



2023

Evaluating the Effectiveness of Family-Based Treatment Education on Provider's Knowledge, Anticipatory Use, and Attitudes Who Treat Adolescent Patients Diagnosed with Anorexia Nervosa

Treven Back
University of Kentucky, trevenback@icloud.com

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Back, Treven, "Evaluating the Effectiveness of Family-Based Treatment Education on Provider's Knowledge, Anticipatory Use, and Attitudes Who Treat Adolescent Patients Diagnosed with Anorexia Nervosa" (2023). *DNP Projects*. 421.
https://uknowledge.uky.edu/dnp_etds/421

This Practice Inquiry Project is brought to you for free and open access by the College of Nursing at UKnowledge. It has been accepted for inclusion in DNP Projects by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

Evaluating the Effectiveness of Family-Based Treatment Education on Provider's Knowledge,
Anticipatory Use, and Attitudes Who Treat Adolescent Patients Diagnosed with Anorexia
Nervosa

Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Nursing
Practice at the University of Kentucky

By
Treven Back, BSN, RN, CPN
Lexington, KY
2023

Abstract

Background. Anorexia Nervosa is a chronic, disabling, and costly disease with a higher mortality rate than any other psychiatric illness. Because of the need for medical, psychiatric, and nutritional care, treatment is complex. The current literature supports Family-Based Treatment as a first-line treatment for adolescent patients diagnosed with Anorexia Nervosa. However, a gap exists between translating family-based treatments into clinical practice. Literature shows that education and understanding providers' attitudes and beliefs are the first steps to successfully implementing family-based treatments.

Purpose. This DNP project aimed to evaluate the effectiveness of a family-based treatment education intervention on providers' attitudes, knowledge, and anticipatory use for treating adolescent patients diagnosed with anorexia nervosa.

Methods. A pretest/posttest quasi-experimental study was used for this DNP project. Provider knowledge of anorexia nervosa and family-based treatment was assessed through a 15-item quiz. The current frequency and intent to use family-based therapy approaches were measured using the Therapeutic Strategy Checklist for Adolescent Anorexia Nervosa. Attitudes toward family-based treatment were analyzed using the Family-Based Treatment Attitudes Scale. Paired sample t-tests were used to extrapolate findings into statistical data.

Results. Anorexia nervosa mean knowledge scores increased from 56.0 (SD= 18.4) to 92.0 (SD= 10.3), and family-based treatment mean knowledge scores increased from 54.4 (SD= 19.2) to 90.0 (SD15.5). Mean scores regarding family-based treatment strategies also increased. Consistent strategies increased from 26.6 (SD= 5.32) to 32.0 (SD= 6.33), while inconsistent strategies saw a slight increase of 13.3 (SD= 3.06) from 12.1 (SD= 3.23) pre-intervention. Attitudes toward family-based treatments also showed more favorability post-intervention. Mean

attitude scores increased from 1.22 (SD= 2.99) to 3.78 (SD= 5.29). Although there was an increase in all scores post-intervention, the knowledge domain was the only one that showed statistical significance.

Conclusions. Family-based treatment is an evidence-based practice recommended as a first-line treatment for anorexia nervosa. There is a gap in translating the evidence into practice. It is suggested that to initiate implementing evidence into practice, the first step is to improve knowledge and attitudes toward the change. This DNP project showed favorable changes in healthcare providers' knowledge, attitudes, and intent to use family-based treatment strategies. These results suggest that a brief educational presentation on family-based treatments could serve as the foundation for healthcare providers to obtain more formal training to deliver family-based treatments.

Acknowledgments

I want to thank many people for collaborating with me on the DNP project. Dr. Andrew Makowski, my DNP faculty advisor, and committee chair, provided me with countless hours of guidance and knowledge throughout this program and with my project from beginning to end. I am forever grateful for your support these last few years. Dr. Morgan Chojnacki, my UK faculty member, was the first person to introduce me to adolescent eating disorders in my undergraduate nursing courses. Since then, she has provided me with countless resources and has been actively involved with my work on this project. I am so thankful you took me under your wing and sparked my interest in this area of mental health. Dr. Cori Arena, my clinical mentor and committee member, has been one of my biggest supporters on this DNP journey. Although we did not know each other well before this project, I am so glad we do now. Your enthusiasm about this project and your knowledge of everything- from eating disorders to IRB writing, is something I will never be able to thank you enough for. Lastly, Dr. Amanda Thaxton-Wiggins for her support with data analysis. Your ability to analyze data using complicated programs and then simplify it to something I can understand keeps me in awe.

Again, from the bottom of my heart, thank you.

Dedication

I want to dedicate this project to my best friend and biggest supporter, Douglas. You have been with me during this journey at my highs and lows. From sleepless nights to missing family events, when I said I wanted to quit, you told me, "It will all be worth it." It has been a very long road, and now that it is ending, I realize there is no way I could have done this without you by my side every step. You have never doubted me; you have always cheered for me.

I love you.

Table of Contents

Abstract	2
Acknowledgments	4
Dedication	5
Background and Significance	8
Problem Statement	8
Context, Scope, and Consequences of the Problem	8
Current Evidence-Based Interventions	11
Purpose and Objectives	13
Review of Literature	13
Synthesis of Evidence	13
Gap in Evidence	14
Theoretical/Conceptual Framework	15
Methods	16
Design	16
Setting	16
Agency Description	16
Project Congruence to Agency’s Vision	17
Stakeholders	17
Facilitators and Barriers to Implementation	17
Sample	18
Procedure	18
IRB Approval	18
Description of Intervention	18
Measures and Instruments	19
Data Analysis	21
Results	21

Discussion	23
Findings as it Relates to the Existing Literature	25
Project Impact & Sustainability Plans	25
Implications.....	26
Limitations	27
Conclusion	28
References.....	30
Tables	37
Table 1: Demographic Summary of Participants (N=10).....	37
Table 2: Pre/Post Survey Data Results (N=10).....	38
Appendices.....	39
Appendix A: Email Invitation for Participation in Study	39
Appendix B: Consent.....	40
Appendix C: AN & FBT Knowledge Questionnaire (Pre/Post).....	42
Appendix D: Therapeutic Strategy Checklist for Adolescent Anorexia Nervosa (Pre- intervention).....	47
Appendix E: Therapeutic Strategy Checklist for Adolescent Anorexia Nervosa (Post- intervention).....	48
Appendix F: Family-Based Treatments Attitudes Scale (Pre/Post).....	49

Background and Significance

Problem Statement

Anorexia nervosa (AN) is a chronic, disabling, and costly disease that, if left untreated, has a higher mortality rate than any other psychiatric illness (van Hoeken & Hoek, 2020). Treatment for AN is complex, and a multidisciplinary team approach is often recommended, combining medical care, psychiatric care, and nutritional guidance (Dulcan, 2016). Depending on the severity of the eating disorder, patients with AN can be treated in various settings, including outpatient, intensive outpatient, partial hospitalization, inpatient, and residential settings. However, attrition and relapse rates continue to be high for patients with AN (Weiss et al., 2013). One predictor of treatment success is family involvement (Le Grange et al., 2016). For healthcare providers that treat patients diagnosed with AN, understanding how to support and integrate the entire family into the care of a patient with AN is fundamental to recovery for the patient.

Context, Scope, and Consequences of the Problem

AN is defined as having a restriction of energy intake relative to requirements leading to significantly low body weight compared to normal ranges for age, sex, development, and physical health, having an intense fear of gaining weight or becoming fat, or having persistent behaviors that interfere with weight gain, and a disturbance in the way one's body weight or shape is experienced (American Psychiatric Association, 2013). Adolescents are a subset of the population that is particularly susceptible to developing AN. (Mairs & Nicholls, 2016). While the exact cause is still widely unknown, research suggests that AN's development is multifactorial (Hornberger, 2021). Genetics, cognitive inflexibility, perfectionism, family/peer relationships,

self-esteem, coping skills, and the media have all been studied in the etiology of AN (Mairs & Nicholls, 2016).

What was once believed to be a disease only non-Hispanic white adolescent girls suffered from has increasingly been recognized as affecting all genders, socioeconomic classes, and racial and ethnic groups (Hornberger, 2021). Up to 4% of females and 0.3% of males suffer from AN (van Eeden et al., 2021). The peak age of onset for AN in both men and women occurs between 15 and 19 years of age (Micali et al., 2013). In adolescents, the lifetime prevalence rate is 0.3%, while the 12-month prevalence rate is 0.2% (Swanson et al., 2011).

