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Comparison of Attention Training and Cognitive Therapy in the Treatment of Social Phobia: A Preliminary Investigation

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Background: Prominent models of social phobia highlight the role played by attentional factors, such as self-focused attention, in the development and maintenance of social phobia. Elevated self-focused attention is associated with increases in self-rated anxiety. Treatments that aim to modify and change attentional processes, specifically self-focused attention, will have a direct effect on social phobia symptoms. Thus, Attention Training targets attentional focus. **Aim:** The present study aimed to investigate the efficacy of Attention Training in comparison to an established treatment for social phobia, Cognitive Therapy. **Method:** Participants (Intention-to-treat = 45; completers = 30) were allocated to either 6 weeks of Attention Training or Cognitive Therapy. It was hypothesized that both treatments would be effective in reducing social phobia symptoms, but that Attention Training would work primarily by reducing levels of self-focused attention. **Results:** The results found an overall effectiveness of both treatment conditions in reducing social phobia symptoms. However, Attention Training significantly improved scores on the Self-Focused Attention questionnaire and the Brief Fear of Negative Evaluation questionnaire compared to Cognitive Therapy. **Conclusion:** Attention Training seems to be a promising treatment for social phobia.

Keywords: Attention training, cognitive therapy, social phobia, social anxiety disorder.

Introduction

Social phobia is characterized by an extreme fear of being evaluated negatively by others and accompanying avoidance of social situations or endurance of such situations with dread (American Psychiatric Association, 2000). Cognitive models of social phobia (Clark and Wells, 1995; Hofmann, 2007; Rapee and Heimberg, 1997) highlight the role played by attentional factors, such as self-focused attention, in the development and maintenance of social phobia. Specifically, these models suggest that individuals with social phobia shift their attention inwards towards their negative internal representation of self and performance.

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Investigations also suggest that individuals with social phobia focus their attention towards themselves when they are confronted by an anxiety-inducing situation (Hope, Gansler and Heimberg, 1989; Stopa and Clark, 1993). Self-focused attention is defined as an enhanced awareness of self-referent information, which can detract attention away from the external environment. In social phobia, this shift in attentional processing to the internal self may elicit and exacerbate negative thoughts and feelings, and can prevent individuals from noticing external information that may provide disconfirming evidence of their fears. Preliminary research has shown that elevated self-focused attention is associated with increases in self-rated anxiety (Bogels and Lamers, 2002; Mellings and Alden, 2000; Woody, 1996; Woody and Rodriguez, 2000; Bogels, Rijsemus and de Jong, 2002). For example, Bogels and Lamers (2002) enhanced self-focused attention via imagery vignettes, and in turn also exacerbated social anxiety levels. In fact, a study using path analysis showed that self-focused attention contributed significantly to state anxiety experienced during a speech (Rapee and Abbott, 2007).Thus, it seems theoretically sound that treatments that aim to modify and change attentional processes, specifically self-focused attention, will have a direct effect on social phobia symptoms.

Attention training (AT) techniques for social phobia have been presented in case studies (Wells, 1990; Wells, White and Carter, 1997), showing that AT is effective in producing a reduction in self-reported anxiety and negative beliefs. Two participants with social phobia were treated with six sessions of AT, in which they learned to direct and shift attention to sounds with increasing distractors. Participants were required to complete the Wells' Attention Training Procedure (Wells, 2000) on a weekly basis with a therapist and independently for homework twice a day. While the study concluded that AT was beneficial in reducing negative beliefs and anxiety through a reduction in self-focused attention, the small sample size meant that the results were only indicative of the potential usefulness of AT in treating social phobia. AT's therapeutic effect has yet to be examined in controlled trials (Mobini and Grant, 2007) and in isolation from multi-component treatment packages (McEvoy and Perini, 2009).

