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RESEARCH ARTICLE

The Effect of Multiple Family Therapy on Weight Gain in Adolescents with Anorexia Nervosa: Pilot Data

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Abstract:

Objective: Preliminary research suggests that multiple family therapy (MFT) may be an effective intervention for adolescent anorexia nervosa (AN). This study compared the extent of weight restoration for patients enrolled in one year of MFT compared to a matched control group receiving treatment as usual (TAU). **Method:** A retrospective chart review was performed using data from 25 MFT cases matched to 25 controls on age, diagnosis and year of entry to the eating disorder program. **Results:** Both cases and controls experienced significant weight restoration, however patients enrolled in MFT were restored to a higher mean percent ideal body weight than the TAU group (99.6% (±7.27%) vs. 95.4 (±6.88); p<0.05). **Conclusions:** MFT may be more effective than TAU in restoring weight in adolescents with AN.

Key Words: *family therapy, group therapy, eating disorder, adolescent, pilot study*

Résumé

Objectif: La recherche préliminaire suggère que la thérapie multifamiliale (TMF) peut être une intervention efficace pour les adolescents souffrant d'anorexie mentale (AM). Cette étude a comparé l'étendue de la reprise de poids pour les patients inscrits à une TMF d'un an comparativement à un groupe témoin apparié recevant le traitement usuel (TU). **Méthode:** Un examen rétrospectif des dossiers a été mené à l'aide des données de 25 cas de TMF appariés à 25 témoins selon l'âge, le diagnostic et l'année d'entrée dans le programme des troubles alimentaires. **Résultats:** Les cas et les témoins ont eu des reprises de poids significatives, mais les patients inscrits à la TMF ont repris un pourcentage moyen plus élevé de leur poids corporel idéal que le groupe du TU (99,6% [±7,27 %] c. 95,4% [±6,88]; p<0,05). **Conclusions:** La TMF peut être plus efficace que le TU pour la reprise de poids des adolescents souffrant d'AM.

Mots clés: *thérapie familiale, thérapie de groupe, trouble alimentaire, adolescent, étude pilote*

Introduction

Anorexia nervosa (AN) is a serious psychiatric disorder affecting 0.5-1% of adolescent girls (Sadock & Sadock, 2007). Features of the disorder include refusing to maintain body weight above a minimal weight for age and height, having an intense fear of gaining weight even though the individual is underweight, and experiencing distorted body image (American Psychiatric Association, 2013). AN has one of the highest mortality rates of all psychiatric conditions with an estimated 5-18% of patients eventually dying of the condition (Sadock & Sadock, 2007). However, patients may have better outcomes with early intervention (Treasure & Russell, 2011). Guidelines from both the American Psychiatric Association and the National Institute for Health and Clinical Excellence in the United Kingdom state that family interventions should be the treatment of choice for adolescents with AN (American Psychiatric Association, 2006; National Institute for Health and Care Excellence, 2004). The Maudsley model of family therapy is a method of family therapy developed to treat AN where the strengths of the family are leveraged to assist the

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adolescent in weight restoration and normalization of eating (Rhodes, 2003). Multiple family therapy (MFT) incorporates the Maudsley model of family therapy and adapts it to a group format. In treatment, families learn how to use their own skills and resources to actively help their adolescents fight eating disorder (ED) symptoms. Benefits of MFT may include improving communication, reducing isolation, destigmatizing the illness, and allowing families to obtain different ideas and perspectives in a supportive environment (Le Grange & Eisler, 2008).

There are some preliminary findings on MFT suggesting that it is effective in treating adolescent AN. Qualitative studies on MFT groups in the United Kingdom and Germany report that families have fewer disputes around eating and a more positive atmosphere at home. In the study from Dresden Germany, dropout rates are reported to be quite low, at 2-3% (Scholz & Asen, 2001). Eisler et al. report a good or intermediate outcome in 62% (Le Grange & Eisler, 2008). The data from Dresden showed reduced admission rates, reduced duration of inpatient treatment, and reduced rates of readmission (Scholz & Asen, 2001). In 2001, Scholz and Asen showed that the use of MFT in adolescents with EDs was acceptable to families and produced significant positive changes in symptoms and recovery rates (Scholz & Asen, 2001).

The Hospital for Sick Children (SickKids) in Toronto, Ontario, Canada, has been offering MFT to patients with AN and their families since 2002. The purpose of this study was to perform a retrospective chart review to compare the outcomes of patients who received MFT in addition to treatment as usual (TAU) to controls matched for age, diagnosis, and time of entry into the ED program who received TAU only. Outcomes measured included weight gain as well as psychological measures.

