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Does internet-based prevention reduce the risk of relapse for anorexia nervosa?

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ABSTRACT

Technological advancements allow new approaches to psychotherapy via electronic media. The eating disorder literature currently contains no studies on internet intervention in anorexia nervosa (AN). This study presents a RCT on an internet-based relapse prevention program (RP) over nine months after inpatient treatment for AN.

The sample comprised 258 women, randomized to the RP or treatment as usual (TAU). Expert- and self-ratings were evaluated by intent-to-treat analyses.

Concerning age, age at onset and comorbidity, both groups were comparable at randomization. During the RP, the intervention group gained weight while the TAU group had minimal weight loss. RP completers gained significantly more body weight than patients in the TAU condition. Group-by-time comparisons for eating-related cognitions and behaviors and general psychopathology showed a significantly more favorable course in the RP program for "sexual anxieties" and "bulimic symptoms" (interview), and "maturity fears" and "social insecurity" (EDI-2). General psychopathology showed no significant group-by-time interaction. *Important factors for successful relapse prevention were adherence to the intervention protocol and increased spontaneity.*

Considering the unfavorable course and chronicity of anorexia nervosa (AN), internet-based relapse prevention in AN following inpatient treatment appears a promising approach. Future internet-based programs may be further improved and enhanced.

Introduction

Anorexia nervosa has, of all eating disorders, the highest chronicity and mortality rate in young women and is probably the psychiatric disorder with the highest mortality. In comparison to bulimia nervosa and binge eating disorder, few controlled psychotherapy trials for anorexia nervosa have been published, and surprisingly there is hardly any study on relapse prevention or post-hospitalization treatment of anorexia nervosa (Pike, Walsh, Vitousek, Wilson, & Bauer, 2003). Extremely high drop-out rates in clinical trials for anorexia nervosa (Halmi et al., 2005) have constituted one major problem for psychotherapy studies.

Current technological developments of communication media make new approaches to diagnostic and therapeutic interactions with persons at risk and patients possible. The internet-based primary prevention of various disorders for persons at risk and the development of new forms of therapy and relapse prevention for patients with a variety of medical or psychological illnesses represent important new developments. Thus, controlled internet-based studies for primary, secondary or tertiary prevention have been reported for diabetes mellitus (Bastelaar, Pouwer, Cuijpers, Riper, & Snoek, 2011), cardiological disorders (Kuhl, Sears, & Conti, 2006), and asthma (Runge, Lecheler, Horn, Tews, & Schaefer, 2006). Other prevention programs focused on the promotion of regular physical activity to improve health (De Bourdeaudhuij et al., 2010) or management of work-related stress (Billings, Cook, Hendrickson, & Dove, 2008).

Abbreviations: TAU, treatment as usual; RP, relapse prevention; ITT, intent to treat; BMI, body-mass index; EDI, Eating Disorder Inventory (questionnaire).

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Concerning internet-based forms of psychotherapy in a broader sense, more than 100 randomized controlled studies exist, and additionally some systematic reviews, and meta-analyses such as the one by Spek et al. (2007) concerning depression and anxiety disorders, the one by Cuijpers et al. (2009) concerning anxiety disorders and the one by Barak, Hen, Boniel-Nissim, and Shapira (2008) concerning the effectiveness of internet-based psychological interventions in general. More studies concerning internet-based psychotherapy have been conducted in the area of depression (e.g. Gerhards et al., 2010) and anxiety disorders (e.g. Rollman et al., 2005) including panic disorder, various phobias and post-traumatic stress disorder (e.g. Lange et al., 2003). For somatic as well as psychiatric disorders, internet-based interventions have been shown to be promising for the reduction of symptoms and have been shown to affect reference points for illness such as sick days, number of medical consultations, and strategies for coping with illness. Applying therapist-guided internet chat groups as relapse prevention after inpatient psychotherapy for a variety of psychosomatic disorders (e.g. mood disorder, personality disorder, somatoform disorders) resulted in a lower rate of relapse and a longer survival time until relapse (Bauer, Wolf, Haug, & Kordy, 2011). Concerning eating disorders, only a rather limited number of studies has been published. In the last two decades, there has been a larger number of controlled studies evaluating the effect of manualized and guided self-help for bulimia nervosa and some studies for binge eating disorder (Williams, Aubin, Cottrell, & Harkin, 1998). This development was a good basis for developing internet-based interventions for bulimia nervosa, and the results for controlled studies on this issue have been published by Carrard et al. (2006), Shapiro et al. (2007), Schmidt et al. (2008), Fernandez-Aranda et al. (2008), and Sánchez-Ortiz et al. (2011). In parallel to these developments, there have been studies addressing not patients with an eating disorder but persons in the community or students at risk for eating disorder with internet-based programs (Celio et al., 2000; Jacobi et al., 2007; Paxton, McLean, Gollings, Faulkner, & Wertheim, 2007; Taylor et al., 2006; Zabinski, Celio, Jacobs, Manwaring, & Wilfley, 2003). Practically all interventions that have been evaluated for eating disorders are based on manuals of cognitive-behavior therapy. Internet-based therapies have frequently been supplemented by text messages and e-mail functions (Ljotsson et al., 2007; Shapiro et al., 2007). For internet-based interventions, one issue pertains to their effectiveness and efficacy and another one to cost effectiveness. Internet-based programs can reach a large number of patients or persons at risk at considerably lower cost than traditional approaches. We estimate that a trained therapist needs to allot about 8 h of weekly time in order to take care of 100 active users of the program the way we designed it. Moreover, such programs can reach individuals who, due to a lack of motivation or large geographical distance, would otherwise not take part in any intervention.