A randomized trial comparing AT to a standard treatment, such as Cognitive Therapy (CT) is warranted. The decision to isolate thinking distortions and attentional focus separately is also relevant to testing cognitive behavioural models of social anxiety. AT targets attentional focus exclusively, whereas CT targets thinking distortions, such as perceived fear of negative evaluation. CT has been shown to be effective for the treatment of social phobia, both in its own right and in conjunction with exposure based programs (Heimberg, Salzman, Holt and Blendell, 1993; Ponniah and Hollon, 2008; Taylor, 1996). Brief CT for social phobia (6-weeks) has been trialed in the past (Wells and Papageorgiou, 2001) and found to be effective with treatment gains maintained at follow-up. Similarly, 6-weeks of AT has been shown to reduce symptoms of social phobia in previous case studies (Wells et al., 1997). Thus, the present study randomly allocated participants with social phobia to a 6-week group treatment of either AT or CT, and participants were followed up 3-months post-treatment. A no treatment control group was not included due to the unavailability of a waitlist group in the clinical research setting; however, a meta-analysis has shown that waitlist controls with social anxiety usually demonstrate a maintenance or worsening of symptoms (Taylor, 1996). Group therapy was chosen as the mode of treatment delivery as it is more time and cost effective and has been shown to be successful in treating social phobia (Heimberg and Juster, 1995; Wlazlo, Schroeder-Hartwig, Hand, Kaiser and Munchau, 1990).

This study aimed to measure the efficacy of both treatments using standard measures, including the Social Phobia Anxiety Inventory (SPAI; Turner, Beidel, Dancu and Stanley, 1989), the Brief Fear of Negative Evaluation scale (B-FNE; Leary, 1983), and the Self-Focused Attention questionnaire (SFA; Bogels, Alberts and de Jong, 1996). It was hypothesized that both groups would show a significant reduction in anxiety symptoms (as measured by the SPAI) over the course of treatment. However, it was expected that CT would be more efficacious at reducing scores on the B-FNE, in keeping with the focus of CT in impacting on negative beliefs about social evaluation and performance, whereas AT would be more efficacious at reducing scores on the SFA questionnaire in keeping with the aim of AT to directly target self-focused attention toward negative cognitions and affective experiences.

Method and materials

Participants

Participants were recruited from the University of Sydney campus via adverts placed on notice boards asking for volunteers to participate in a group treatment program for social phobia. Individuals had to be over 18 years of age, fluent in English and have a primary concern of social anxiety that met DSM-IV-TR criteria (American Psychiatric Association, 2000) in order to be eligible to participate. Both subtypes of social phobia, specific and generalized, were accepted into the study. Exclusion criteria were outlined as the presence of one or more comorbid condition that was more severe than the presenting social phobia, such as psychosis, suicidality and significant depression. Unsuitable participants were given onward referrals to relevant services. All aspects of the research were approved by and complied with the University of Sydney Human Ethics.

A flow-chart of participant recruitment and retention can be found in Figure 1. Eighty-nine people responded to the adverts, 69 of whom requested an assessment at the Psychology Clinic. Sixty-five people had an assessment scheduled, although nine failed to attend due either to time constraints or reported anxiety. Of the 56 people who did attend an assessment, 3 people were unsuitable, due to primary diagnoses of disorders other than social phobia, which were trichotillamania, stuttering and post traumatic stress disorder (PTSD). Of the 53 people who were assessed as being suitable, 48 were allocated to a group and the other 5 declined to participate; 46 of these 48 participants attended at least one group session. Participants were required to complete at least four out of the six sessions to be considered having completed the program, i.e. two-thirds of the program. Of the 46 participants who started the program, there were 30 completers. Non-completers either voluntarily withdrew from the program or were referred to individual treatment if they missed more than two sessions. Of the 30 participants who completed the 6-week program, all 30 completed the posttreatment questionnaires and behavioural speech task; 27 of the 30 participants completed the questionnaire battery at 3-month follow-up.

We conducted a post hoc power analysis based on our data to ensure the numbers after attrition were sufficient to detect the difference in the main outcome measure, the SFA. Based on the differences between pre and post means in SFA group scores (AT: 9; CT: 4) and using the common standard deviation (5.5), a sample size of 15 per group was needed to detect a minimum power of 80%. In addition, intent-to-treat analyses were also carried out.

