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**THE EFFECTS OF A MINDFULNESS AND ACCEPTANCE BASED GROUP
THERAPY FOR SOCIAL ANXIETY IN A FEMALE COLLEGE SAMPLE**

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ABSTRACT

The purpose of this study was to assess The Effects of a Mindfulness and Acceptance Based Group Therapy for Social Anxiety in a female college sample. The study was a randomized control trail. Forty eight participants (all university students and women) meeting DSM-IV-TR criteria for SAD were randomly assigned to MAGT (n:24) or a waitlist control group (n: 24). The measures of social anxiety, mindfulness and acceptance and depression were administered at pretreatment, post treatment and at a 3-month follow-up session. 36 patients completed this study. The MAGT group showed a significant improvement at the post-treatment and follow-up. ANCOVA results showed that the MAGT group had a significant improvement in the severity of SAD symptoms ($p < 0.001$), depression ($p < 0.001$), and also mindfulness ($p < 0.001$) and acceptance ($p < 0.001$). The present research is an additional support for the use of mindfulness and acceptance-based treatments for SAD.

Key words: Mindfulness, Acceptance, Group Therapy and Social anxiety

INTRODUCTION

Social Anxiety Disorder (SAD), also referred to as Social Phobia, is an extreme fear of awkwardness or humiliation in social situations. It is usually along with avoidance from these situations (APA, 1994). The social situations that are feared most are performance situations, social events, interactions with foreigners or acquaintances, interviews, and dialogues with authorities (Grant, *et al.*, 2005). Social Anxiety Disorder as a chronic condition is ranked as the fourth most common mental health disorder diagnosis (Kessler, Berglund, Demler, Jin, & Walters, 2005). Despite absence of clear knowledge of etiology, considerable developments and achievements in the realm of treatment have been made. Cognitive behavioral group therapy is one of the most known and widely studied treatment approaches for SD (CBGT; Heimberg, 1991; Heimberg & Becker, 2002). Cognitive behavioral models generally focus on cognitive factors maintaining SAD symptoms such as exaggerated negative thoughts about performance in social situations as well as behavioral factors including avoiding the same situations. They also attempt to modify negative thoughts and reduce avoidance by cognitive reconstruction and

exposure exercises (Clark & Wells, 1995; Rapee & Heimberg, 1997). Despite extensive evidence for the efficacy of Cognitive Behaviors Therapy (CBT) for SAD (e.g., Heimberg *et al.*, 1998; Hope, Herbert, & White, 1995), and being among empirically supported psychosocial interventions for SAD, some challenges are given on behalf of other researches. The most significant challenge in some studies is that work on thought content and cognitive reconstructing doesn't have any additional advantage in comparison to therapeutic exposure. Studying the "therapeutic component analysis" in CBGT manual indicated that exposure interventions are as effective as cognitive reconstructing in reducing symptoms, even if they are used without the reconstruction component (Gould, Buckminster, Pollack *et al.*, 1997; Hope, Heimberg and Bruch, 1995) and they make cognitive changes as much as cognitive reconstructing techniques do (Hope *et al.*, 1995a; Mattia, Heimberg, & Hope, 1993; Newman, Hofmann, Trabert, Roth & Taylor, 2004). The second issue is related to the extent of therapeutic changes of CBT for SAD. As some studies have shown, a considerable portion of participants, ranged from one

sixth to one forth, do not respond to the traditional CBT (Heimberg et al., 1998, and Herbert et al., 2005; Liebowitz et al., 1999; Stangier et al., 2003). Even in the participants who respond to the treatment, the scores do not approach the nonclinical populations and the clients still bear disorder symptoms and the quality of life does not change (Eng, Coles, Heimberg & Safren, 2001).

The third point is that in spite of being beneficial, exposure-based interventions encounter some difficulties. Participants are resistant to do exposure tasks, to leave avoidance behaviors and to face their fears easily (Craske, Barlow & O'Leary, 1992). Therefore, participants' reluctance to do exposure tasks are obstacles to CBT programs that make them not to be beneficial enough.