AN also carries a significant burden on the development, disability, and morbidity/mortality of adolescents. Severe malnutrition, that is seen in adolescents, results in multiple different physiologic complications (Dulcan, 2016). Hypothermia, amenorrhea, hypertension, along with changes in growth hormone, hypothalamic hypogonadism, bone marrow hypoplasia, cardiac dysfunction, and gastrointestinal dysfunction have all been evident in adolescent patients diagnosed with AN (Dulcan, 2016). These changes are more pronounced in adolescents with AN because of the occurrence during significant stages of physical and psychological development (Dulcan, 2016).

Adolescence is a period of rapid change and AN has implications on the psychosocial development of the adolescent as well (Medway et al., 2019). The adolescent period is a time that involves extending relationships beyond the family, increasing independence and self-regulation, planning for the future, and developing one's identity and sense of self (Medway et al., 2016). When an adolescent develops AN, this causes a disruption in psychosocial development that oftentimes persists into adulthood. Employment difficulties, social isolation,

and long-term interpersonal difficulties have resulted when AN disrupts normal psychosocial development in the adolescent (Medway et al., 2016).

As cited in van Hoeken & Hoek, 2020, a study by (Martin et al., 2015) examined the burden AN carries on family members, especially caregivers. Caregivers of patients with AN were compared to caregivers of patients with depression or schizophrenia, and caregiver burden (worry, tension, and urging), was measured using the Involvement Evaluation Questionnaire EU Version (Martin et al., 2015). Results showed that caregiver burden (worry, tension, and urging) was higher among caregivers of patients with an eating disorder when compared to caregivers of patients with depression or schizophrenia (Martin et al., 2015).

AN has the highest mortality rate among all psychiatric illnesses due to the significant psychopathology and life-threatening medical complications that can result from the disorder (Moskowitz & Weiselberg, 2017). As cited in van Eeden et al. (2021), a landmark meta-analysis of worldwide eating disorders by Arcelus et al. (2011) reported the standardized mortality rate (SMR) of AN was 5.9 deaths per 1000 person-years (95% CI 4.0-6.1), and a 6% increased risk of death. In a 5-year follow-up study, the SMR for AN patients that had been hospitalized was found to be as high as 15.9 (95% CI 11.6-21.4).

Financial costs associated with eating disorders are high. In a study by Streatfeild et al. (2021), for the 2018-2019 fiscal year, \$11.2 billion was explicitly spent on patients who suffered from AN in the United States. It was estimated that individuals were responsible for around 29% of the total tangible economic costs, while the remaining costs were shared across government, employers, society and other payers, and family/friends (Streatfeild et al., 2021). The average cost per affected person was the highest in individuals with AN at \$2,615 (Streatfeild et al.,

2021). Primary care and outpatient services comprised the most significant expenditures at \$3.4 billion for patients with AN (Streatfeild et al., 2021).

Current Evidence-Based Interventions

As healthcare providers (HCPs), understanding the best evidence for treating AN is critical to success. Current evidence supports family-based treatment (FBT), sometimes referred to as the Maudsley method, as the recommended practice for AN treatment (American Psychiatric Association, 2006). FBT is an outpatient treatment program designed to improve adolescent health with the support of the family, primarily parents/guardians. Three phases encompass FBT. Phase 1 focuses on weight restoration where the parents are in control of meals. Phase 2 involves transitioning the responsibility of eating habits from the parents back to the adolescent. Phase 3 reviews adolescent growth and development with the patient and family (Lock & Le Grange, 2013). While FBT is recommended as the first-line treatment for adolescents diagnosed with AN, translating the evidence into practice continues to be a barrier.

Successful uptake and implementation of FBT is improved with education that increases knowledge and awareness. Kimber et al. (2014) published a study that identified the components necessary for the successful uptake and implementation of FBT with providers who treat eating disorders. This study identified that implementing an evidence-based practice (EBP) is likely to occur if providers are aware of its existence. Thus, the first step to uptake is to provide education on the EBP (Kimber et al., 2014). Secondly, exposing the whole treatment team to EBP, as opposed to only administrators or providers, is also essential. After exposure to the EBP, the treatment team would need to assess the EBP and determine the attitudes between the proposed EBP and current treatment practices (Kimber et al., 2014). After providing brief education on the

EBP and determining knowledge/attitudes, providers are more likely to pursue formal training for the EBP.

Additionally, Couturier et al. (2014) conducted a qualitative study to identify factors that would facilitate the transfer of the research evidence on FBT into clinical practice. The findings from this study suggest that providers would like to be provided with an evidence base in terms of journal articles, an education intervention, and best practice guidelines (Couturier et al., 2014). The study reported that providers thought that the treatment manual for FBT should be used as the basis for education. The target audience should include therapists, team physicians, advanced practice providers, and auxiliary team members (registered nurses, dieticians, etc.) (Couturier et al., 2014). In terms of what should be included in the training, the study reported that providers requested training that covered the research evidence and specific tenets of the model that aligned with the FBT manual (Couturier et al., 2014). From this study, it was determined that context-specific training programs for the implementation of FBT are warranted (Couturier et al., 2014).

Successful uptake and implementation of FBT among providers require awareness through education. Synchronous education interventions, when compared to asynchronous interventions, have been requested and effective in the uptake and implementation of evidence-based practices, such as FBT (Kimber et al., 2014; Couturier et al., 2014).

Because there is no existing educational training that provides a brief education on FBT to healthcare providers that treat adolescents diagnosed with FBT, the PI developed an educational presentation on FBT to improve the knowledge, anticipatory use, and attitudes of FBT. This was in alignment with the recommendations from the existing literature and gap in the evidence.

Purpose and Objectives

The purpose of this DNP project was to provide education regarding FBT principles to healthcare providers who treat adolescent patients diagnosed with AN. The specific aims were to 1.) to evaluate changes in knowledge regarding AN and FBT principles and practices, 2.) evaluate changes in healthcare providers' attitudes toward FBT, and 3.) examine providers' current treatment practices and their intent to use FBT in their future practice.

Review of Literature

The literature review for this DNP project utilized the databases CINAHL, PubMed, and PsychInfo to answer the question: Among healthcare providers who treat adolescent patients diagnosed with anorexia nervosa, how does an educational intervention regarding FBT affect knowledge, attitudes, and anticipatory use of FBT? The following terms and Boolean operators "Anorexia Nervosa" OR "Anorexia" OR "AN" AND "Family-Based Treatments" OR "FBT" AND "Outcomes" AND "Adolescents" OR "Teenagers" yielded 3,701 articles. Full-text availability, English language, articles from 2010-2022, and peer-reviewed reduced the number of available articles to 1,912. Search terms were changed from having keywords in all text to having keywords in the title. Articles were then selected based on relevance to the proposed intervention. This search result produced a total of 790 articles.

Synthesis of Evidence

There are several studies supporting the efficacy of FBT by comparison to other therapeutic approaches. Included in this comparison were FBT vs. Systemic Family Therapy (Agras et al., 2014), FBT vs. Parent-Focused Therapy (Le Grange et al., 2016), FBT vs. Adolescent-Focused Individual Therapy (Lock et al., 2010), FBT vs. Multifamily-Therapy (Eisler et al., 2016) and one study compared FBT to treatment as usual (TAU) (Godart et al.,

2012). TAU was defined as individual consultations, regular interviews with parents, and, if needed, individual psychotherapy. In each of these studies, FBT was shown to improve measured outcomes including symptom remission and psychopathology.

All six studies measured symptom remission (Agras et al., 2014; Eisler et al., 2016; Godart et al., 2012; Goldstein et al., 2016; Le Grange et al., 2016; Lock et al., 2010). Symptom remission was defined as normal weight $\geq 95\%$ of expected for sex, age, height, and return of menses in pubertal adolescent females. These studies achieved partial or complete remission with FBT compared to other treatments.

The Eating Disorder Questionnaire (EDQ), which measures four domains: restraint, eating concern, weight concern, and shape concern, was measured in three of the six studies (Goldstein et al., 2016; Le Grange et al., 2016; Lock et al., 2010). Depression and anxiety symptoms were measured using the "Schedule for Affective Disorders and Schizophrenia for School-Age Children" and "The Depression Anxiety Stress Scales" in studies by Lock et al., (2010), and Le Grange et al., (2016), respectively. The Morgan and Russell Outcome Inventory measured mood improvements in the last two studies (Eisler et al., 2016; Godart et al., 2012). Compared to parent-focused, adolescent-focused, systemic family therapy, single and multi-family therapy, and treatment-as-usual, FBT improved psychopathology and mood symptoms in all six studies when administered to adolescents diagnosed with AN (Agras et al., 2014; Eisler et al., 2016; Godart et al., 2012; Goldstein et al., 2016; Le Grange et al., 2016; Lock et al., 2010).

