Project TR-EAT: A Multicenter Study of Inpatient Psychodynamic Treatment of Eating Disorders in Germany

Kächele, H. (1999). A multicenter study of expenditure and success in psychodynamic therapy of eating disorders. Study design and initial results. *Psychother Psychosom Med Psychol, 49*(3-4), 100-108.

Kächele, H., Kordy, H., Richard, M. (in press). Therapy amount and outcome of inpatient psychodynamic treatment of eating disorders in Germany: Data from a multicenter study. Psychotherapy Research, 11(3).

The Center for Psychotherapy Research in Stuttgart initiated a multicenter study on the effectiveness of inpatient psychodynamic treatment of eating disorders in the early 1990s. Project TR-EAT was a naturalistic, longitudinal, and observational study of outcome. Besides this overall objective, the study aimed to estimate the amount of therapeutic resources that were applied within the various treatment programs in everyday clinical practice and the impact on the short- and medium-term course of eating disorders. After the pilot phase, the main study began in 1993. It was completed at the end of 1998 with a 2.5-year follow-up assessment. Forty-three specialty hospitals and departments for psychosomatic medicine and psychotherapy in Germany participated in the data collection. Treatment duration and intensity were not standardized to observe the naturalistic clinical course of treatment. Patients included in this study were at least 18 years old and fulfilled diagnostic criteria for anorexia nervosa (AN) or bulimia nervosa (BN), or both, at screening. The study investigates (a) factors that determine length of treatment and (b) the effect of treatment duration and other factors on outcome for patients with eating disorders.

Sample

Treatment of 1,171 patients from 43 sites in Germany was examined; 355 patients fulfilled diagnostic criteria for AN, 647 patients fulfilled criteria for BN, and 169 patients fulfilled criteria for both disorders. The majority were female. Less than 4% of the sample were male (AN = 3.3%, BN = 2.3%). The mean age of the participants was 24.8 years for AN (SD = 5.6) and 25.9 years for BN (SD = 6.3). The mean duration of illness before admission was 8.2 years (SD = 6.1) for BN and 5.7 years (SD = 5.3) for AN. Anorexic patients had a body mass index (BMI) 72.1% of expected (SD = 8.4).

At the 2.5-year follow-up, 879 patients (75.1%) could be contacted. A comprehensive interview was conducted with 781 patients (66.7%). Limited information given by family or doctors was available for 98 patients (8.4%). Of the 292 patients who could not be reached, only 64 declined participation. It was not possible to establish contact with the other 207 patients despite repeated attempts to contact them via mail and telephone. For various other reasons, no data were available for 11 patients. In the course of this study, 10 patients died: 6 through suicide, 1 as a result of medical complications related to the illness,

and 3 of unknown causes. Few differences were found between patients who participated in this 2.5-year study and those who did not.

Measures

All patients were assessed over a 2.5-year period. At therapy admission and discharge, as well as 1 year and 2.5 years after index admission, patients were questioned as to physical condition, mental state, and level of psychosocial functioning using a comprehensive battery of inventories. At the same time, the condition of each patient was clinically evaluated at admission and discharge by their primary therapist. The 2.5-year assessment was conducted by clinical experts. The 1-year assessment was conducted by mail and thus was limited to self-evaluation. The questionnaires covered sociodemographic and historical variables; the battery of psychological inventories included the Symptom Checklist-90-R (SCL-90-R), the Eating Disorder Inventory (EDI), the Freiburg Personality Inventory (Freiburger Persönlichkeitsinventar [FPI-R]), the Narcissistic Personality Inventory (Narzissmus Fragebogen), and the Parental Care Index (Familien-Klima-Skalen). Treatment exposure was measured using weekly documentation of the frequency and duration of all psychotherapeutic contact. In addition, the occupation of the participant was considered (to estimate therapy cost), and the number of participants in group or family therapy was monitored. The 2.5-year follow-up assessment was completed using a semistructured interview, the Longitudinal Interval Follow-up Evaluation (LIFE; Keller, Lavori, Friedman, et al., 1987), adapted for use in the present study. Retrospective, longitudinal information on symptomatic disturbance (the „change points") during the postdischarge course of the illness was obtained using LIFE. This information was used to track the course of recovery and relapse between the point of discharge and the 2.5-year follow-up interview (Kordy et al., in press).

