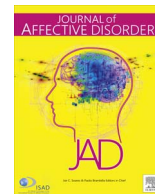




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Research paper

Effects of cognitive behavioral therapy with relaxation vs. imagery rescripting on test anxiety: A randomized controlled trial

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A B S T R A C T

Background: Test anxiety is a common condition in students, which may lead to impaired academic performance as well as to distress. The primary objective of this study was to evaluate the effectiveness of two cognitive-behavioral interventions designed to reduce test anxiety. Test anxiety in the participants was diagnosed as social or specific phobia according to DSM-IV. Subsequently subjects were randomized to three groups: a moderated self-help group, which served as a control group, and two treatment groups, where either relaxation techniques or imagery rescripting were applied.

Methods: Students suffering from test anxiety were recruited at two German universities ($n=180$). The randomized controlled design comprised three groups which received test anxiety treatment in weekly three-hour sessions over a period of five weeks. Treatment outcome was assessed with a test anxiety questionnaire, which was administered before and after treatment, as well as in a six-month follow-up.

Results: A repeated-measures ANOVA for participants with complete data ($n=59$) revealed a significant reduction of test anxiety from baseline to six-month follow-up in all three treatment groups ($p < .001$).

Limitations: Participants were included if they had a clinical diagnosis of test anxiety. The sample may therefore represent only more severe forms of test anxiety. Moreover, the sample size in this study was small, the numbers of participants per group differed, and treatment results were based on self-report. Due to the length of the treatment, an implementation of the group treatments used in this study might not be feasible in all settings.

Conclusions: Group treatments constitute an effective method of treating test anxiety, e.g. in university settings. Imagery rescripting may particularly contribute to treatment efficacy.

1. Background

Symptoms of test anxiety can reach clinical severity and impair everyday life, the process of education as well as career advancement (Fehm and Fydrich, 2011). It can be assumed that test anxiety is extremely challenging in psychological terms. Numerous studies have shown that test anxiety can result in diminished academic performance (Cassady and Johnson, 2002; Chapell et al., 2005). Students asking for help because of test anxiety are often long-term students (Zeidner, 2007). For affected individuals, it is thus essential to overcome their fears. Hence, it is important to find suitable and effective treatment options.

Test anxiety is not clearly defined in the literature and is operationalized in different ways; therefore incidence rates among uni-

versity students reported in the literature vary between 14% and 50% (Cizek and Burg, 2005; Fehm and Fydrich, 2011; Spielberger and Vagg, 1995). According to the German Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, 2007) 13% of 16,590 interviewed university students were in need of psychological counseling because of test anxiety. Women report higher degrees of test anxiety (e.g. Chapell et al., 2005; Hembree, 1988).

Symptoms accompanying test anxiety resemble those of social phobia, which is characterized by the fear of being embarrassed in front of others. Exposure to fear-associated social situation leads to anxiety and is often accompanied by catastrophizing cognitions and physiological stress symptoms (American Psychiatric Association, 1994; Stangier et al., 2009). Individuals suffering from severe test anxiety report similar symptoms (Fehm and Fydrich, 2011) which can

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either be limited to test and exam situations or even affect other areas of life as well. Thus, the clinical symptomatology of severe test anxiety can be specified on the basis of the symptoms of social anxiety disorder (300.23) according to DSM-5 (American Psychiatric Association, 2013), or the symptoms of generalized or specific social phobia (300.23) according to DSM-IV (American Psychiatric Association, 1994). Where fear of being embarrassed in front of others is not a key feature of an individual's test anxiety or only pertains to written tests, the diagnosis of a specific phobia (F40.2) according to the International Statistical Classification of Diseases and Related Health Problems (ICD-10) (World Health Organization, 2012) is possible as well.

A variety of different treatments is used for test anxiety, both in individual and group settings (Sapp, 2013; Spielberger and Vagg, 1995). According to a meta-analysis, treatments combining skill-focused approaches with behavioral and cognitive interventions seem to be most effective in reducing test anxiety (Ergene, 2003). These treatments are widely applied, for instance in university counseling centers, but only few programs have been published (Messer and Bensberg, 2007). Usually, a diagnosis is not necessary to gain access to test anxiety treatment. Signs and severity of experienced test anxiety may thus differ between affected individuals. Furthermore, there is little research on the differential effectiveness of therapeutic interventions for test anxiety in terms of a diagnosed phobia.

For social phobia or phobic disorders in general, cognitive behavioral therapy (CBT) is an effective treatment (Rodebaugh et al., 2004; Wells and Papageorgiou, 2001). CBT is based on the premise that cognitive factors maintain mental disorders, and it combines behavioral and cognitive interventions (Hofmann et al., 2012). CBT techniques for anxiety disorders, such as cognitive restructuring and confrontation techniques, are included in test anxiety treatments as well (Fehm and Fydrich, 2011).