Gap in Evidence

The research shows that FBT has proven to be efficacious in treating adolescent patients with AN. However, a gap exists. Translating the evidence into clinical practice continues to be the main issue with implementing FBT (Accurso et al., 2020; Hughes et al., 2014). Several

factors are behind the delay in the implementation of FBT. Those factors include a lack of-and access to FBT education for HCPs that treat adolescents diagnosed with AN, unwillingness to change, and negative beliefs about FBT (Accurso et al., 2020; Astrachan-Fletcher et al., 2018; Hughes et al., 2014). Without knowledge or having negative opinions about FBT, HCPs are unable or may be unwilling to provide what is recommended as the first-line treatment for AN (Astrachan-Fletcher et al., 2018; Hughes et al., 2014).

According to Hughes et al. (2014), education on FBT for the entire multidisciplinary team is critical to FBT success. Each treatment team member (medical provider, mental health provider, therapist, nurse, and dietitian) plays a vital role in implementing FBT. However, without proper knowledge of FBT, FBT implementation cannot be effective (Accurso et al., 2020). To bridge that gap, an educational intervention on FBT can be utilized. In a secondary analysis by Couturier et al. (2014), the authors reported that FBT education should include the research supporting the model's efficacy and specific interventional components of the FBT manual. The evidence supports this hypothesis by proposing that implementation of evidence-based practices should be active, purposeful, and supportive, as this can result in greater treatment fidelity and better patient outcomes (Couturier & Kimber, 2015; Kimber et al., 2014).

Theoretical/Conceptual Framework

The theoretical framework that guided this DNP project was the Knowledge Transfer Framework (Lavis et al., 2003). The Knowledge Transfer Framework aims to transfer knowledge of the most appropriate, evidence-based strategies into clinical practice (Lavis et al., 2003). According to Lavis et al. (2003), five concepts provide the framework for this concept: 1.) identifying what knowledge needs to be transferred ("the message"), 2.) determining whom the knowledge should be transferred to ("the audience"), 3.) identifying by whom the knowledge is

shared ("the messenger"), 4.) exploring how the knowledge will be shared ("knowledge transfer strategies and infrastructure"), and 5.) determining the effect of the knowledge transfer ("the evaluation"). For this DNP project, "the message" is FBT knowledge, principles, and practices, "the audience" is the healthcare providers at the University of Kentucky Adolescent Medicine clinic, "the messenger" is the PI for the DNP project, "the knowledge transfer strategies" includes the use of an educational PowerPoint on FBT, and "the evaluation" consists of pre- and post-intervention test data comparison.

Methods

Design

This DNP project used a quasi-experimental, one-group pretest-posttest design to pilot an synchronous educational intervention regarding AN and FBT. Healthcare providers' knowledge, anticipatory use, and attitudes related to FBT were examined before and immediately after the intervention.

Setting

Agency Description

This DNP project was implemented at University of Kentucky (UK) Adolescent Medicine Clinic, a part of the University of Kentucky Department of Pediatrics in Lexington, Kentucky. The Adolescent Medicine clinic includes physicians, nurses, social workers, nutritionists, and psychologists who treat adolescent patients, ages 12-18, for various mental and physical health issues, including depression/anxiety, eating disorders, substance use, reproductive care, and well-child checkups.

Project Congruence to Agency's Vision

In congruence with UK Healthcare's DIRECT values, which include diversity, innovation, respect, compassion, and teamwork (UK Healthcare, 2020), a priority was made to ensure this DNP project aligned with those values. Because this DNP project concentrated on healthcare provider education on the recommended first-line evidence-based treatment for eating disorders, this DNP project aligned with the innovation value in UK Healthcare's DIRECT values. The innovation value fosters an environment of continual learning and improvements that support positive changes and outcomes.

Stakeholders

Several individuals were considered key stakeholders in the implementation of this DNP project. First, the DNP project committee, which included Dr. Andrew Makowski, DNP, APRN, PMHNP-BC (Faculty Advisor/Committee Chair), Dr. Morgan Chojnacki, DNP, APRN, CPNP-PC (Committee Member), Dr. Cori Arena, DNP, APRN, FNP-C, PMHNP-BC (Clinical Mentor), and Dr. Amanda Thaxton-Wiggins, PhD (statistician). Additional stakeholders supporting this DNP project included the Chief of Adolescent Medicine, Dr. Mandakini Sadhir, MD, FAAP; Holly Powers, Practice Manager; Robyn Morris, Social Worker Supervisor; and Brenda Patel, RN, nursing manager. Lastly, other stakeholders for this DNP project included the Adolescent Medicine Clinic staff for their time and commitment.

Facilitators and Barriers to Implementation

Site-specific facilitators for this DNP project included accepting and identifying the need for this DNP project by all stakeholders. Time was a presumed barrier to implementing this DNP project. Participants needed to allow 45-55 minutes to complete the pretest, education presentation, and posttest.

Sample

The target population for this DNP project was healthcare providers that work with adolescent patients diagnosed with AN. This sample included physicians, advanced practice providers, social workers, therapists, nurses, dietitians, or other healthcare providers involved in the care of these patients. Inclusion criteria to participate in this DNP project included that participants must work with adolescent patients diagnosed with AN through direct patient care, have a college degree, and be licensed to practice in their respective fields. Exclusion criteria included non-licensed workers, such as patient clerical assistants.

Procedure

IRB Approval

Before the implementation of this DNP project, approval was obtained from the Nursing Research Council at the University of Kentucky Medical Center on August 10, 2022, and from the Institutional Review Board (IRB) affiliated with the University of Kentucky Medical Center on September 22, 2022.

Description of Intervention

After IRB approval was obtained, an email was sent to the adolescent medicine clinic staff inviting them to participate in the DNP project (Appendix A) along with a zoom link for the presentation. Before the educational presentation, adolescent medicine staff in attendance were asked to consent to participate in this DNP project (Appendix B), create a unique identifier to use for the questionnaires, and complete the pre-intervention questionnaires through Qualtrics. Three separate questionnaires were used to assess the Adolescent Medicine provider's knowledge of AN and FBT, the frequency of treatment techniques used for adolescent AN treatment, and attitudes toward FBT.

An educational PowerPoint presentation was created by the PI using the "Maudsley Service Manual for Child and Adolescent Eating Disorders" (Eisler et al., 2016) and the "Treatment Manual for Anorexia Nervosa- A Family-Based Approach" (Lock and Le Grange, 2013), which are two evidenced-based publications detailing family-based treatment delivery. The content included in this presentation covered many topics. Included in the presentation was the definition of AN and FBT and supporting evidence for FBT. In addition, the content incorporated the principles and phases of FBT, each team member's role in FBT, and inpatient admission criteria.

After the brief education intervention, participants were asked to complete the post-intervention questionnaires via Qualtrics. The same questionnaires were used that were administered pre-intervention to the participants. Data was collected to reassess changes in AN and FBT knowledge, the intent of providers to utilize FBT, and attitudes toward FBT. Following those questionnaires, demographic data were also collected via Qualtrics (Table 1).

Measures and Instruments

Data for this DNP project were collected via electronic questionnaires in Qualtrics software. All data collected were based on anonymous responses to the questionnaires without the possibility of determining the participants' identities. Participants created unique identifiers so data could be linked to assess for overall changes from pre-intervention to post-intervention.

Three different assessments were utilized. The first assessment was a 15-item multiple choice quiz assessing participants' knowledge of AN & FBT (Appendix C). No available questionnaires are published that assess providers' knowledge of AN and FBT. Therefore, the PI developed the questionnaire to be administered, and face validity was established by having expert clinicians review the questions. Participants completed this questionnaire before the FBT

presentation and immediately following. A total knowledge score was calculated for each assessment as the percentage of items answered correctly.

The "Therapeutic Strategy Checklist for Adolescent Anorexia Nervosa (TSC-AN)" was administered to identify the current frequency of select treatment strategies that healthcare providers used with adolescent patients diagnosed with AN (Appendix D). This scale demonstrated good reliability with a Cronbach's alpha of 0.83 (Accurso et al., 2020). The TSC-AN includes 25 treatment techniques (Accurso et al., 2020). Of the 25 treatment techniques, some were consistent with FBT strategies (n=12), some were not consistent with FBT (n=8), and some were neither consistent nor inconsistent with FBT (n=5) (Accurso et al., 2020). Due to time constraints for this DNP, the survey was reduced to 15 treatment strategies (11 consistent and 4 inconsistent).