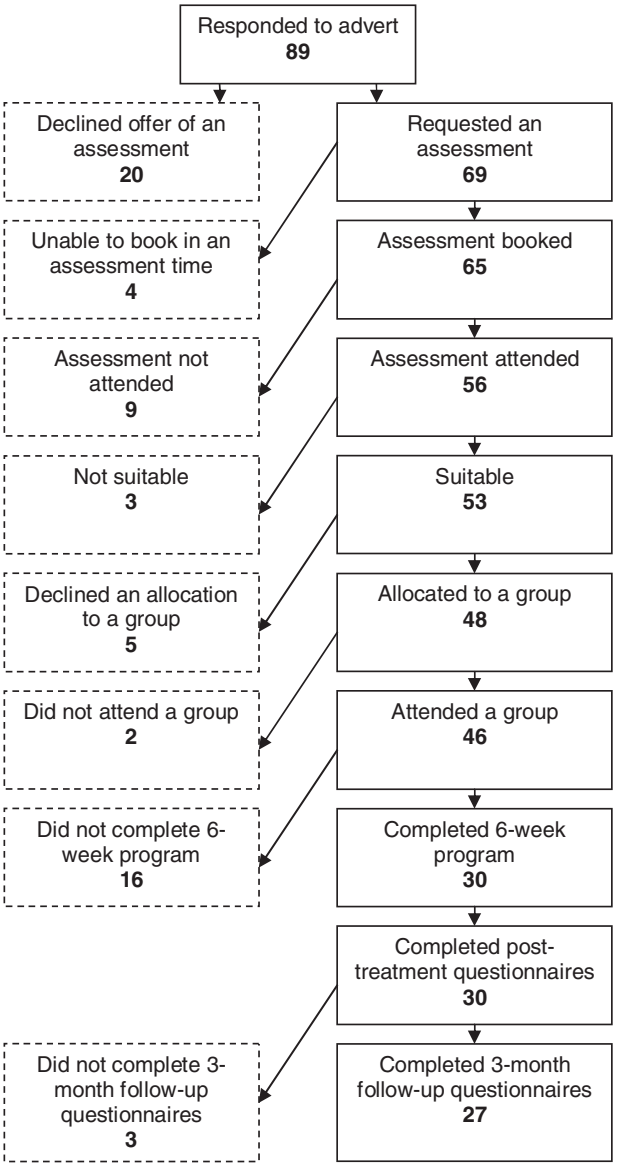

Figure 1. Flow-chart of participant recruitment and retention

Procedure

Participants who met diagnostic criteria for social phobia were randomly allocated to a treatment group, either AT or CT, following a block randomization procedure. This is a procedure whereby participants were divided into two homogenous groups; (i) an afternoon

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treatment group and (ii) an evening treatment group, before being randomly allocated to an experimental condition, either AT or CT (Schinka, Velicer and Weiner, 2003). Two treatment groups were always conducted concurrently, one in the afternoon and one in the evening. The groups were counterbalanced for the experimental condition, so that CT was conducted at the afternoon group and AT in the evening group in the first two groups conducted. The order of the experimental groups was then alternated over subsequent treatment groups. Participants selected which group time they could attend without being aware that the groups were different in content. The treatment condition for each set group time was predetermined by the researcher before participants were assessed. In total, eight groups were conducted over an 18-month period (four CT and four AT). Groups were conducted at the Psychology Clinic at the University of Sydney by two doctoral level clinical psychology students (first author and co-therapist), and supervised by the second author. The CIDI-Auto was administered by the assessing clinician to minimize incorrect diagnoses or over diagnosing. The assessing clinician was a doctoral level clinical psychology student, supervised by a senior clinical psychologist. The social anxiety symptom measures were administered to suitable participants at pretreatment, posttreatment and 3-months after treatment. Participants also completed a 3-minute impromptu speech task in front of their assessing clinician on any topic of their choice prior to the commencement of treatment. The speech task was repeated a second time after the final session of the 6-week program. Participants completed the Speech Anxiety Rating (SAR) prior to each speech task. The researcher was also the primary clinician conducting the assessment and treatment groups and was therefore not blind to treatment allocation.

Groups were conducted for 6 weeks in total, with weekly sessions lasting for 1.5–2 hours. On average, participants attended five of the six sessions. The program used for the AT group was designed by a research team from Macquarie University and the University of Sydney and was used with permission from the authors (Abbott, Gaston, Correia and Rapee, 2006). The program used for the CT group was designed by a research team from Macquarie University (Rapee, Gaston and Abbott, 2009) and was used with permission from the authors. Only the CT component of the larger CBT program was used in the present study. A description of each treatment condition is provided below. We ensured that the AT condition included no cognitive challenging and that the cognitive therapy condition included no attention training; session duration and amount of homework given were equivalent across groups.