Results

The following results are based on a sample of 1,112 patients (AN: n = 338, BN: n = 605, AN and BN: n = 169) from 43 hospitals, of which 733 (AN: n = 225, BN: n = 399, AN and BN: n = 109) participated in the 2.5-year follow-up assessment.

The mean treatment duration for all three subclasses of eating disorders was roughly 11 weeks (median weeks: AN = 11.1; BN =11.4; AN and BN = 10.6). Twenty-five percent of patients were treated for 4 to 8 weeks; a further 50% were treated for 9 to 13 weeks. Fifteen-week treatments were rare, and those that continued for more than 6 months were exceptionally rare.

To investigate which variables defined treatment duration, a stepwise linear model was used. The construction of the model required three steps. The results are presented in Tables 1 and 2. Variances within and between hospitals were estimated using a first model without predictors5 (Model 1 in Table 1), also known as an unconditional model (Bryk & Raudenbush, 1992). The effect of the patient-related variables on treatment duration is presented in the second column (Model 2). Finally, in the third step, data regarding the specialty status of the treatment offered were included (Model 3). As can be seen in Table 1, patient characteristics accounted for only a small percentage of variance within

the hospitals. These patient variables did not explain variance between the hospitals.

Table 1 Proportion of Variance Explained of Treatment Duration Within and Between Hospitals

	Model 1[a] $\sigma^2 \pm SE$	Model 2[b] $\sigma^2 \pm SE \quad \sigma^2$ explained	Model 3[c] $\sigma^2 \pm SE \quad \sigma^2$ explained
Between	19.19 ± (4.69)	19.95 ± (4.91)	14.75 ± (3.69) 23.1%
Within	20.44 ± (0.96)	19.78 ± (0.94)	3.2% 19.33 ± (0.91) 2.3%

[a]Without predictors.

[b]Patient characteristics as predictors.

[c]Hospital characteristics.

Detailed results for Model 3 can be found in Table 2, which lists all variables with a statistically significant effect. The strongest effect was found in hospitals with a separate eating disorders ward. When compared with a specialty eating disorders hospital, their patients received 7 additional weeks of treatment on average. A few patient characteristics were moderate predictors of outcome. Patients with low treatment motivation at baseline received half a week less treatment on average than those with higher motivation.

Table 2 Selected Predictors of Treatment Duration

Predictor	B	SE
Other vs. specialty hospital	0.42	3.95
Specialized program vs. specialty hospital	−0.33	3.98
Specialized ward vs. specialty hospital	7.29	4.36[*]
Motivation to change: no	-0.49	0.16[***]
Psychological distress (GSI)	0.50	0.18[***]
Age	0.013	0.016
Weight (% of expected BMI)	−0.006	0.004
BN diagnosis	4.06	1.32[***]
Weight xDiagnosis (BN)	−0.05	0.01[***]
Psychological Distress x Diagnosis (BN)	−0.74	0.23[***]
Age x Diagnosis (BN)	0.05	0.03[***]

Note. GSI = Global Severity Index of the Symptoms Checklist-90-R; BMI = body mass index; BN = bulimia nervosa. *$p < .1$. **$p < .05$. ***$p < .01$.