Methods

Design

The study was a retrospective cohort study. Data were acquired through a chart review. The participants for the study were adolescents with AN who underwent treatment in the eating disorders (ED) program at the Hospital for Sick Children between 2002 and 2010. The ED Program at SickKids treats children and youth with EDs in the Toronto area and serves as the sole tertiary care centre for southern Ontario. Multiple levels of care are available including inpatient, outpatient, and day hospital programs. Patients are discharged from the program either when they achieve clinical remission, or when they reach the age of eighteen and must be transferred to an adult program. The Research Ethics Board of the Hospital for Sick Children approved the study protocol.

Procedure

Data for cases (n = 25) were obtained from charts of patients who had a diagnosis of AN based on DSM-IV criteria and who received MFT as part of their treatment program. Cases also received TAU which included medical monitoring, nutrition therapy including meal plans, pharmacological treatment as required, mental health therapy (a combination of psychoeducation, and individual supportive family therapy), and inpatient admission if required. Controls (n = 25) were comprised of randomly selected patients with AN treated in the ED program matched to the cases on age (within two years) and year of admission to the ED program. Controls also received TAU, but not MFT. Controls were identified by reviewing charts of patients from the selected years in alphabetical order until all cases were matched. Cases and controls were excluded if their charts did not contain all of the required information.

Measures

Demographic and clinical data were collected from both groups. Data gathered included gender, age at time of entry into the ED program, diagnosis (AN subtype), psychiatric comorbidities, and prescribed psychiatric medications. Data for the outcome variables (weight and percent ideal body weight (IBW)) were collected from three time points: at assessment, prior to initiating MFT (or at parallel time for controls), and after completion of MFT (or at parallel time for controls).

Both cases and controls completed psychometric self-report measures at assessment. Cases also completed psychometric self-report measures before starting and upon concluding MFT as part of the treatment protocol. This set of psychometric data for controls was not available as this was not routine in the program.

The Eating Disorder Inventory:

The Eating Disorder Inventory (EDI) is a standardized structured self-report survey that provides data regarding frequency of ED symptoms (e.g. binge eating, self-induced vomiting, exercise patterns, use of laxatives, diet pills and diuretics) (Garner, Olmstead, & Polivy, 1983). Studies have shown high internal consistency within the EDI scales and strong test-retest reliability (Wear & Pratz, 1987). This measure has construct and factorial validity and is used worldwide as a method of identifying ED symptoms. It was completed by all patients (both cases and controls) at admission to the ED program at assessment.

The Eating Disorder Examination Questionnaire:

The Eating Disorder Examination Questionnaire (EDE-Q) is a 41-item self-report measure adapted from the Eating Disorder Examination Interview. The EDE-Q provides a comprehensive assessment of the specific psychopathology of ED behavior in a condensed self-report format (Cooper & Fairburn, 1987). The EDE-Q has excellent internal consistency and test-retest reliability (Mond et al., 2004). This was completed by cases both before and after MFT as part of the treatment protocol.

Table 1. Patient demographics at assessment

	Cases	Control subjects
Percent IBW at T_0	77.72	79.11
Comorbid psychiatric diagnosis	12/25 (48%)	13/25 (52%)
Lifetime psychotropic medication use	18/25 (72%)	15/25 (60%)
Prior inpatient admission	23/25 (92%)	19/25 (76%)
EDI Score T_0 – Eating Disorder Risk Composite	51.25 (n=12)	49.50 (n=10)
CDI Score T_0 – Total Score	61.13 (n=15)	59.00 (n=18)

IBW = Ideal body weight, (T_0) = Time of entry into the eating disorders program, EDI = Eating Disorder Inventory, CDI = Children's Depression Inventory

Children's Depression Inventory:

The Children's Depression Inventory (CDI) was derived from the Beck Depression Inventory (BDI) as a 27-item self-report instrument to assess the presence and severity of depressive symptoms in school-age children and has been widely used for adolescents. It is sensitive to changes in depression over time and is acceptable as an index of the severity of a depressive disorder (Craighead et al., 1998). This was completed by both cases and controls at assessment and by cases before and after MFT.

Statistical Analyses

Descriptive analyses were performed examining frequencies for categorical variables and means and medians for continuous variables. Differences between the cases and controls were assessed through chi-square analyses for categorical variables and t-tests for continuous variables. Pre and post comparisons were explored through paired t-tests. Regression analyses were performed (logistic regression for dichotomous dependent variables and linear regression for continuous dependent variables). Survival analysis was performed with time to recovery as the dependent variable. Intent to treat analysis was performed.

Results

Participants were 50 females between the ages of 11-18 years with a mean age of 14.1(±1.87) years and a mean percent IBW of 78.4 (±9.77) at initial assessment. The sample was evenly split with 25 cases receiving MFT and TAU, and 25 controls receiving TAU only. There were no statistically significant differences between the two groups at assessment.