Cognitive therapy

Participants were introduced to the cognitive model and a rationale was given for the treatment program. An exercise to help identify physical, cognitive and behavioural aspects of their own social anxiety was introduced and participants were asked to identify their goals for change. The concept of overestimating the likelihood and cost of feared negative events occurring was explained. The A-B-C cognitive model was then described, the group identified negative predictions and thought monitoring was introduced. Thought monitoring and the "downward arrow technique" were used to demonstrate ways to uncover unhelpful assumptions and core beliefs (see Leahy, 2003 for more detail). The primary therapist then introduced realistic thinking, defined as creating accurate judgements of the probability and consequences of negative predictions relating to social threat fears. The process of using realistic thinking was termed "thought challenging" and participants were taught to challenge their own negative

predictions, assumptions and beliefs by assessing relevant evidence and common thinking distortions. Group members volunteered examples of their own negative thoughts so that these could be assessed and challenged with the help of the group, including identifying more realistic and helpful thoughts. The therapist enhanced participant's awareness of safety behaviours and their function in maintaining social anxiety. Participants were asked to challenge their beliefs about what they thought would happen if they did not use their safety behaviours, although formal exposure exercises were not conducted. Finally, participants were asked to complete an exercise focusing on setting short and long-term goals and planning how they would achieve these goals using the skills learnt in the program. Participants were given homework each week based on identifying, monitoring and challenging their negative predictions, assumptions and beliefs. Relapse prevention was explained and participants were asked to devise strategies they could use to deal with potential setbacks.

Attention training

Participants were introduced to the model and a rationale was given for the treatment protocol. Participants were introduced to the graded attention and concentration training program. The roles of internal and external focus of attention were explained and participants were asked to identify their own areas of attentional weakness. The three main areas of the AT program concentrated on focusing, strengthening, and shifting attention. A rationale was given as to how changes in attention would assist in overcoming social anxiety, such as helping participants train their attention away from unhelpful thoughts and directing or re-directing their attention to the "task at hand". Participants listened to Wells' Attention Training CD (Wells, 2000), with permission of the author. After listening to the 15-minute training CD they completed an "attention training diary", which recorded levels of task focused attention, external and internal focus of attention. Participants also completed a concentrating listening task, in which they were required to focus on the content of a story read by the therapist and recorded their experience of shifting their attention back to the "task at hand". In addition, participants listened to the therapist read a story, while having music played in the background. Participants were asked to shift their attention between the two stimuli. For homework, participants were asked to practise attentional control using the Wells' training technique on CD (Wells, 2000, 2007). A body scan exercise, taken from Segal, Williams and Teadsdale (2002), was also presented to practise attention switching from negative internal thoughts and feelings. The rationale for this technique is to train clients to accept their sensations, rather than emotionally react to them, in order to short-circuit both hyper-vigilance to, and avoidance of, sensations that maintain anxiety. Participants were introduced to the idea of "symptom surfing", which is a way of accepting or "riding out" bodily sensations rather than focusing on, or fighting against, internal arousal. This technique aimed to help participants focus their attention on more task related aspects of their performance, and practise ways to disengage from unhelpful thoughts and feelings. Participants were led through a "3-minute breathing space" exercise in which they practised remaining in the moment and focused on the present. Sessions did not involve engagement in graded exposure or exposure to any social situations that might have otherwise been included in a behaviour therapy program. Homework related to the task in session was provided. As in the CT program, relapse prevention was explained and participants were asked to devise strategies they could use to deal with potential setbacks.

Self-report measures

Social Phobia Anxiety Inventory (SPAI; Turner et al., 1989). This is a 45-item questionnaire that assesses physical, cognitive and behavioural symptoms of social phobia. Each item is assessed with a 7-point Likert scale from 1 (Never) to 7 (Always). The social phobia score is obtained by subtracting 32 from the sum of the total social phobia items; the final score ranges from 0 to 192. The measure has good test- retest reliability, ($r = 0.86$, $p < .001$) (Turner et al., 1989), excellent internal consistency (alpha = 0.96 for the social phobia subscale), and strong discriminant, external and concurrent validity (Turner et al., 1989). The internal consistency of the social phobia subscale for the total sample at baseline was .98.

Depression, Anxiety and Stress Scales (DASS- 21; Lovibond and Lovibond, 1995). This is a self-report scale designed to measure symptomatology of depression, anxiety and stress, but only the depression subscale of the DASS was used in this study. The DASS has good psychometric properties, and has demonstrated good reliability for the depression scale 0.91 (Lovibond and Lovibond, 1995). The reliability and validity of the DASS has been shown in clinical and non-clinical populations (Brown, Chorpita, Kortitsch and Barlow, 1997). The internal consistency of the Depression subscale for this sample at baseline was .85.