Before the educational presentation, participants rated each item on a 5-point Likert scale ranging from 0) "never" to 4) "almost always or always." The participant's response was based on the frequency the provider *currently uses* each technique when treating adolescent patients with AN. Immediately following the FBT presentation, participants completed the same survey. However, their responses post-intervention were based on their *intent to use* each strategy during treatment (Appendix E). A summative score was calculated for both consistent and inconsistent strategies, with a potential range of 0-44 for consistent and 0-16 for inconsistent strategies. In the original study, the FBT- consistent strategies demonstrated good reliability with a Cronbach's alpha of .83 (Accurso et al., 2020).

The third questionnaire used in this project was the Family-Based Treatment Attitude Scale (FBT-AS) (Appendix F). The FBT-AS is a 24-item measure that assessed participant attitudes toward FBT as a treatment for adolescent patients with AN and FBT implementation.

Demonstrating good reliability with a Cronbach's alpha of 0.84, the questionnaire captures four domains impacting attitudes toward FBT: 1.) perceived relevance and clinical appropriateness of FBT, 2.) treatment credibility, 3.) implementation confidence, and 4.) feasibility (Accurso et al., 2020). Due to time constraints, the survey was reduced to 12 questions that captured those four domains. The scale demonstrated good internal reliability with a Cronbach's alpha of .84 (Accurso et al., 2020). Participants in this study completed this survey before the FBT presentation and immediately after. Their responses to each item were rated on a 5-point Likert scale ranging from 0) "Strongly Disagree" to 4) "Strongly Agree," with higher scores indicating higher favorability towards FBT. An average score was used to summarize favorability, with a potential range of 0-4.

Demographic data were collected post-survey to characterize the participant sample (Table 1). Demographic measures included gender, age, highest degree earned, and current license/certification.

Data Analysis

Collected data was transferred from Qualtrics to IBM SPSS software, version 29, for analysis. Frequency distributions were used to summarize the demographic characteristics of participants. Changes in knowledge, current use of FBT strategies, intent to use FBT strategies, and attitudes from pre-intervention to post-intervention were evaluated using paired samples t-tests. Statistical significance was considered as a *p-value* less than 0.05.

Results

Thirty-five healthcare providers were invited to participate, of which thirteen attended the zoom meeting. Three participants only completed part of the study and were excluded from the analysis, leaving a total of ten participant responses to be analyzed.

Of those ten participants, the majority were female (70%; see Table 1). Half of the participants were between 18 and 39, while the remaining were between 40 and 49. Slightly less than half had a doctoral degree (40%), while the remaining were equally split between a bachelor's degree (30%) or a master's degree (30%). For license/certification, participants were equally distributed. Two MD/DO (20%), two APRN/PA (20%), and two clinical social workers (20%), with the remaining holding a registered nurse (10%), registered dietitian licensure (10%), or other certifications (20%).

Overall, there was a significant increase in mean scores post-intervention compared to pre-intervention for both the AN ($p < .001$) and FBT ($p = .011$; see Table 2) knowledge domains. On the pre-intervention, knowledge of AN questions had a mean score of 56.0 (SD = 18.4), with mean scores increasing to 92.0 (SD=10.3) post-intervention. FBT questions had a mean pre-intervention score of 54.4 (SD= 19.2) increasing to 90.0 (SD=15.5) post-intervention.

For the FBT-consistent strategies, the potential range was 0-44. The pre-intervention score was 26.6 (SD= 5.32) and increased to 32.0 (SD= 6.33). Although scores did increase post-intervention, this increase was not statistically significant ($p = .065$). For the FBT-inconsistent strategies, the potential range was 0-16. The pre-intervention score was 12.1 (SD= 3.23) and slightly increased to 13.3 (SD= 3.06) post-intervention. Similar to the FBT-consistent strategies, this increase was not statistically significant ($p = .08$).

Based on a potential range of 0-4, the mean score on the FBT-AS, pre-intervention, was 1.22 (SD= 2.99) and increased to 3.78 (SD= 5.29) post-intervention, although this increase was not statistically significant ($p = .217$).

Discussion

This DNP project aimed to determine if an FBT education presentation impacted HCPs' knowledge, anticipatory use, and attitudes toward FBT. Based on the results from this DNP project, while some were not statistically significant (~~to be discussed later~~), there was an overall increase in knowledge, intent to use FBT, and favorable attitudes toward FBT.

According to Hughes et al. (2014), a significant early barrier to implementing FBT practices is a lack of knowledge/preconceived ideas about FBT. Implementation of evidence-based practices is instrumental in achieving quality health care. As reported by Dagne & Beshah (2021), improving healthcare providers' knowledge, skill, and attitudes enhances the opportunity for implementing evidence-based practices. In congruence with this DNP project, the first arm of this project was to assess the knowledge base of HCPs on anorexia nervosa and family-based treatments that frequently treat adolescent patients with eating disorders.

Knowledge regarding AN and FBT demonstrated a statistically significant change from pre- to post-intervention ($p < .001$ and $p = .011$, respectively). Within this domain, pre-intervention knowledge deficits included suicide rates related to anorexia nervosa, physical exam findings of a patient with anorexia nervosa, the phases of FBT, the "family meal" session in FBT, and interdisciplinary communication. Post-intervention, 100% of participants answered the suicide question correctly, compared to 20% answering pre-intervention correctly. Additionally, 80% of participants answered the physical exam finding question correctly post-intervention, while only 20% answered pre-intervention correctly. Pre-intervention data showed that 30% of participants answered the phases of FBT, interdisciplinary communication, and family meal questions correctly pre, while 50%, 70%, and 70% answered these questions correctly post-intervention.

The second questionnaire of this DNP project looked at changes from the *current* use to the *intent* to use certain therapeutic strategies in treating adolescent patients with AN. The adapted "Therapeutic Strategy Checklist for Adolescent Anorexia Nervosa" included 11 strategies that were consistent with FBT practices and four strategies were inconsistent with FBT practices (Accurso et al., 2020; see Appendix D & E):

Of these 11 FBT-consistent strategies, the intent to use increased in all but three strategies post-intervention. When providing education on morbidity and mortality rates, "current use" and "intent to use" scores remained the same for this strategy. The two strategies that saw a decrease in the intent to use post-intervention were: 1.) weighing the adolescent at every visit and 2.) openly discussing weight changes with the adolescent.

Of the four strategies that were inconsistent with FBT practices, "*Exploration of issues related to the development of AN*" was the only inconsistent strategy where frequency remained the same compared to pre-intervention. The other three strategies ("*referring to a dietician...*", "*referring to a mental health provider...*", and "*emphasizing parental unity*") saw a slight increase in the frequency of HCPs' intent to use. However, it is essential to look at these interventions, and while they may be inconsistent with FBT, these strategies are frequently used in the care of AN patients. For instance, a referral may be made to a mental health provider for medication management due to the risk of co-morbid psychiatric disorders such as depression, anxiety, obsessive-compulsive disorder, etc. (American Psychiatric Association, 2013).

The third questionnaire of this DNP project looked at attitudes regarding FBT pre- and post-intervention. The results from the FBT-AS were not statistically significant. However, overall, there was a positive increase in favorability towards FBT. Of the twelve questions in the survey, questions 1, 6, 7, and 8 were in the perceived relevance and clinical appropriateness

domain. Questions 2, 4, and 11 were in the treatment credibility domain, 5, 9, and 10 were in the implementation confidence domain, and 3 and 12 were in the feasibility domain. Comparing post-intervention attitudes to pre-intervention attitudes in each domain, overall, there was an increase in mean scores, with higher scores indicating stronger favorability.

Findings as it Relates to the Existing Literature

While there have been many studies reporting on the efficacy of FBT for treating adolescent patients diagnosed with AN, there have also been studies looking at the implementation process for translating FBT into practice. According to Couterier and Kimber (2015), barriers to implementing FBT include knowledge deficits, unwillingness to change, and poor attitudes. The literature supports a broad and basic FBT education as the foundation for successful uptake and implementation of FBT (Kimber et al., 2014). When providing education on FBT to HCPs, content should include the evidence supporting FBT, the principles and practices of FBT, and the roles of each team member in FBT. This DNP project addressed the identified barriers to implementation by providing a brief FBT education to improve the knowledge, anticipatory use, and attitudes of FBT. The content included in the education coincided with what was recommended for inclusion by the literature. Post-intervention data showed improvements in HCPs knowledge, anticipatory use, and attitudes toward FBT. The results from this project align with the literature by showing that a brief FBT education can improve the knowledge, anticipatory use, and attitudes of HCPs who treat adolescent patients diagnosed with AN.