Although individual treatment seems to be more effective (Aderka, 2009; Aderka et al., 2011; Rodebaugh et al., 2004), group therapy is frequent in clinical practice, especially in university counseling services, and there is some evidence for the effectiveness of group therapy in social phobia (Powers et al., 2008). Most universities in Germany provide group programs for students with test anxiety, but there is little published research on the effectiveness of these group interventions.

Due to long waiting times for psychotherapy, self-help (SH) group settings are an important alternative in the context of psychosocial care (Bijl and Ravelli, 2000; Cuijpers and Schuurmans, 2007). There is evidence for positive effects of self-help approaches (Gould and Clum, 1993; Hirai and Clum, 2006; Marrs, 1995), even though meta-analyses show that the effectiveness of psychotherapy is significantly superior (Hirai and Clum, 2006; Lewis et al., 2012).

Based on previous research findings (Ergene, 2003; Hirai and Clum, 2006; Powers et al., 2008), our study focused on a group of students with clinically relevant test anxiety symptoms and examined the efficacy of different short term group treatment programs of CBT and SH.

In social phobia, recurring images of unpleasant social situations are supposedly linked to (distorted) images of the self (Hackmann et al., 2000). It is assumed that aversive experiences are responsible for internalized images (Arntz and Weertman, 1999; Lee and Kwon, 2013; Nilsson et al., 2012; Wild et al., 2008). The same can be assumed for test anxiety. Recent studies have indicated that working with imagery techniques such as Imagery Rescripting (ImRs) is useful in treating a variety of disorders (Frets et al., 2014; Lee and Kwon, 2013; Nilsson et al., 2012; Stopa, 2011; Wild et al., 2008). In a CBT study on social phobia ImRs was successfully administered, with the following components: identifying and elaborating a recurrent image, cognitive restructuring, and linking new perspectives to the image by the use of imagery (Wild et al., 2007). ImRs aims to change the meaning of memories of former aversive experiences that are associated with the psychological disorder (Arntz, 2012; Young et al., 2003). This is meant

to reduce the evoked strain (Holmes et al., 2007). ImRs has already been implemented in effective group formats, e.g. for borderline personality disorder (Farrell and Shaw, 2012). Research has not yet examined CBT with ImRs as a treatment option for test anxiety.

Therefore, we included ImRs in one of the treatment conditions. We hypothesized that CBT would reduce test anxiety more effectively than a moderated self-help group. Moreover we assumed that including ImRs in the CBT group format might be especially effective in reducing test anxiety.

2. Materials and methods

2.1. Participants

Participants ($n=180$) for this study were female ($n=142$) and male ($n=38$) university students enrolled in various departments, e.g. law, business, psychology, biology, mathematics, chemistry, medicine, or languages. Participant recruitment took place during and after a scheduled exam period via announcements on the homepage of the Center of Student Counseling, e-mailing, announcement in student organizations and services as well as flyers. Interested participants sent an e-mail with their contact information and were then contacted for diagnostic screening.

After receiving detailed information about the study, which had been approved by the local ethics committee of the Department of Psychology at Frankfurt University, all participating students gave written informed consent.

Inclusion criteria were a diagnosed social or specific phobia affecting exam or test situations according to DSM-IV (American Psychiatric Association, 1994). A fear of being evaluated in the exam situation was crucial for the diagnosis of social phobia. Specific phobia was diagnosed if confrontation with the exam situation resulted in clinically relevant fear.

Exclusion criteria were a current severe, major depressive episode, a moderate depressive episode with attentional deficit, or current psychotic symptoms. Students with mild to moderate depressive episodes without attention deficit were included, if they were able to participate and to profit from the treatment emotionally and cognitively. Diagnoses were made using the Structured Clinical Interview for DSM-IV (SCID-I) (Wittchen et al., 1997), which was conducted by trained clinical psychologists.

138 participants (80% females) met the inclusion criteria and were randomly assigned to the three group programs. Baseline characteristics are displayed in Table 1 (see *Measures* for information on the test anxiety questionnaire).

2.2. Design

We used a randomized controlled design which included two treatment groups. The intervention program comprised elements of CBT and skill-focused techniques, additionally supplemented by the use of relaxation techniques in the first treatment group (CBT+R) (Psychotherapeutische Beratungsstelle der Johannes Gutenberg-Universität Mainz, 2013) and Imagery Rescripting in the second treatment group (CBT+ImRs), respectively, in one of the sessions. A therapist-guided self-help group (SH) served as control group. There were three points of measurement: before and after treatment (face-to-face assessment), and a six-month follow-up (mailed responses). The study was conducted between 2013 and 2015 at the Center for Student Counseling at Mainz University and the Department of Psychology at Frankfurt University. Group sessions took place before the start of the next scheduled exam period.

2.3. Procedure

All three intervention groups completed four cycles of sessions (i.e.

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