Self Focused Attention (SFA; Bogels et al., 1996). The SFA was designed to measure the focus of self attention. The questionnaire consists of 11 items, which are rated on a Likert scale ranging from 0 (Not at all) to 4 (Totally). Five of the items address internal focus of attention, such as level of awareness of arousal and six items address external focus of attention, such as awareness of performance and interpersonal behaviour. The measure has a two-factor structure, the first loading on arousal-focused attention, and the second on attention focused on interpersonal behaviour. The measure has high internal consistency for the first factor (alpha = .86), the second factor (alpha = .78) and the scale's total score (alpha = .88) (Bogels et al., 1996). The internal consistency of the measure for this sample at baseline was .82.

Brief Fear of Negative Evaluation Scale (B-FNE-S; Leary, 1983). This is a 12-item self-report measure of people's concern, apprehension and worry about the way others negatively evaluate them. Only the straightforward questions (B-FNE-S) were added to represent the final score since it has been suggested recently that the reverse scores of the B-FNE do not add much information (Rodebaugh et al., 2004; Weeks et al., 2005). Ratings are made on a 5-point Likert scale. The questionnaire is highly correlated with the original longer version (FNE, $r = 0.96$), has high internal consistency (alpha = 0.90- 0.91) and test retest reliability ($r = 0.75$) (Leary, 1983; Miller, 1995). Recent studies with a clinically anxious sample have found that the B-FNE has excellent inter-item reliability (alpha = .97) and 2-week test re-test reliability ($r = .94$; Collins, Westra, Dozois and Stewart, 2005).

Speech task measure

Speech Anxiety Rating (SAR): The SAR is a 10-item measure that assesses the degree of anxiety respondents are feeling about an upcoming speech task (Rapee and Abbott, 2007). Each item is rated on a Likert scale ranging from 0 (Not at all) to 4 (Extremely). The measure assesses nervousness and worry about completing a speech task ("I feel anxious about doing the speech"), avoidance ("I am considering not doing the speech") and self-consciousness

("I am hesitant at the thought of others seeing my speech"). The measure has high internal consistency (.96) (Rapee and Abbott, 2007). The internal consistency for the current sample was .86.

Diagnostic interview

The present study used the Composite International Diagnostic Interview (Auto) [CIDI-Auto], which was conducted by the first author and supervised by the second author in order to diagnose individuals with social phobia. The CIDI-Auto is a computerized version of the Composite International Diagnostic Interview (CIDI) Core Version 2.1 (WHO, 1997). The CIDI is a standardized interview that can be used to diagnose mental disorders according to the criteria set out in the 10th revision of the *International Classification of Diseases (ICD-10)* (WHO, 1993) and the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* (APA, 2000). The CIDI-Auto has acceptable to excellent test-retest reliability, and adequate validity for the self-administered version (Andrews and Peters, 1998). The CIDI-Auto also has high agreement with the standard paper and pencil version (Peters, Clark and Carroll, 1998).

Results

Participants

Completer sample. A total of 30 participants completed treatment, 16 in the CT condition and 14 in the AT condition. Overall, 57% of participants were female. There were no significant differences between the two conditions in terms of gender ($\chi^{(1, N=30)} = 2.3$, $p > .05$). The mean age of the total sample was 28 years ($SD = 7.0$) and there was no significant difference in age between conditions ($t_{29} = 0.5$, $p > .05$).

Most participants were single (87%) and this was consistent across conditions ($\chi^{(1, N=30)} = 0.02$, $p > .05$). A majority of the sample had completed either high school (47%) or an undergraduate degree or diploma (43%). Half of the sample were students (50%), while the rest were employed either part-time (27%) or full-time (23%). There were no significant differences between groups for employment status, ($\chi^{(2, N=30)} = 0.58$, $p > .05$), nor were there any significant differences across conditions for income status ($\chi^{(2, N=30)} = 2.26$, $p > .05$). Fifty-seven percent of the sample had received prior psychological assistance from either a counselor, psychologist or psychiatrist and this was consistent across conditions ($\chi^{(1, N=30)} = 0.48$, $p > .05$). Medication usage was even across conditions ($\chi^{(1, N=30)} = 1.2$, $p > .05$). The majority of the sample were not taking psychiatric medication; however, 23% reported taking anti-depressant, anxiolytics or non-prescription medication (such as St Johns Wort) for mood management.