Project Impact & Sustainability Plans

For this DNP project, there was a significant impact on HCPs after completion of the intervention. Overall, knowledge regarding AN and FBT improved, the frequency of the intent to

use FBT-consistent strategies increased, and there were more favorable attitudes towards FBT post-intervention. The significance of this is that because FBT is an evidence-based practice and the recommended first-line treatment by the American Psychiatric Association, these HCPs at the Adolescent Medicine clinic have shown a great interest in pursuing more formal education to practice FBT in their clinic. Currently, pieces of FBT are utilized, but fidelity to the full treatment manual is subpar. After having this education, there is promise that these HCPs will pursue the education needed to adopt the whole practice of FBT for adolescent patients diagnosed with FBT.

Moving forward, plans for sustainability would include incorporating and maintaining this education into the orientation of new hires and as a web-based training for staff as a yearly refresher course.

Implications

This project showed promise toward an FBT education presentation on improving HCPs knowledge of AN and FBT, the intent to use FBT-consistent strategies, and the attitudes towards FBT. Understanding FBT is the foundation for translating this into practice. Utilizing web-based training or simple PowerPoints is a practical, convenient, and cost-effective delivery method for educating healthcare providers. Moving forward, the possibility of FBT education incorporated into all new hire orientations and refresher courses offered yearly or as needed should be considered. Opportunities should also be given to pursue formal training to utilize FBT in practice.

There is a link between outpatient and inpatient services, so this education should be offered to HCPs providing care to patients in the inpatient setting. Having inpatient HCPs understand FBT will allow them to better prepare families for what is to come upon discharge,

should the patient be following up with a provider who utilizes FBT. Because of this, there is an opportunity for further research examining inpatient providers' responses to a brief FBT education intervention.

In terms of policy recommendations, given that there is evidence to support education on FBT to enhance the knowledge and attitudes of HCPs, educational requirements could be recommended. FBT is identified as the first-line treatment for adolescent patients with AN. Because of this, FBT education could be integrated into education curriculums, especially for psychiatric and mental-health providers.

Implications for further research were also identified. This DNP project showed that a simple education presentation on FBT improved knowledge, attitudes, and the intent to use FBT in future practice. However, given the small sample size, further research should be conducted on a larger scale to evaluate if the results are comparable to this DNP project. Future research studies should also look at hospitalization rates among patients treated in clinics where FBT is implemented.

Limitations

Limitations to this DNP project included time, sample size, study design, and setting. Because this study was a quasi-experimental design, this was considered a limitation. As a result of this study design, there was no randomization, as every HCP at the Adolescent Medicine clinic had the opportunity to participate in the study. Along with the design, the setting was also considered a limitation. This DNP project occurred in a singular setting. To better understand the effect of a brief FBT education, implementation should occur in multiple settings to determine the effect.

Time was also considered a limitation to this project. To implement this DNP project, after meeting with stakeholders, it was determined that the times available to complete this DNP project were during the participants' lunch break. The HCPs at the adolescent medicine clinic are allotted roughly one hour for lunch. Given this time limit and the variability of each provider's schedule, there was a limited timeframe for this DNP project to be implemented.

The sample size was also a limitation. Initially, 35 providers at the Adolescent Medicine Clinic were invited to participate in this DNP project and 10 participants completed the project. Factors that could have affected the small sample size could have included limited time, a singular setting, unavailability due to scheduling conflicts, voluntary nature of the study, disruption of break time, or lack of interest. It is also essential to consider that this small sample size may have impacted the statistical significance of the DNP project results, even though there were positive changes post-intervention. The small sample size is one of the reasons that further research on FBT education should be implemented on a larger scale.

Conclusion

Anorexia nervosa is a chronic, disabling, and costly psychiatric disorder (van Hoeken & Hoek, 2020). Treatment for AN is complex, and the results are not immediate. Family-based treatment is the recommended first-line treatment for adolescent patients diagnosed with AN, however, there continues to be a gap between evidence-based practice and its implementation (Accurso et al., 2020; Hughes et al., 2014). This DNP project aimed to determine if a brief education on FBT improved providers' knowledge, attitudes, and intent to use FBT. Based on the results from this DNP project, the education presentation proved to be effective. Knowledge of AN and FBT increased significantly, while intent to use FBT-consistent strategies and attitudes also improved. These results support the need for further provider education regarding FBT

strategies, which would likely improve patient outcomes. Additional research is also needed in more longitudinal studies to truly measure the impact of a brief FBT education on HCPs knowledge, anticipatory use, and attitudes. Additionally, research could be done to observe the frequency of successful uptake of FBT practices after the brief education.

References

- Accurso, E. C., Le Grange, D., & Graham, A. K. (2020). Attitudes Toward Family-Based Treatment Impact Therapists' Intent to Change Their Therapeutic Practice for Adolescent Anorexia Nervosa. *Frontiers in Psychiatry, 11*, 305.
<https://doi.org/10.3389/fpsy.2020.00305>
- Agras, W. S., Lock, J., Brandt, H., Bryson, S. W., Dodge, E., Halmi, K. A., Jo, B., Johnson, C., Kaye, W., Wilfley, D., & Woodside, B. (2014). Comparison of 2 family therapies for adolescent anorexia nervosa: a randomized parallel trial. *JAMA Psychiatry, 71*(11), 1279–1286. <https://doi.org/10.1001/jamapsychiatry.2014.1025>
- American Psychiatric Association. (2013). Feeding and eating disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- American Psychiatric Association (2006). Treatment of patients with eating disorders, third edition. American Psychiatric Association. *The American Journal of Psychiatry, 163*(7 Suppl), 4–54.
- Arcelus, J., Mitchell, A. J., Wales, J., & Nielsen, S. (2011). Mortality rates in patients with anorexia nervosa and other eating disorders. A meta-analysis of 36 studies. *Archives of general psychiatry, 68*(7), 724–731. <https://doi.org/10.1001/archgenpsychiatry.2011.74>
- Astrachan-Fletcher, E., Accurso, E. C., Rossman, S., McClanahan, S. F., Dimitropoulos, G., & Le Grange, D. (2018). An exploratory study of challenges and successes in implementing adapted family-based treatment in a community setting. *Journal of eating disorders, 6*, 44. <https://doi.org/10.1186/s40337-018-0228-9>
- Couturier, J., Kimber, M., Jack, S., Niccols, A., Van Blyderveen, S., & McVey, G. (2014). Using a knowledge transfer framework to identify factors facilitating implementation of family-

- based treatment. *The International journal of eating disorders*, 47(4), 410–417.
<https://doi.org/10.1002/eat.22225>
- Couturier, J. L., & Kimber, M. S. (2015). Dissemination and implementation of manualized family-based treatment: A systematic review. *Eating disorders*, 23(4), 281–290.
<https://doi.org/10.1080/10640266.2015.1042312>
- Dagne, A. H., & Beshah, M. H. (2021). Implementation of evidence-based practice: The experience of nurses and midwives. *PloS one*, 16(8), e0256600.
<https://doi.org/10.1371/journal.pone.0256600>
- Dulcan, M. K. (2016). Eating and Feeding Disorders. In *Dulcan's Textbook of child and adolescent psychiatry* (pp. 448–449). chapter, American Psychiatric Association Publishing.
- Eisler, I., Simic, M., Hodsoll, J., Asen, E., Berelowitz, M., Connan, F., Ellis, G., Hugo, P., Schmidt, U., Treasure, J., Yi, I., & Landau, S. (2016). A pragmatic randomised multi-centre trial of multifamily and single family therapy for adolescent anorexia nervosa. *BMC Psychiatry*, 16(1), 422. <https://doi.org/10.1186/s12888-016-1129-6>
- Fisher, C. A., Skocic, S., Rutherford, K. A., & Hetrick, S. E. (2019). Family therapy approaches for anorexia nervosa. *The Cochrane Database of Systematic Reviews*, 5(5), CD004780.
<https://doi.org/10.1002/14651858.CD004780.pub4>
- Foà, C., Bertuol, M., Deiana, L., Rossi, S., Sarli, L., & Artioli, G. (2019). The Case/Care Manager in Eating Disorders: the nurse's role and responsibilities. *Acta bio-medica : Atenei Parmensis*, 90(11-S), 17–28. <https://doi.org/10.23750/abm.v90i11-S.8989>

