order to optimise these treatment modalities. The families in the current study highlighted that FBT and day program treatment were generally acceptable treatments with both positive and negative features. Their unique, but complementary strengths, in terms of support from other adolescents with AN in day program treatment and from family members in FBT, suggests that combining these modalities is a fruitful line for further research.

**Appendix B**  
**Documentation Pertaining to Ethical Clearance**



ACT Government Health  
Human Research Ethics Committee  
Low Risk Sub-Committee

Ms Lisa McLeod  
Phillip Health Centre  
Level 1  
Cnr Corinna & Keltie Street  
Woden ACT 2606

Dear Ms Lisa McLeod

**Re: ETHLR.12.121**

The ACT Health Human Research Ethics Committee's Low Risk Sub-Committee received notification of the proposed study:

**Comparison of Day Program and Family Based Therapy in the treatment of Anorexia Nervosa in adolescents** at its meeting of 30 May 2012

I am pleased to inform you that, following further correspondence, your application has been approved out of session.

The Sub-Committee agreed that the application is for low risk research and determined that the research meets the requirements of the National Statement on Ethical Conduct in Human Research and is ethically acceptable.

I attach for your records an Outcome of Consideration of Protocol form.

I confirm that the ACT Health Human Research Ethics Committee is constituted according to the National Health and Medical Research Council Guidelines and operates in compliance with applicable regulatory requirements and the International Conference on Harmonization Guidelines on Good Clinical Practice.

Yours sincerely

A handwritten signature in black ink that reads 'John Biggs'.

Professor John SG Biggs MA MD  
FRCOG FRANZCOG DHMSA  
Chairman  
ACT Health Human Research Ethics Committee  
Low Risk Sub Committee

18 June 2012



**HEALTH HUMAN RESEARCH ETHICS COMMITTEE****Outcome of Consideration of Protocol****Submission No: ETHLR.12.121    Date of Approval: 18 June 2012****Project Title:** Comparison of Day Program and Family Based Therapy in the treatment of Anorexia Nervosa in adolescents**Submitted by:** Lisa McLeod

Your project was considered by the ACT Health Human Research Ethics Committee and Approved for a period of 3 years.

**First Annual Review due:** June 2013**The Ethics Committee require as part of the review process that:**

- At regular periods, and not less frequently than annually, Principal Investigators are to provide reports on matters including:
  - security of records
  - compliance with approved consent procedures and documentation
  - compliance with other approved procedures.
  - as a condition of approval of the protocol, that Investigators report immediately:
    - adverse affects on subjects
    - proposed changes in the protocol
    - unforeseen events that might affect continued ethical acceptability of the project.
- All published reports to carry an acknowledgement stating:
  - approved on 18 June 2012 by the ACT Health Human Research Ethics Committee.



Professor John SG Biggs, Chairman

18 June 2012

Dear Ms Lisa McLeod,

Protocol: 2014/170

Day Program and Family Based Therapy in the treatment of Anorexia Nervosa  
in adolescents

I am pleased to advise you that your Human Ethics application received approval by the Chair of the Science & Medical DERC on 1 July 2014.

For your information:

1. Under the NHMRC/AVCC National Statement on Ethical Conduct in Human Research we are required to follow up research that we have approved. Once a year (or sooner for short projects) we shall request a brief report on any ethical issues which may have arisen during your research or whether it proceeded according to the plan outlined in the above protocol.
2. Please notify the committee of any changes to your protocol in the course of your research, and when you complete or cease working on the project.
3. Please notify the Committee immediately if any unforeseen events occur that might affect continued ethical acceptability of the research work.
4. Please advise the HREC if you receive any complaints about the research work.
5. The validity of the current approval is five years' maximum from the date shown approved. For longer projects you are required to seek renewed approval from the Committee.

All the best with your research,

Kim  
Ms Kim Tiffen  
Human Ethics Manager  
Research Ethics, Research Services,  
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Ellery Crescent,  
The Australian National University  
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T: +61 6125 3427 F: +61 2 6125 4807  
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<http://researchservices.anu.edu.au/ori/human/index.php>

**Appendix C**  
**Consent Forms and Information Sheets for Studies 1, 2 and 3.**



## Eating Disorders Program

Phillip Heath Centre, Cnr Keltie & Corinna Sts, WODEN, ACT 2606  
Phone: 6205 1519

### **Information for Consumers/Parents/Guardians**

Dear Consumer/Parent/Guardian,

The Eating Disorders Program (EDP) strives to ensure that the treatment strategies undertaken are evidence-based and the most appropriate for your situation.

To assist with maintaining the above we are seeking your permission to use your data/child's data in research to evaluate our treatment programs. The information will be gathered as part of routine clinical administration and will not impact on the treatment provided to you/your child. The information will be used for research purposes only is generalised in nature and may include information such as height and weight, number of treatment sessions attended and the type of treatment (e.g. individual or group based). All information will be de-identified. This information has already been gathered as part of routine clinical practice and we are looking to analyse this information to ensure that the treatment we provide is of the highest standard and is consistent with other specialist eating disorder services.