Reviewing these kinds of research approves a need for exploration of other approaches offering alternative treatment options. These new treatment options need to address following concerns: applying exposure as a potent therapeutic component and including strategies to increase willingness to do exposure tasks and components to enhance quality of life besides reduction of symptoms.

Moreover, an appropriate treatment approach must be able to conceptualize a specified disorder in its conceptual framework and to present this conceptualization to clients for therapeutic goals (Kocovski, Fleming & Rector, 2009). Offering a client an understandable explanatory framework is the hallmark of CBT. This must be considered in any attempt to design a treatment program.

It seems Mindfulness- and acceptance-based approaches including Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990), Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, and Teasdale, 2002) and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) are promising. They are receiving increasing attention in the treatment of a variety of psychological conditions (see Vollestad, Nielson, & Nielson, 2012 for a review) and share common principles in their conceptualization of the mind, mental suffering, and psychotherapeutic changes. In contrast to traditional cognitive behavior therapy (CBT) focused on exploring, changing, modifying or altering the form and content of private events (thoughts and feeling), MABIs is supposed to decrease symptoms and totally mental

suffering through a set of interrelated processes resulted in the individual to experience acceptance and compassion instead of avoidance, control, or suppression (Hayes, 2004; Williams, 2010). Therefore, rather than changing the content of their thoughts, clients are changing the way they face their thoughts and feelings and they are also encouraged to have commitments to work toward valued goals.

There are a few studies on the use of the new approach of mindfulness and acceptance-based treatment for SAD. The first study investigated the efficacy of an acceptance and commitment-based treatment manual that was changed to fit the avoidance behaviors and usual life problems in individuals with social anxiety (Ossman, W. A., Wilson, K. G., Storaasli, R. D., & McNeill, J.W. 2006). Twenty two participants attended 10 group therapy sessions among them 20 completed the therapy. The post treatment and follow-up data show a significant decrease in the scales of social phobia and experiential anxiety and an increase in some aspects of life quality such as social relations. The second study was a pilot trial of a therapy program which studied an integration of ACT and exposure treatment in a sample

of 18 participants with SAD (Dalrymple & Herbert, 2007). In this project, a threshold four-week control period was used. Then, the participants attended 12 therapy sessions. A significant improvement was observed in the symptoms of social anxiety and life quality due to the therapy efficacy (after therapy till the follow-up) with a great effect size of 1.00 to 1.29.

There are also a number of studies on the use of mindfulness techniques in the treatment of SAD. Bögels, Sijbers & Voncken (2006) conducted a pilot group treatment in which they integrated MBCT with task concentration training. Nine participants of the seven treatment completers did not have the SAD criteria after the treatment and they had maintained symptoms improvement till a 2-month follow-up.

Koszycki, Benger, Shlik & Bradwejn (2007) conducted a randomized controlled trial in which CBGT was compared to a mindfulness-based stress reduction treatment (MBSR). The results showed that both treatments had an equal effect in the improvement of SAD patient' behaviors, effectiveness and life quality. However, CBGT was more effective in the improvement of the social anxiety disorder symptoms. Yet, the research methodology

can be criticized for the inequality of the number of sessions (8 therapy sessions in MBSR vs. 12 therapy sessions in CBGT). In addition, Goldin, Ramel & Gross (2009) investigated MBSR in the adults with SAD and reported the research results including anxiety reduction, a decrease in negative views about the self, promotion of self-confidence and positive views about the self. Moreover, Goldin, Ramel & Gross (2010) found out that MBSR decreases social anxiety, depression, rumination and state anxiety and increases self-esteem in patients with SAD. They showed that MBSR decreases clinical symptoms through change in the habitual reactions to negative self-belief contents.