Graber, E. G. (2021). *Adolescent development - pediatrics*. Adolescent Development. Retrieved January 25, 2022, from <https://www.merckmanuals.com/professional/pediatrics/growth-and-development/adolescent-development>

Godart, N., Berthoz, S., Curt, F., Perdereau, F., Rein, Z., Wallier, J., Horreard, A. S., Kaganski, I., Lucet, R., Atger, F., Corcos, M., Fermanian, J., Falissard, B., Flament, M., Eisler, I., & Jeammet, P. (2012). A randomized controlled trial of adjunctive family therapy and treatment as usual following inpatient treatment for anorexia nervosa adolescents. *PLoS one*, 7(1), e28249. <https://doi.org/10.1371/journal.pone.0028249>

Hornberger, L. L., Lane, M. A., & COMMITTEE ON ADOLESCENCE (2021). Identification and Management of Eating Disorders in Children and Adolescents. *Pediatrics*, 147(1), e2020040279. <https://doi.org/10.1542/peds.2020-040279>

Hughes, E. K., Le Grange, D., Court, A., Yeo, M., Campbell, S., Whitelaw, M., Atkins, L., & Sawyer, S. M. (2014). Implementation of family-based treatment for adolescents with anorexia nervosa. *Journal of Pediatric Health Care: Official Publication of National Association of Pediatric Nurse Associates & Practitioners*, 28(4), 322–330. <https://doi.org/10.1016/j.pedhc.2013.07.012>

Kimber, M., Couturier, J., Jack, S., Niccols, A., Van Blyderveen, S., & McVey, G. (2014). Decision-making processes for the uptake and implementation of family-based therapy by eating disorder treatment teams: a qualitative study. *The International journal of eating disorders*, 47(1), 32–39. <https://doi.org/10.1002/eat.22185>

Lavis, J. N., Robertson, D., Woodside, J. M., McLeod, C. B., Abelson, J., & Knowledge Transfer Study Group (2003). How can research organizations more effectively

- transfer research knowledge to decision makers?. *The Milbank Quarterly*, 81(2), 221–172. <https://doi.org/10.1111/1468-0009.t01-1-00052>
- Le Grange, D., Hughes, E. K., Court, A., Yeo, M., Crosby, R. D., & Sawyer, S. M. (2016). Randomized Clinical Trial of Parent-Focused Treatment and Family-Based Treatment for Adolescent Anorexia Nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry*, 55(8), 683–692. <https://doi.org/10.1016/j.jaac.2016.05.007>
- Lock, J., & Le Grange, D. (2013). *Treatment manual for anorexia nervosa: A family-based approach*. 2nd Edition New York: Guilford Press.
- Lock, J., Le Grange, D., Agras, W. S., Moye, A., Bryson, S. W., & Jo, B. (2010). Randomized clinical trial comparing family-based treatment with adolescent-focused individual therapy for adolescents with anorexia nervosa. *Archives of General Psychiatry*, 67(10), 1025–1032. <https://doi.org/10.1001/archgenpsychiatry.2010.12>
- Madden, S., Miskovic-Wheatley, J., Wallis, A., Kohn, M., Hay, P., & Touyz, S. (2015). Early weight gain in family-based treatment predicts greater weight gain and remission at the end of treatment and remission at 12-month follow-up in adolescent anorexia nervosa. *The International Journal of Eating Disorders*, 48(7), 919–922. <https://doi.org/10.1002/eat.22414>
- Mairs, R., & Nicholls, D. (2016). Assessment and treatment of eating disorders in children and adolescents. *Archives of Disease in Childhood*, 101(12), 1168–1175. <https://doi.org/10.1136/archdischild-2015-309481>
- Medway, M., Rhodes, P., Dawson, L., Miskovic-Wheatley, J., Wallis, A., & Madden, S. (2019). Adolescent development in family-based treatment for anorexia nervosa: Patients' and

- parents' narratives. *Clinical child psychology and psychiatry*, 24(1), 129–143.
<https://doi.org/10.1177/1359104518792293>
- Micali, N., Hagberg, K. W., Petersen, I., & Treasure, J. L. (2013). The incidence of eating disorders in the UK in 2000-2009: findings from the General Practice Research Database. *BMJ Open*, 3(5), e002646. <https://doi.org/10.1136/bmjopen-2013-002646>
- Mission, vision and values. UK Healthcare. (2020). Retrieved January 17, 2023, from <https://ukhealthcare.uky.edu/strategic-plan-2025/mission-vision-values>
- Moskowitz, L., & Weiselberg, E. (2017). Anorexia Nervosa/Atypical Anorexia Nervosa. *Current problems in pediatric and adolescent health care*, 47(4), 70–84.
<https://doi.org/10.1016/j.cppeds.2017.02.003>
- Rienecke R. D. (2017). Family-based treatment of eating disorders in adolescents: current insights. *Adolescent Health, Medicine and Therapeutics*, 8, 69–79.
<https://doi.org/10.2147/AHMT.S115775>
- Russell, G. F., Szmukler, G. I., Dare, C., & Eisler, I. (1987). An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry*, 44(12), 1047–1056. <https://doi.org/10.1001/archpsyc.1987.01800240021004>
- Streatfeild, J., Hickson, J., Austin, S. B., Hutcheson, R., Kandel, J. S., Lampert, J. G., Myers, E. M., Richmond, T. K., Samnaliev, M., Velasquez, K., Weissman, R. S., & Pezzullo, L. (2021). The social and economic cost of eating disorders in the United States: Evidence to inform policy action. *The International Journal of Eating Disorders*, 54(5), 851–868.
<https://doi.org/10.1002/eat.23486>
- Thaler, L., Paquin-Hodge, C., Leloup, A. G., Wallace, A., Oliverio, S., Freiwald, S., Israel, M., & Steiger, H. (2022). Barriers and facilitators to the implementation of an eating

- disorders knowledge exchange program for non-specialist professionals. *The Journal of Behavioral Health Services & Research*, 1–16. Advance online publication.
- <https://doi.org/10.1007/s11414-022-09822-3>
- van Eeden, A. E., van Hoeken, D., & Hoek, H. W. (2021). Incidence, prevalence and mortality of anorexia nervosa and bulimia nervosa. *Current Opinion in Psychiatry*, 34(6), 515–524.
- <https://doi.org/10.1097/YCO.0000000000000739>
- van Hoeken, D., & Hoek, H. W. (2020). Review of the burden of eating disorders: mortality, disability, costs, quality of life, and family burden. *Current Opinion in Psychiatry*, 33(6), 521–527. <https://doi.org/10.1097/YCO.0000000000000641>
- Weiss, A., Misra, M., & Shulman, D. (2013). Fact sheet. Anorexia. *The Journal of Clinical Endocrinology and Metabolism*. 98(5): 35A-36A. DOI: 10.1210/jcem.98.5zeg35a. PMID: 23650344; PMCID: PMC5393464
- Witteck, T., Truttman, S., Zeiler, M. *et al.* The Maudsley model of anorexia nervosa treatment for adolescents and young adults (MANTRa): a study protocol for a multi-center cohort study. *J Eat Disord* 9, 33 (2021). <https://doi.org/10.1186/s40337-021-00387-8>
- Yager, J. (2019). Eating disorders: Overview of prevention and treatment. In D. Solomon (Ed.), *UpToDate*. Retrieved January 25, 2022, from https://www.uptodate.com/contents/eating-disorders-overview-of-prevention-and-treatment?search=anorexia%20nervosa%20treatment&source=search_result&selectedTitle=1~118&usage_type=default&display_rank=1#H92063582
- Zeeck, A., Herpertz-Dahlmann, B., Friederich, H. C., Brockmeyer, T., Resmark, G., Hagenah, U., Ehrlich, S., Cuntz, U., Zipfel, S., & Hartmann, A. (2018). Psychotherapeutic

Treatment for Anorexia Nervosa: A Systematic Review and Network Meta-Analysis. *Frontiers in Psychiatry*, 9, 158. <https://doi.org/10.3389/fpsy.2018.00158>