As mentioned above this information has already been gathered so if you wish to participate in the research you/ your child do not need to do anything. If you do not wish to have your/ your child's de identified information used in the research then please complete the section on the consent form and return it to EDP.

Should you have any comments or questions regarding this research you can contact the staff at EDP on (02) 62051519 or you may contact ACT Health Human Research Ethics Committee on 02 6205 0846, [acthealth-hrec.act.gov.au](http://acthealth-hrec.act.gov.au) or at Building 10, Level 6 Canberra Hospital.



## Eating Disorders Program

Phillip Heath Centre, Cnr Keltie & Corinna Sts, WODEN, ACT 2606  
Phone: 6205 1519

### Consent Form

Dear Parent/Guardian/Consumer,

The Eating Disorders Program (EDP) strives to ensure that the treatment strategies undertaken are evidence-based and the most appropriate for your situation. We are seeking your permission to use your child's data or your data in research to evaluate our treatment programs. Please read the information sheet for more information on this research.

The information will be gathered as part of routine clinical administration (e.g. height, weight, number of appointments attended) and will not impact on the treatment provided to you or your child. All information will be de-identified.

Your/your child's participation is voluntary and you are free to withdraw at any time, without giving reason. The de-identified information for the research will be stored securely in locked filing cabinets which only the staff will have access to and the data will also be stored on a computer with password only access.

Should you have any comments or questions regarding this research you can contact the staff at EDP on (02) 62051519 or you may contact ACT Health Human Research Ethics Committee on 02 6205 0846, [acthealth-hrec.act.gov.au](mailto:acthealth-hrec.act.gov.au).

If you agree to your child's data being used in this research, you do not need to do anything.

If you **do not** wish for your child's data to be used in this study, please complete the form below and return it to EDP by.....

✂-----

#### **PLEASE NOTE:**

Please only complete this form if you **do not** want your child's data to be used in this study.

If you agree to your/your child's data being used for this research you do not need to do anything.

I, \_\_\_\_\_, (name) **do not** give consent for my data or my child's data (Child's name \_\_\_\_\_) to be used for research purposes by the staff at the Eating Disorders Program.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Appendix D**  
**Consent Forms and Questionnaire used for Study 4.**

## Eating Disorders Program

Phillip Heath Centre, Cnr Keltie & Corinna Sts, WODEN,  
ACT 2606  
Phone: 6205 1519



### Consent Form

Dear Parent/Guardian,

The Eating Disorders Program (EDP) strives to ensure that the treatment strategies undertaken are evidence-based and the most appropriate for your situation.

To assist with maintaining the above we are seeking your permission to use your child's data in research. The information will be gathered as part of routine clinical administration and will not impact on the treatment provided to your child. The information will be used for research purposes only is generalised in nature and may include information such as height and weight, number of treatment sessions and the type of treatment. It will also include you and your family completing a short questionnaire of your experiences of the Day Program and of Family Based Therapy at EDP. All information will be de-identified.

I give consent for my child's ..... (name) de-identified information to be used as a case study in the research.

I acknowledge that:

- 1) I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason.
- 2) I understand that not providing consent or withdrawing will not have an impact on my child's treatment at EDP.
- 3) My child's de-identified information will be used for research purposes only and may be used in this research or future studies.
- 4) I agree to the use of anonymised quotes in publications.
- 5) The information that I provide and that my child provides will be stored securely in locked filing cabinets (after it has been anonymised), which only the staff will have access to and the data will also be stored on a computer with password only access.

I understand that I can contact the staff at EDP on (02) 62051519 if I have any comments or questions regarding this research. I understand that should I have any concerns regarding the data use I may contact ACT Health Human Research Ethics Committee on 02 6205 0846, [acthealth-hrec.act.gov.au](mailto:acthealth-hrec.act.gov.au) or at Building 10, Level 6 Canberra Hospital.

Name: .....

Signature: .....

Date: .....



## Eating Disorders Program

Phillip Heath Centre, Cnr Keltie & Corinna Sts, WODEN, ACT  
2606  
Phone: 6205 1519

### **Eating Disorders Program – Questionnaire**

Thank you for agreeing to participate in the research. Please complete this form and hand it back to the clinician.

This form has been completed by: (please tick one of the following)

- Client       Mum       Dad       Carer       Sibling

What would you consider to be the best part of the Day Program?

What would you consider to be negative experiences associated with the Day Program?

What were positives about engaging in Family Based Treatment?

What were negatives about engaging in Family Based Treatment?

How would you describe similarities and differences between the 2 treatments?

What would advice would you give to other people in the same situation?