The current study is developed to evaluate the effects of a new treatment on SAD designed by Kocovski, Fleming & Rector (2009). Based on overarching principles, they incorporated techniques of two new promising approaches that are “Acceptance and Commitment Therapy” and “Mindfulness-Based Cognitive Therapy”. This treatment manual named MAGT has adopted acceptance, mindfulness and exposure from the two above approaches as it can be able to overcome the existing challenges in the traditional CBT. These strategies target the core attentional

(heightened self-focus and external focus on potential threat), cognitive (anxious rumination before, during, and after social situations), and behavioral processes (overt and subtle avoidances) that have been shown to maintain SAD. These processes were originally specified within a cognitive behavioral model (Clark & Wells, 1995) and can also be conceptualized within a mindfulness and acceptance framework.

There are only two published studies on MAGT in SAD by Kocovski et al. (2009 & 2013) providing MAGT for the treatment of SAD with empirical support. The first one, in the form of open trial (Kocovski et al., 2009) showed medium to large effect sizes on social anxiety reduction and a clinically significant change. The second one (Kocovski et al., 2013) was a randomized controlled trial compared (RCTs) MAGT with traditional CBT. The data showed equivalent and clinically meaningful improvements in social anxiety reduction and most other variables assessed in patients for both groups.

Based on the information we had of the conducted research (in so far as we had access to the previous research) and as reviewed above, there are few studies on the acceptance and mindfulness-based

treatments and there is just one randomized controlled trial which has investigated the efficacy of MAGT for SAD. Therefore, the current research would be able to provide further empirical evidences for evaluating the mindfulness and acceptance- based treatment for SAD.

It was hypothesized in the present research that in contrast to the waiting-list group, the MAGT group would show decrease in the symptoms of social anxiety and depression. Moreover, we expected that the MAGT group participants would show a significant increase in the acceptance and mindfulness variables since it is presumed that these two are the main components of the treatment manual.

METHODOLOGY

Participants

The participants (N=48; all women) were recruited via advertisements in two girls campus-dormitorie and professional referrals through two clinics for those dormitories. These ads offered brief explanations on the symptoms of social anxiety and the research program.

The inclusion criteria were: principal diagnosis of SAD (based on criteria from the Diagnostic and Statistical Manual of Mental Disorders, 4th ed., text revision [DSM-IV-TR]; American Psychiatric

Association, 2000 assessed using the Structured Clinical Interview for DSM-IV [SCID-IV]); and Consent to participate.

The generalized subtype was operationally defined as fear anxiety and/or avoidance in at least 3 distinct social situations (Herbert *et al.*, 2005). The exclusion criteria were: A primary diagnosis of any disorder other than SAD; current alcohol or substance abuse or dependence; lifetime psychosis; lifetime mania; acute suicide potential; Psychotropic medications).

Because of the high overlap of SAD with depression, other anxiety disorders and the avoidant personality disorder, these disorders were not considered as the exclusion criteria unless they were primary disorders.

Measures

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P). The SCID-I/P (First, Spitzer, Gibbon, & Williams, 1996) is a widely used structured diagnostic interview for the major Axis I disorders, based on DSM-IV criteria. The research on the SCID-I/P has illustrated moderate to high inter-rater reliability for a plenty of the mental disorders (Riskind, Beck, Berchick, Brown, & Steer, 1987; also see Segal, Hersen, & Van Hasselt,

1994 for a review of the literature on inter-rater reliability of the SCID-I/P).

The Social Phobia Inventory (SPIN; Connor et al., 2000) is a 17-item measure for the assessment of fear and avoidance of a set of social situations and of physiological symptoms of anxiety. The SPIN has been validated for use in clinical populations and has considerable validity and reliability (Antony, Coons, McCabe, Ashbaugh, & Swinson, 2006; Radomsky et al., 2006).

The Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item self-report rating inventory for the assessment of the severity of symptoms of depression in the previous week. The BDI-II has been used widely and has good psychometric properties across various populations (Beck, Steer, Ball, & Ranieri, 1996).

The Mindful Attention and Awareness Scale (MAAS; Brown & Ryan, 2003), a 15-item self-report scale is designed to assess awareness of and attention to present-moment experiences. It has shown appropriate test-retest reliability and good convergent validity (Brown & Ryan, 2003).