There was no difference in weight gain between the two groups during the initial phase of treatment when both groups received only TAU. There were no significant differences between groups in weight prior to starting MFT (or equivalent time for controls). However, during the study period, there was a significant difference in weight gain. Weights were obtained in both groups every two months at their medical follow-up appointments. At the end of the one-year study period, the MFT group had a statistically significant higher percent healthy weight than the TAU group (99.6% (±7.27%) vs. 95.4 (±6.88); $p<0.05$). In the TAU group, two (8%) subjects still were at a weight that was less than 85%IBW at the end of the study period, while in the MFT group there were no patients with a weight lower that 88%IBW. Conversely, in the MFT group, ten (40%) girls had a weight that was over 95%IBW, while in the TAU group only four (16%) had a weight over 95%IBW, and this approached statistical significance ($p=0.057$). Psychological pre and post MFT measures for cases are presented in Table 2. Measures of disordered eating symptoms and depression improved significantly after MFT.

Discussion

The purpose of this retrospective pilot study was to determine whether adding multiple family therapy to treatment as usual in patients with anorexia nervosa improved outcome and whether there was enough evidence to warrant a larger prospective study. Study findings indicated that MFT may be more effective than TAU in speeding up the rate of weight gain and increasing the likelihood of achieving full weight restoration in adolescents with AN. While patients in both the control and the treatment group were able to gain weight over time, the mean percent IBW for the MFT group represented essentially a complete weight restoration. Although many subjects in the control group did well, they lagged. Some patients in the control group were not weight restored and had a weight below 85%IBW. In addition, while the MFT group had 40% of patients essentially weight restored, this was true for only 16% of the control group. MFT appears to have added benefit when compared to TAU and may optimize the number of patients that are able to weight restore.

Adolescents participating in MFT showed improvement on various psychological scales over the course of treatment suggesting that MFT had direct effects not only on weight gain, but also on psychological symptoms. MFT may help adolescents in becoming less preoccupied with body weight and shape. MFT also had a positive effect on helping to alleviate depressive symptoms.

The mental health care providers in the ED program observed that the adolescents receiving MFT appeared to be more likely to be motivated to achieve full recovery and this improved the odds of achieving remission. While this is essentially anecdotal and impressionistic, the clinicians on the team including those not involved in MFT felt strongly that it was helpful to families. This pilot study does suggest that adding MFT to TAU may improve outcomes during treatment.

Table 2. Psychological measures before and after MFT for cases

Measure	Sample size	Pre-MFT	Post-MFT	P
EDE-Q Restraint	12	3.13 (±1.80)	1.57(±1.78)	0.003
EDE-Q Eating concerns	11	1.56 (±1.27)	1.18 (±1.75)	0.35
EDE-Q Shape concerns	12	3.89 (±1.21)	2.89 (±1.60)	0.026
EDE-Q Weight concerns	12	3.70 (±1.15)	2.13 (±1.56)	0.047
EDE-Q Total	11	3.13 (±1.04)	2.13 (±1.36)	0.01
CDI Total depression score	16	64.80 (±15.16)	52.90 (±18.23)	0.015

MFT = Multiple family therapy, EDE-Q = The Eating Disorder Examination Questionnaire, CDI = Children's Depression Inventory

Limitations

The study has several limitations. Selection of families for participation in the MFT program was not completely random. MFT was offered to families if the timing of the child's presentation to the ED program coincided with the start of a MFT group. Families in MFT may have received extra contact time because they received TAU as well as MFT; however, cases receiving MFT would have had less time in individual supportive family therapy which would have minimized this potential bias. There was no data on length of illness in patients prior to the study period, so this could not be controlled for. Only cases completed psychometric measures at the start and end of the study period so this data could not be compared to similar measures for controls. This limited our ability to draw firm conclusions about the contribution of MFT to the improved psychological measures noted in cases. In addition, we do not have psychometric measures for all cases. We do not have quantitative data on either group post treatment, and therefore can not comment on whether or not the improvements noted in the MFT group were sustained, or if the TAU cases caught up in terms of weight gain over time. The sample size of 50 patients was relatively small although comparable to other studies of patients with AN. Finally, this study was a pilot study and a retrospective chart review. It does however, provide the data required to support moving to a larger prospective randomized study on the use of MFT in AN.

Conclusions

Effective evidence-based treatment is very limited for AN. MFT for AN appears to be effective in other countries. This project is the first to examine its usefulness in adolescents with AN in Canada. Based on this data, the addition of MFT improves weight gain in patients with AN. MFT may also improve psychological measures in these patients. Exploratory data from this pilot study is promising and supports the development of a more rigorous study or a randomized controlled trial to confirm these findings that MFT is an effective treatment for AN.

Acknowledgements/Conflicts of Interest

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