Tables

Table 1: *Demographic Summary of Participants (N=10)*

	<i>n (%)</i>
Gender	
Male	3 (30.0%)
Female	7 (70.0%)
Age	
18-29	1 (10.0%)
30-39	4 (40.0%)
40-49	5 (50.0%)
Highest Degree Earned	
Bachelor's Degree	3 (30.0%)
Master's Degree	3 (30.0%)
Doctorate Degree	4 (40.0%)
License/Certification	
MD/DO	2 (20.0%)
Advanced Practice Provider (APRN or PA)	2 (20.0%)
Registered Nurse	1 (10.0%)
Licensed Clinical Social Worker (LCSW)	2 (20.0%)
Registered Dietician	1 (10.0%)
Other	2 (20.0%)

Table 2: Pre/Post Survey Data Results (N=10)

	Potential range	Pre-intervention M (SD)	Post-intervention M (SD)	<i>p</i>
Knowledge				
Anorexia Nervosa	0-100	56.0 (18.4)	92.0 (10.3)	<.001
FBT	0-100	54.4 (19.2)	80.0 (15.5)	.011
TSC-AN				
Consistent strategies	0-44	26.6 (5.32)	32.0 (6.33)	.065
Inconsistent strategies	0-16	12.1 (3.23)	13.3 (3.06)	.080
FBT-AS	0-4	1.22 (2.99)	3.78 (5.29)	.217

Abbreviations: FBT= Family-Based Treatments, TSC-AN = Therapeutic-Strategies Checklist for Anorexia Nervosa, FBT-AS= Family-Based Treatments- Attitude Scale

Appendices

Appendix A: *Email Invitation for Participation in Study*

To Whom It May Concern,

Hello, my name is Treven Back. I am a doctoral student at the University of Kentucky College of Nursing in the Psychiatric-Mental Health Nurse Practitioner track. I am writing to you to discuss the opportunity to participate in my DNP project, "Family-Based Treatment Education for Healthcare Providers Who Treat Adolescent Patients Diagnosed with Anorexia Nervosa."

Family-based treatments are the recommended first-line treatment for adolescent patients diagnosed with anorexia nervosa. During this project, I will ask participants to complete demographic data, four brief pre-surveys, an educational presentation, and four post-surveys at the end of the presentation. The expected time to complete all surveys and the education presentation is 45-50 minutes. An email will be sent out later with the specific date and time for the presentation, but it is estimated to be between October 2022 and November 2022.

I appreciate you taking the time out of your busy schedules to read this email. I look forward to working with you all in the coming months. Please feel free to reach out to me if you have any questions.

Sincerely,

Treven Back, RN-BSN, CPN

Appendix B: Consent

To Whom It May Concern:

I am contacting you from the University of Kentucky, on behalf of the University of Kentucky College of Nursing. The University of Kentucky Department of Pediatrics, Division of Adolescent Medicine has allowed me to contact you because you are being invited to participate in an education session and survey.

Researchers at the University of Kentucky are inviting you to take part in a pre-survey, family-based treatment (FBT) for anorexia nervosa education session, and post-survey. The data being collected is to obtain information on healthcare providers' knowledge, attitudes, and use of FBT.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about knowledge, attitudes, and practice regarding FBT. Some volunteers experience satisfaction from knowing they have contributed to research that may possibly benefit others in the future.

Researchers will review and collect information from your pre-and post-surveys that are taken before and after the education session. If you do not want to be in the study, there is no other choice except to not take part in the study.

The education session will last approximately 45 minutes to complete, and the pre-and post-surveys will take about 20 minutes to complete, in a total time of approximately 65 minutes.

Although we have tried to minimize this, some questions may make you upset or feel uncomfortable and you may choose not to answer them. Should you need additional resources the following website is available for you: <https://www.samhsa.gov/find-help/national-helpline>

Your responses to the survey will be kept confidential to the extent allowed by law. When we write about the study, you will not be identified. Your information collected for this study will NOT be used or shared for future research studies, even if we remove the identifiable information.

We hope to receive completed questionnaires from about 15 people, so your answers are important to use. Of course, you have a choice about whether to complete the survey and education session, but if you do participate you are free to skip any questions or discontinue at any time. You will not be penalized in any way for skipping or discontinuing the survey.

Please be aware, that while we make every effort to safeguard your data once received from the online survey company Qualtrics, given the nature of online surveys, as with anything

involving the Internet, we can never guarantee the confidentiality of the data while still on the survey company's servers, or while en route to either them or us.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project

Sincerely,
Treven Back, RN-BSN, CPN
College of Nursing, University of Kentucky
Phone: 859-785-9360
Email: treven.back@uky.edu

Faculty Advisor
Dr. Andrew Makowski, DNP, PMHNP
Assistant Professor, PMHNP Track Coordinator
417 College of Nursing, University of Kentucky
Phone: 859-323-5030
Email: ama235@uky.edu

If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Appendix C: AN & FBT Knowledge Questionnaire (Pre/Post)

Unique Identifier: _____

1. Which of the following is not one of the essential features of anorexia nervosa?
 - a. Persistent energy intake restriction
 - b. Intense fear of gaining weight or becoming fat
 - c. Repeated regurgitation of food over a period of 1 month
 - d. A disturbance in self-perceived weight or shape

Rationale: Persistent energy intake restriction, intense fear of gaining weight or becoming fat, and a disturbance in self-perceived weight or shape are the three diagnostic criteria for anorexia nervosa in the DSM-V (American Psychiatric Association, 2013, p.339). Repeated regurgitation of food over a period of 1 month is characteristic of rumination disorder (American Psychiatric Association, 2013, p. 332).

2. What proportion of deaths are from suicide when related to an eating disorder?
 - a. 10%
 - b. 33%
 - c. 50%
 - d. 85%

Rationale: According to the Academy of Eating Disorders: A Guide to Medical Care approximately 50% of all deaths in patients with an eating disorder occur from suicide (Academy for Eating Disorders, 2021, p. 18).

3. Which of the following lab values would suggest further evaluation for an eating disorder?
 - a. Decreased BUN
 - b. Increased Magnesium
 - c. Decreased Phosphate
 - d. Increased Chloride

Rationale: Increased BUN would indicate possible dehydration, decreased magnesium would indicate poor nutrition and laxative use, and decreased chloride would indicate vomiting and laxative use (Academy for Eating Disorders, 2021, p. 8). Decreased phosphate can indicate poor nutrition and early refeeding syndrome (Academy for Eating Disorders, 2021, p. 8)

4. True or False: There is an increased risk of anorexia nervosa among first-degree biological relatives of individuals with the disorder.
 - a. True

- b. False

Rationale: True. First-degree biologic relatives of individuals with anorexia nervosa are at an increased risk for the disorder (American Psychiatric Association, 2013, p. 342).

5. What is the most remarkable finding on physical examination of anorexia nervosa?
- c. Pale skin
 - d. Brittle hair
 - e. Cool extremities
 - f. Emaciation

Rationale: The most remarkable finding on physical examination is emaciation (American Psychiatric Association, 2013, p. 343).

5. Which of the following statements is true regarding the philosophy of Family-Based Treatment (FBT)?
- a. “Adolescent psychological health depends on how well an adolescent is able to adapt, both cognitively and functionally, to changing situations, in a positive manner.”
 - b. “Adolescents are embedded in the family and parental involvement is critical to the success of the adolescent.”
 - c. “FBT is a collaborative person-centered communication process designed to help adolescents resolve ambivalence and plan for change.”
 - d. “Psychopathology arises from underlying personality issues and those are not the focus of treatment. Emphasis is placed on those problems created by a psychiatric disorder occur interdependently within the conscious social and interpersonal realms.”

Rationale: Adaptation to changing situations in a positive manner is a key to the understanding of cognitive-behavioral therapy (Wheeler, 2022, p. 359). A collaborative person-centered communication process designed to resolve ambivalence and plan for change reflects motivational interviewing (Wheeler, 2022, p. 401). Interpersonal therapy recognizes that psychopathology arises from underlying personality disorders, but those do not become the focus of treatment (Wheeler, 2022, p. 421). FBT’s overall philosophy is that adolescents are embedded in the family and parental involvement in therapy is important to success during treatment (Lock & Le Grange, 2013, p. 21).

6. True or False: The adolescent is viewed as being in control of their behavior, so, the eating disorder does not control the adolescent.
- a. True
 - b. False

Rationale: In FBT, the adolescent is not viewed as being in control of their behavior; instead, the eating disorder controls the adolescent (Lock & Le Grange, 2013, p. 22). In this way, the adolescent is seen as being unable to function and needs help from their parents.