Acceptance and Action Questionnaire-II (AAQ-II) is a 9-item measure constructed

by Hayes, Storaasli, Wilson et al, 2004 (2004) to assess the desire/willingness of experiencing the unwanted thoughts and feelings and the capability of performing an action despite the existence of such thoughts and feelings (experiential avoidance vs. psychological acceptance and inaction vs. action). High scores indicated experiential avoidance and low scores indicated experiential acceptance. AAQ has a good internal consistency ($\alpha=0.70$) and test-retest reliability ($r=0.64$) and there was an approximate correlation between its scores and the values of cognitive avoidance construction ($r=0.50$) (Hayes, Storaasli, Wilson *et al*, 2004).

Procedure

Individuals who had referred to two clinics in dormitories and those who had referred upon the relevant ads, were administered a diagnostic interview after an initial screening. After a structured interview by the psychiatrist, the 48 individuals who were diagnosed as having a generalized subtype of social anxiety disorder and whose conditions were in accordance with the inclusion and exclusion criteria entered the research. A control group, a waiting-list group, was adopted in this research. The participants were randomly assigned to two groups of 24. The waiting-list group did not

receive any medical treatment during the research administration. To investigate the treatment outcome, the participants in the experimental and control groups completed the Social Phobia Inventory (SPIN), the Beck Depression Inventory, MASS, and AAQ-II. In addition, the experimental group underwent a structured interview based on DSM-IV after the treatment.

The content of the sessions, methods, and techniques were based on a manual used by Kocovski, Fleming & Rector (2009) in their research.

Ten group treatment sessions of 120 minutes were managed weekly. Absence more than three sessions was considered as the decline criterion in this research (similar to the previous studies such as Othman et al, 2006).

Explanations related to the manual

Mindfulness and acceptance-based treatment is an integration of the theories and studies related to social anxiety (for example, Clark & Wells, 1995) and the processes of mindfulness and ACT. The treatment manual used in this research is compiled by Koszycki, Fleming & Rector (2009) based on their experiences and feedbacks in 5 pilot groups from 2005 to 2006. Because of the time restrictions in the university and in order to avoid the

coincidence of the treatment program with the beginning of final examinations, the number of sessions was reduced from 12 sessions in the main manual to 10 sessions. Therefore, the treatment program consists of 10 two-hour group sessions. In most sessions, the beginning first hour includes a special task of mindfulness and the assignments review.

During the second hour of the session, the participants get familiar with the ACT concepts by experiential metaphors and exercises (from session 2 to session 5) or they get engaged with ACT-based exposure exercises (from session 6 onward).

Each session usually consisted of four sections: 1. mindfulness exercise, 2. assignment review, 3. discussion on the main topics in ACT by the experiential metaphors and exercises (session1 to 5) and exposure to ACT principles through what are called willingness exercises (session 6 to 10) and 4. Determining homework for the coming week.

RESULT

Demographics and comorbidities

All of the participants were women and were BA or MA students. There was not any significant difference between the two groups in the demographic variables and

the comorbid diagnoses. All participants were single but one. The age average of the participants was 23 in the MAGT group, with the standard deviation of 1.87 and 22.7 in the waiting list group with a standard deviation of 1.89. **Table 1** shows the two groups in terms of education and the existence of a comorbid disorders.

The analysis was performed via IBM SPSS Statistic 20. The randomization adequacy was assessed by conducting independent t test. To estimate the group differences at pre-test, Independent t-tests were run and it was indicated that there were no significant pretreatment differences for all variables (**Table 2**).

Attrition

Two individuals in the experimental group withdrew from participation in the treatment group at the very beginning. Both of them pointed out that the reason of their withdrawal is change in their curriculum. Therefore, the mindfulness and acceptance-based treatment group began for other participants in the form of two subgroups (10 individuals and 12 individuals) by a therapist and via the same manual. Three participants withdrew from participation after the first session. Two stated that it was very difficult for them to speak in the group and that they are willing to continue the

treatment individually. Therefore, they were referred to other colleagues to follow the treatment individually. The third participant stated that she is no longer going to live in the dormitory and it is difficult for her to commute to the dormitory. Two other participants left the therapy during the treatment.