Although the effect of 4.06 for BN diagnosis appears significant, it does not indicate that BN was treated 4 weeks longer than AN on average. Three further significant interactions are involved in interpreting diagnosis effect. For AN patients a difference of 1 point on the SCL-90-R Global Severity Index (GSI) correlates with an extended treatment length of half a week, whereas for BN patients the same difference on the GSI leads to 0.24 weeks shorter treatment because of a GSI x BN interaction. A weight gain of 16% BMI, which equals an increase in weight from the upper diagnostic boundary of 17.5 BMI to the expected BMI of 20, results in a treatment shortened by 0.1 weeks for AN patients. This correlation is even stronger for BN patients; a weight gain of 16% BMI results in a treatment shortened by 0.75 weeks. Because BN patients have a higher weight at baseline, the effect is even more pronounced. The treatment duration of very overweight BN patients (greater than 130% BMI) is approximately 2 weeks shorter than that of BN patients with expected BMI. For AN and BN patients with 90% of expected body weight, a difference of only 0.56 weeks is found. These examples underscore once more the role of interaction effects.

Outcome rates at the end of treatment and at the 2.5-year follow-up assessment are presented in Table 3. Essentially, the present definition of treatment success implies an almost complete lack of symptoms or only symptoms for which immediate further treatment is not necessary. Positive outcome thus defined was found in a minority of AN patients and in patients who met both AN and BN criteria: 11% and 17%, respectively, at the end of treatment. Self-report evaluations and therapist's evaluation did not differ substantially. Positive outcome rates for BN were markedly higher. However, outcome success rates as assessed in therapist evaluations (45%) differed greatly from self-evaluations (31%). At the 2.5-year follow-up assessment, a significantly greater proportion of patients with AN (36% based on therapists reports and 33% based on patients reports) and with AN and BN (26% vs. 21%) were to a large extent symptom free. However, the rate of positive outcome for BN dropped slightly (36% based on therapists' reports vs. 22% based on patients' reports).

Table 3: Rate of success (in %) at discharge and at 2.5 years follow-up classified according to treatment duration

Perspective	Discharge				2.5 years follow-up			
	≤11 weeks	≥11 weeks	Total	OR	≤11 weeks	≥11 weeks	Total	OR
AN	$n=166$	$n=170$			$n=112$	$n=113$		
Patients	7.8	13.4	10.6	1.1	34.8	31.0	32.9	0.7
Therapists	9.6	15.1	12.4.	1.8	36.6	34.5	35.6	0.8
BN	$n=292$	$n=303$			$n=197$	$n=202$		
Patients	33.0	29.0	31.0	0.7[a]	20.6	24.0	22.2	1.0
Therapists	48.0	43.0	45.4	0.6	35.5	37.1	36.3	0.9
AN+BN	$n=73$	$n=95$			$n=44$	$n=65$		
Patients	13.7	15.8	14.9	1.2	27.3.	16.9	21.1	0.5
Therapists	13.7	19.0	16.7	1.5	31.8	21.6	25.7	0.6

Note. Odds ratios after propensity score adjustment (with the exception of anorexia and bulimia nervosa). [a]1 within the 95% confidence interval.

A patient-reported difference in outcome for shorter and longer treatments at the end of treatment was found only in BN patients. For patients with bulimia, the patient-reported positive outcome rate for shorter treatments was 33% higher than the rate for longer treatments with other correlated variables controlled for. The therapist-reported success rate for patients with anorexia was about 80% higher for longer term versus shorter term cases. However, this difference in success rates was not statistically reliable (despite the considerable sample sizes). Overall, there was no recognizable difference in outcome between shorter and longer treatment at the 2.5-year follow-up assessment. This analysis does not preclude the possibility that unconsidered variables may interact with treatment duration and intensity in predicting outcomes.

An analysis of possible predictors of treatment success at the 2.5-year follow-up was conducted, using a stepwise multivariate logistic regression method within AN and BN groups, separately. No substantial differences between outcome at the various hospitals could be found. The analysis of the predictive variables of treatment success used a simple logistic regression approach, excluding the hospital factor from the design. The resulting models for AN and BN differ with regard to the identified predictors as well as to the goodness of fit.