The aim of our study, which to our knowledge is the first randomized controlled study of internet-based relapse prevention for anorexia nervosa, was to evaluate the efficacy of a 9-month internet-based intervention program for AN, compared to a group of AN patients receiving treatment as usual (TAU) following discharge from inpatient therapy. This RCT was registered with Current Controlled Trials (ISRCTN20173615) and in the 'Deutsches Register Klinischer Studien' (DRKS00000081; German Registry of Clinical Trials).

Method

Subjects were recruited through one of eight hospitals in Germany providing inpatient services and psychotherapy specialized for patients with eating disorders. The recruitment phase lasted from 4/2007 until 9/2009. According to the study protocol, the power calculations and the expectation of a 30% drop-out rate, we planned to recruit 258 female patients with anorexia nervosa (AN). This multicenter study was prospective in nature, controlled and randomized with two arms, one for the relapse prevention (RP) group and one for a treatment as usual (TAU) comparison (control) group.

Inclusion criteria: (1) Minimum *age* of 16 years, (2) *female*, (3) *anorexia nervosa* or subthreshold anorexia nervosa without the requirement of amenorrhea according to DSM-IV criteria, (4) *internet* is easily accessible, (5) *positive course* of inpatient treatment with at least a 2-point BMI increase if the BMI on admission was below 14, or with at least one additional BMI point in patients with a BMI above 14 upon admission, (6) sufficient motivation for therapy and for taking part in the study. Sufficient motivation was defined as (a) no history of long inpatient stays without a clinically significant weight gain (at least two inpatient stays in the two years preceding index inpatient treatment with a total duration of at least eight months) or patient-initiated irregular discharges, (b) no history of forced feeding, (c) good compliance with psychotherapy and routine questionnaires during the index inpatient treatment (patient participated in all therapeutic activities, did do the homework for therapy and did not skip questionnaires in routine clinical assessment), (d) the individual therapist predicted good compliance with the RP. Points a) and b) were inquired separately from the patient and the therapist who had access to the full clinical chart of the patient. Points c) and d) were assessed by the therapist who at the time of assessment knew the patient very well. Exclusion criteria: other serious mental or physical impairments, acute or chronic organic or schizophrenic psychosis, marked suicidal ideation and/or behavior, and premature, irregular discharge from inpatient treatment.

The study protocol was approved by the ethics committee of the Bavarian Medical Association and the ethics committees of other relevant German states. All participants provided informed written consent before they engaged in any research activity.

Design

The study was multicentered, prospective, controlled, and randomized. Right at the end of inpatient treatment, patients were randomized either into the arm of the relapse prevention (RP) or to treatment as usual (TAU) (control). At the time of the study, many anorexic patients in Germany did not seek or receive outpatient treatment following discharge from inpatient treatment; therefore, the aim of our study was to compare the outcome after nine months of internet-based relapse prevention (RP) to treatment as usual (TAU). Other concomitant treatments during the nine-month outpatient intervention period were left to patients' and their physicians' or therapists' decision and were documented by our research team who did not interfere in any way with these decisions.

Sample

As planned in the study protocol, we randomized 258 AN patients into the study as they were discharged from inpatient specialized treatment for eating-disordered patients. Randomization was performed by a statistician of an independent institution (Koordinierungszentrum für klinische Studien (KKS Center), Marburg, Germany). Details of the group assignment were communicated from the KKS Center to the clinical research study center in Prien once a patient was considered suitable for inclusion in the study.

Overall, 1802 female patients with anorexia nervosa or subthreshold AN (EDNOS type 1) aged 16 years or above were