They stated their withdrawal reason to be lack of enough time for participation in the sessions and completion of the exercises, the length of the treatment period, and lack of comfort in the share of their private experiences with the group. Therefore, 17 participants completed the treatment. Similarly, we had access to the after-treatment and follow-up data of only 19 individuals in the control group. The analyses were just performed on the data of the participants who were present in the research by the end of treatment program.

There was not any significant difference between treatment completers and program dropouts in terms of the variables of social anxiety symptoms, depression, mindfulness and acceptance and commitment.

Examining hypotheses

To test our hypotheses repeated-measure ANOVA models were used, with each dependent variable analyzed independently to test the pattern of change over the three

time points in two groups. In the repeated-measure ANOVA, if the Mauchly's Test of Sphericity is not significant, (in this case, it indicates the sphericity of variance-covariance matrix), the F statistic of the SPSS output table is used. Otherwise, the adjusted Greenhouse-Geisser statistic is used in which the degrees of freedom are also adjusted. Post hoc Bonferroni repeated measures comparisons across time were accomplished for significant effects.

Hypothesis 1. The effect of intervention on social anxiety

An analysis of covariance (ANCOVA) on the pretest and posttest data was conducted. In the analysis, the pretreatment scores of social anxiety were entered as covariates to statistically control for the effects of pretreatment scores. The result suggested that the decrease in social anxiety in MAGT group was significantly greater than the control group, $F(1, 33) = 64.56, p \leq .001$.

A repeated-measure ANOVA model tested the changes in social anxiety symptoms (SPIN scores) over the three time points for the participants in MAGT group to be compared to the participants in the control group. As hypothesized, there were

significantly greater decreases in social anxiety symptoms in MAGT group relative to the control group, as indicated by a significant Time * group interaction, $F(1.25, 42.72) = 51.527, p \leq .001$. Paired t tests (Bonferroni corrected $\alpha = .017$) indicated that there was a significant decrease in social anxiety symptoms in the MAGT group from pretest to posttest, and pretest to 3-month follow-up (see Table 3). There were not any significant changes of social anxiety symptoms over the three time points in the control group.

Hypothesis 2. The effect of intervention on depression

The ANCOVA on pretest and posttest data indicated that the decrease in depression in MAGT group was significantly greater than the control group, $F(1, 33) = 5.99, p = .020$. In repeated-measure ANOVA model, A significant interaction effect of time by group was found for depression, $F(2, 68) = 14.39, p \leq .001$. Bonferroni adjusted paired t tests (see Table 3) showed that there was a significant decrease in depression in the MAGT group from pretest to posttest, and pretest to 3-month follow-up. The changes of depression over the three time points were not significant in the control group.

Table 1: Demographics and comorbidities across groups

	education		comorbidity	
	Bachelor`s	Master`s	depression	other anxieties

	student	student		disorders
MAGT	13 (54%)	11 (46%)	4 (16.7%)	4 (16.7%)
Waiting list	14 (58%)	10 (42%)	6 (25%)	4 (16.7%)

Table 2: The results of Levenson test and the t-test for investigating the equality of the groups in variances ad means in terms of pretest scores

scale	group	N	M	SD	Levenson test		t-test		
					F	sig	t	df	sig
SPIN	MAGT	24	36.62	5.19	.37	.848	1.257	46	.866
	Waiting list	24	36.37	5.02					
BDI-II	MAGT	24	11.33	3.29	.301	.570	-.349	46	.922
	Waiting list	24	11.29	3.11					
AAQ-II	MAGT	24	38.79	7.37	.327	.570	-.349	46	.728
	Waiting list	24	38.08	6.65					
MASS	MAGT	24	3.38	.35	.280	.599	1.257	46	.215
	Waiting list	24	3.51	.34					