Overall, the goodness of fit was moderate for both models. The model for AN explained 31% of the variance. The model for BN showed 13% variance explained. Even after controlling for other covariates, treatment intensity had no effect on the outcome for patients with AN. However, treatment length (short vs. long) in interaction with the age variable was a significant predictor. Low body weight and low desired body weight (%BMI) at treatment admission and significant deviations as measured on the FPI-R were risk factors associated with a poor outcome. Examining the interaction between treatment duration and age revealed that high patient age indicates a poorer outcome. The predictive value of this variable was intensified in the outcome of younger patients: Those in the 18- to 20-year age range had two to four times higher

rates of positive treatment outcome with shorter treatments than age-matched counterparts with longer treatments. This correlation is reversed for older patient outcomes: Those patients who received a longer treatment actually had an increased rate of good outcome. However, this rate as a whole was considerably lower than that of younger patients.

The results for BN are quite complex: Multi-impulsivity, additional anorectic symptoms, and high number of previous treatments were associated with lower success rates. Treatment success was only slightly lower for patients who scored high on the first three EDI subscales (i.e., those with a more severe eating disorder syndrome). The effect of treatment duration is complicated by interaction effects with age and with the Morgan-Russell E subscale, in which relationships to family and friends are presented. Patients with difficulty in establishing relationships (low Morgan-Russell scores) had a better prognosis when treated for a longer rather than a shorter period. If patients scored at least moderately on psychosocial functioning, the reverse effect resulted in the good outcome increasing with shorter treatment. The advantage of longer treatment for outcome was stronger for younger patients with poor social adjustment than for older patients, whereas for older patients with good psychosocial functioning the advantage of shorter treatment was stronger than for younger patients.

The results of this study suggest that inpatient psychodynamic treatment should have a duration of at least 8 to 12 weeks, whereas a longer treatment for older patients older than 40 years could be beneficial. Further treatment extensions should be based on individual cases as well as on the course of improvement. The decision for further inpatient or outpatient treatment should not be independent of patient status at point of discharge. Rather, new and specified treatment methods should be developed. The results of the medium-term course of eating disorders (Kordy et al., in press) suggest an increased risk of relapse in the period immediately after hospitalization. This could be counteracted by a maintenance treatment. Booster therapies could be such an approach to reduce the rate of relapse that occurs a few months after discharge. Stepwise care provision could serve as a guiding principle for the development of a comprehensive treatment strategy (Royal College of Psychiatrists, 1992). Experiences with such strategic approaches are positive in those countries that do not separate inpatient and outpatient treatment as strictly as is the custom in Germany.

Treatment duration in interaction with psychosocial functioning seems to be an indicator of outcome: The probability of a good outcome increased for those patients with good social adjustment. This effect was intensified in older patients and suggests that long treatment (i.e., long absence) has a reduced effect for patients with good social functioning, especially when those patients are married. However, this effect reverses for young patients with difficulties establishing relationships: They do not have these problems in a longer treatment.

Evaluation

This is an ambitious, high quality study which is the best attempt so far to demonstrate the value of intensive long-term treatments using naturalistic methods. Unfortunately, the study yielded little evidence that suggests that intensive psychotherapy for AN or BN might be of special value. The participation of such a large sample of hospitals in Germany, whilst an

advantage in terms of statistical power, also limits possible conclusions. For example, the differences in patient mix between the hospitals limit the interpretation of the observed effect of the specialty level of the treatment. The possible bias for this factor alone or in association with the various clinical settings could not be adjusted with the propensity score method used because that would have required that all hospitals apply longer as well as shorter treatments.

Of note for the findings regarding treatment length is the range that was used in this study: The treatments investigated run from 5 to approximately 16 weeks. Treatments shorter than 5 weeks were excluded from the analyses because it was uncertain to what extent the duration was intended and what proportion could be attributed to dropouts. Treatments longer than 16 weeks were not found frequently enough to justify inclusion. Furthermore, the possible effect of many variables not included in the model remained unobserved (e.g., parameters for the course of illness not included in this study, further characteristics of the hospitals, and parameters for the treatment program). Other possible factors within the follow-up period, such as the effect of further outpatient treatment or critically decisive life events, were not included in this study and thus limit generalization.