7. Which of the following is not a phase of FBT?
 - a. Weight Restoration
 - b. Transitioning Control of Eating Back to the Adolescent
 - c. Adolescent Growth and Development
 - d. Family Dynamics

Rationale: Weight restoration, transitioning control of eating back to the adolescent, and adolescent growth and development are the three phases of FBT (Lock & Le Grange, 2013, p. 22-24).

8. Which of the following patients would be an ideal candidate for FBT?
 - a. A 16-year-old female diagnosed with AN with a BMI of 16.4 who lives at home with her mother, father, and sister (age 15).
 - b. A 12-year-old male who recently joined the track team increases the frequency of his exercises to improve his endurance.
 - c. A 15-year-old female diagnosed with AN whose mother has AN with depression and anxiety.
 - d. A 17-year-old male currently hospitalized for restrictive eating and a BMI of 17.0.

Rationale: According to Lock and Le Grange (2013, p.24), appropriate candidates for FBT are adolescents younger than 18 years of age diagnosed with AN. As the family is the keystone to FBT, the patient who lives at home with their parents is the best candidate for FBT. The 12-year-old male is having a normal response to joining the track team. Although it would be prudent to pay attention to the amount of exercise to ensure it does not become excessive. FBT should not be given to patients whose parents have underlying psychopathology (Lock & Le Grange, 2013). FBT may be difficult to initiate when a patient is in the hospital setting because in such settings the parents are not always present at all meals and do not make the decisions about what is to be eaten and when (Lock & Le Grange, 2013).

9. True or False? Prior to each session, the patient must be weighed by the therapist.
 - a. True
 - b. False

Rationale: True. Before each session, the patient should be weighed by the therapist (Lock & Le Grange, 2013, p. 51). Having the therapist weigh the patient strengthens the relationship between therapist and patient by helping him or her through a potentially stressful process (Lock & Le Grange, 2013, p. 51).

10. Which of the following is not a role of the pediatrician in FBT?

- a. Determining the caloric needs of the patient
- b. Excluding all physical causes of weight loss
- c. Quantify the degree of risk associated with malnutrition
- d. Conveying knowledge of growth, puberty, and emotional/psychological development

Rationale: Excluding all physical causes of weight loss, quantifying the degree of risk associated with malnutrition, and conveying knowledge of growth, puberty, and emotional/psychological development are all roles of the pediatrician in FBT (Eisler et al., 2016, p.11). Determining the caloric needs of the patient is the role of the dietician in FBT (Eisler et al., 2016, p. 13).

11. Because FBT uses an interdisciplinary approach, it is important for all members to be “on the same page”. One recommendation is that all providers answer three questions after each meeting to disseminate to other providers. Which of the following is not one of those statements?
- a. What was the patient’s last weight?
 - b. What new problems were noted?
 - c. What are your recommendations?
 - d. Has there been any conflict within the family since the last session?

Rationale: For a patient receiving FBT, it is best practice to have an environment in which all members of the team have ready access to information from other providers after each meeting (Lock & Le Grange, 2013, p. 27-28). The three recommended questions to be asked after each meeting include: “What was the patient’s last weight”, “What new problems were noted”, and “What are your recommendations” (Lock & Le Grange, 2013, p.27-28).

12. True or False? The role of the dietician includes providing advice about the normalization of eating behaviors.
- a. True
 - b. False

Rationale: True. The dietician may be consulted by the therapist when the client or parents are requesting advice about the normalization of eating behaviors (Eisler et al., 2016, p. 13).

13. The “family meal” is completed in what phase of FBT?
- a. Phase I
 - b. Phase II
 - c. Phase III
 - d. Phase IV

Rationale: Phase I of FBT includes the family meal (Eisler et al., 2016, p.44).

14. Which of the following is not a reason for admission to inpatient services?

- a. Risk of refeeding syndrome
- b. Medical Instability
- c. Weight loss despite outpatient support
- d. Percentage median BMI >85%

Rationale: Risk of refeeding syndrome, medical instability such as bradycardia, hypotension, or electrolyte abnormalities, and weight loss despite outpatient services are indicators that a client may need inpatient treatment (Eisler et al., 2016, p. 11). A patient that has a percentage median BMI >85% would not warrant hospitalization at this time (Eisler et al., 2016)

Appendix D: Therapeutic Strategy Checklist for Adolescent Anorexia Nervosa (Pre-intervention)

Unique Identifier: _____

Following the initial assessment, how frequently do you **currently use** the following strategies with adolescent AN cases early in treatment (i.e., within the first 2-3 months)?

		0	1	2	3	4
		Never	Rarely	Occasionally	Frequently	Almost Always or Always
1.	Provide education about the mortality and morbidity associated with AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Impress upon parents the need to take immediate action	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Externalize the disorder to reduce blame of the parents and the adolescent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Support parental management of adolescent eating until near normal weight is achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Schedule in-session family meal(s) to help parents develop strategies for re-feeding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Remain agnostic to possible causes of AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Consult rather than direct parents in how to respond to ED behaviors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Refer to a dietician and/or provide nutritional counseling (e.g., meal plan)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	Weigh adolescent at every session	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	Openly discuss changes in adolescent weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	Extensively involve parents in therapy for AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Explore issues related to the development of AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	Refer to a psychiatrist for medication evaluation (or evaluate for medication, if psychiatrist)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	Emphasize the importance of parental unity in treating AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	Request sibling and/or peer involvement in therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Accurso, E. C., Le Grange, D., & Graham, A. K. (2020). Attitudes Toward Family-Based Treatment Impact Therapists' Intent to Change Their Therapeutic Practice for Adolescent Anorexia Nervosa. *Frontiers in Psychiatry, 11*, 305. <https://doi.org/10.3389/fpsy.2020.00305>

Appendix E: Therapeutic Strategy Checklist for Adolescent Anorexia Nervosa (Post-intervention)

Unique Identifier: _____

Following the initial assessment, how frequently do you **anticipate using** the following strategies with adolescent AN cases early in treatment (i.e., within the first 2-3 months)?

	0	1	2	3	4
	Never	Rarely	Occasionally	Frequently	Almost Always or Always
1. Provide education about the mortality and morbidity associated with AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Impress upon parents the need to take immediate action	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Externalize the disorder to reduce blame of the parents and the adolescent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Support parental management of adolescent eating until near normal weight is achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Schedule in-session family meal(s) to help parents develop strategies for re-feeding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Remain agnostic to possible causes of AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Consult rather than direct parents in how to respond to ED behaviors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Refer to a dietician and/or provide nutritional counseling (e.g., meal plan)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Weigh adolescent at every session	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Openly discuss changes in adolescent weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Extensively involve parents in therapy for AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Explore issues related to the development of AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Refer to a psychiatrist for medication evaluation (or evaluate for medication, if psychiatrist)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Emphasize the importance of parental unity in treating AN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Request sibling and/or peer involvement in therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Accurso, E. C., Le Grange, D., & Graham, A. K. (2020). Attitudes Toward Family-Based Treatment Impact Therapists' Intent to Change Their Therapeutic Practice for Adolescent Anorexia Nervosa. *Frontiers in Psychiatry, 11*, 305. <https://doi.org/10.3389/fpsy.2020.00305>

Appendix F: Family-Based Treatments Attitudes Scale (Pre/Post)

Unique Identifier: _____

The following questions ask about your attitudes and beliefs about family-based treatment (FBT) for adolescent anorexia nervosa (AN). Please fill in the circle indicating the extent to which you agree or disagree with each item. There are *no right or wrong answers*.

	-2	-1	0	1	2
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. FBT is relevant to the needs of the adolescent AN cases that present to my practice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. FBT can be an effective treatment for my adolescent clients with AN.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. FBT would require expensive and/or time-consuming supervision for me to become competent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. FBT makes therapists too much like technicians and too little like skilled, empathic therapists.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I know enough about nutrition to help parents refeed their underweight child.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. FBT overemphasizes therapeutic techniques over therapeutic alliance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. FBT can work as well as—if not better—than my current treatment methods for adolescent AN.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. FBT appropriately attends to individual differences in adolescents with AN.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I feel confident that I can successfully implement FBT <i>without</i> further supervision.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I feel confident that I could successfully implement FBT <i>with</i> further supervision.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. FBT focuses too much weight restoration and not enough on other problems (e.g., anxiety).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I may feel unfulfilled or bored as a therapist if I were to administer FBT.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	-2	-1	0	1	2