Table 3: Means and Standard Deviations for MAGT (n = 17) and waiting list (n = 19) Conditions on the social anxiety (SPIN), depression (BDI-II), acceptance (AAQ-II), and mindfulness (MAAS)

Dependent variable		Pretest		Posttest		3-month follow-up	
		M	SD	M	SD	M	SD
social anxiety (SPIN)							
	MAGT	37.1	5.94	25.47	8.25	25.47	8.26
	Contro	36.3	5.46	35.89	6.05	36.10	5.91
depression (BDI-II)							
	MAGT	11.0	3.78	9.47	4.51	8.47	4.66
	Contro	11.3	3.32	11.21	3.39	11.15	3.56
acceptance (AAQ-II)							
	MAGT	38.2	7.78	45.00	9.02	45.82	10.34
	Contro	38.4	7.26	39.84	8.05	40.31	8.26
mindfulness (MAAS)							
	MAGT	3.38	.41	3.98	.49	4.04	.51
	Contro	3.54	.38	3.58	.44	3.58	.41

Note. Means within the same row with different subscripts were significantly different (p < .0167)

Hypothesis 3. The effect of intervention on acceptance
The ANCOVA on pretest and posttest data showed that the increase in acceptance in MAGT group was significantly greater than

the control group, F (1, 33) = 5.99, p =.020. In repeated-measure ANOVA model, a significant interaction effect for time by group was found for the acceptance, F(1.43, 48.93) = 12.60, p ≤

.001. Bonferroni adjusted paired t tests (see Table 3) confirmed that there was a significant improvement in acceptance in the MAGT group from pretest to posttest, and pretest to 3-month follow-up. The changes of acceptance over the three time points were not significant in the control group.

Hypothesis 4. The effect of intervention on mindfulness

The ANCOVA on pretest and posttest data indicated that the increase in mindfulness in MAGT group was significantly greater than the control group, $F(1, 33) = 38.37, p \leq 0.001$. In repeated-measure ANOVA model, a significant interaction effect of time by group was found for mindfulness, $F(1.4, 47.85) = 38.98, p \leq .001$. Bonferroni adjusted paired t tests (see **Table 3**) confirmed that there was a significant improvement in mindfulness in the MAGT group from pretest to posttest, and pretest to 3-month follow-up. The changes of acceptance over the three time points were not significant in the control group.

DISCUSSION

The present research aimed at evaluating the efficacy of a mindfulness and acceptance-based group treatment (MAGT) for SAD. The results showed a significant decrease of the social anxiety and

depression, and a significant increase of mindfulness and acceptance in the MAGT group as compared to the waiting list group. The gains were maintained till a 3-month follow-up stage. Moreover, 13 individuals among the treatment completers were no more diagnosed as having SAD in the post-treatment point. Therefore, there was a 76-percent diagnostic remission. This study is an evidence in supporting MAGT and more generally treatments with the components of mindfulness and acceptance for SAD in the research literature.

The present research results are consistent with Ossman, Wilson, Storaasli, McNeill (2006) and Dalrymple & Herbert (2007). In the form of a pilot trial, these two studies investigate the effectiveness of an acceptance and commitment-based treatment for individuals with social anxiety disorder and reported a significant improvement in social anxiety and a promotion in some aspects of life quality. These results are comparable to those in studies that use the techniques of MBCT or MBSR programs alone or along with the techniques of other treatments.

For example, Bögels *e tal* (2006) evaluated the effectiveness of a group treatment that had integrated MBCT with task concentration training. In addition,

Koszycki, Benger, Shlik, Bradwejn (2007) compared CBGT with a mindfulness-based stress reduction treatment (MBSR).

Goldin, Ramel & Gross (2009) and Goldin & Gross (2010) used MBSR too. Their research results showed that mindfulness-based programs can decrease social anxiety, depression and rumination. Moreover, Kocovski, Fleming & Rector (2009) investigated the effectiveness of a treatment program in which the ACT was enhanced by mindfulness techniques and Kocovski, Fleming, Lance et al. (2013) compared the same treatment program with cognitive behavioral treatment for SAD.

Both studies showed that the techniques of acceptance and mindfulness can decrease social anxiety, depression and rumination in people with SAD. Moreover, this research evaluated the possible change mechanisms, that is, acceptance and mindfulness. As it was hypothesized, the MAGT group also showed a significant increase in acceptance and mindfulness and this gain was maintained to the follow-up stage. The scores related to acceptance and mindfulness showed a significant correlation with the scores of social anxiety in the posttest. Change in social anxiety was also significantly correlated with

change in mindfulness and change in rumination.

The present study was not a process research and it cannot answer well the questions related to treatment mechanisms and interferences because it cannot determine whether a change in mindfulness and acceptance can result in a change in social anxiety or not. However, significant changes in the MAGT group as a result of the treatment can act as a preliminary and important evidence of their role in MAGT as a change mediator. This finding is consistent with follow studies: The study by Ossman, Wilson, Storaasli, McNeill (2006) also investigated the mediating and therapeutic role of value clarification and acceptance in the treatment of people with social phobia. They also found some evidence that symptoms improvement can be the result of the two factors of welcoming the experiencing of unhappy emotions and engaging in a social behavior that is consistent with what he/she considers valuable. In study of Koszycki, Benger, Shlik, Bradwejn (2007) participants reported a reduction in the experiential avoidance during the treatment period. In addition, change in the experiential avoidance not only correlated with the outcomes but also the initial

changes in experiential avoidance were correlated with the subsequent changes in the outcomes (Koszycki, Benger, Shlik, Bradwejn, 2007).

Koszycki, Fleming and Rector (2009) investigated the mechanisms of potential changes in their study (the effectiveness of mindfulness and acceptance-based group therapy) and concluded that acceptance can be a possible change mediator in MAGT. Goldin & Gross (2010) also found out that mindfulness exercises decreased habitual reactions to negative self-belief contents (an individual's beliefs about his/her self) and therefore result in the decrease of clinical symptoms in patients with SAD.

The inclusion of the control group is regarded a strength in this research. Most of the previous studies on mindfulness and acceptance-based treatments for SAD were open trials. Specifically, this is the second randomized control trial that investigates the efficacy of an ACT program for SAD (the first one is carried out by Kocovski, Fleming, Lance et al. (2013).

The inclusion of the waiting-list group as the control group helped to the control of some factors irrelevant to the treatment. For example, the automatic remission, temporal (historical) influences, promotion to the average and improvement in the MAGT

group's scores can be attributed to the efficacy of the treatment.

The present research had some limitations. The research sample was a college sample and this fact makes it difficult to generalize the results to other populations. Another limitation was the rather high degree of attrition. Around 30 percent of the MAGT group left the research during the treatment. Although this amount of attrition is similar to other studies on the SAD treatments (for example, Ossman, Wilson, Storaasli, McNeill, 2006), there could probably be less attrition if the patients were screened more exactly for the suitability for group intervention. It is possible that some participants, despite their initial statements of willingness for participation in the group treatment, left the group because of the lack of comfort in the share of their private experiences with the group.

Despite the fact that the treatments were administered by a single therapist and there was not the issue of the inter-therapist reliability, the therapists' adherence to the treatment manual in formal ways, that is, videotaping the sessions and their reviews, was not possible because of the limitations imposed by university regulation.. So this is considered a limitation of the present research. However, the therapist who was

trained in mindfulness and acceptance-based treatments, was supervised by the supervisor who had much experiences in the supervision of the administration of group treatments and was expert in the mindfulness and acceptance-based treatments.

Another limitation of the present research was the lack of data on the diagnostic reliability among different interviewers. Although diagnostic interviews were administered by an independent and trained psychiatrist, there would have been more exact data if two independent interviewers were used. It is necessary that the future studies use a research design that has the capability of determining factors responsible for the treatment changes. Such a design should definitely increase the number of measurement points of mediator and dependent variables (for example, the measurement of mediator and dependent variables at each session) to evaluate if the change in the treatment components occur before outcomes changes.

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