The CIDI-Auto (WHO, 1997) was used to assess and diagnose participants. Five participants were diagnosed with specific social phobia, and 25 were diagnosed with generalized social phobia. Twenty-two out of 30 participants met criteria for a comorbid condition, and of these three participants had a diagnosis of two or more comorbid conditions. The most common comorbid condition was another anxiety disorder, being present in 14 participants: Generalized Anxiety Disorder (57%), Panic Disorder (22%), Specific Phobia (14%) and Obsessive Compulsive Disorder (7%). Ten participants met diagnostic criteria for

a comorbid unipolar depressive disorder. There were no differences between groups in their diagnosis (specific vs generalized social phobia) or levels of comorbidity.

Non-completer sample. In addition to the 30 participants who completed the study, a further 16 participants began treatment but did not complete the 6-week program. Data were available for 15 of these 16 participants. Of those who did not complete treatment, 5 were in the CT condition, and 10 were in the AT condition. There were no significant differences between treatment conditions in the rate of attrition ($\chi^{(1, N=45)} = 1.61$, $p > .05$).

The non-completer sample was 80% female, and did not differ from the completer sample in terms of gender ratios ($\chi^{(1, N=45)} = 2.3$, $p > .05$). Non-completers were significantly younger than completers ($p < 0.05$). Non-completers did not differ from completers in marital status (73% of sample was single) ($\chi^{(1, N=45)} = 1.2$, $p > .05$), employment status ($\chi^{(3, N=45)} = 4.5$, $p > .05$), income ($\chi^{(2, N=45)} = 2.9$, $p > .05$) prior help seeking ($\chi^{(1, N=45)} = 1.1$, $p > .05$) or medication usage ($\chi^{(1, N=45)} = 3.7$, $p > .05$). Of the 15 non-completers, 6 were diagnosed with specific social phobia and 9 with generalized social phobia. Six participants in the non-completer sample had a comorbid condition, three had another anxiety disorder and three had unipolar depressive disorder.

Pretreatment measures

Completer sample. A series of *t*-tests were used to compare the AT and CT groups on all pretreatment measures, to ensure there were no differences at baseline. These revealed that there were no significant differences between the treatment groups on any pretreatment measures. Levine's test of equality of variances was not significant ($p > .05$); therefore equal variances were assumed. Pretreatment SPAI scores in this study were higher (by around 17 points) than in previous studies (Stangier, Heidenreich, Peitz, Lauterbach and Clark, 2003), e.g. a mean of 95 ($SD = 21$) in the present study compared with a mean of 78 ($SD = 17$) in Stangier et al.'s (2003) study.

Non-completer sample. A series of *t*-tests showed that there were no significant differences between completers and non-completers on any pretreatment measures. Levine's test of equality of variances was not significant ($p > .05$); therefore equal variances were assumed.

Pre and posttreatment comparisons

Completer sample. Mean symptom scores at pre and posttreatment are shown in Table 1 for the two groups. Comparisons of these scores, as a function of time and treatment group, were made using a two-way repeated measures analysis of variance. On the symptom measures, scores on the Social Phobia Anxiety Inventory (SPAI) significantly decreased from pre to posttreatment (F (1, 28) = 31.51, $p = .00$); however, there was no change in depression scores as measured by the DASS-Depression subscale from pre to posttreatment (F (1, 28) = .93, $p = .34$). There were no significant interaction effects for the SPAI and on the DASS-Depression scores.

Results for the SFA questionnaire showed a significant reduction from pre to posttreatment (F (1, 28) = 35.2, $p = .00$). Scores also significantly decreased from pre to posttreatment on

Table 1. Means, standard deviations and *p*-values for pretreatment to posttreatment change on symptom measures for the two groups: completer sample ($N = 30$)

Measure $n = 30$	Group	Pre	Post	$p^{\#}$	Effect size *d*
SPAI	AT	92.93 (25.9)	74.12 (27.4)	.62	.71
	CT	98.12 (29.01)	74.21 (26.8)		.89
DASS- D	AT	15.71 (6.55)	15.14 (9.63)	.42	.07
	CT	22.56 (22.3)	17.0 (10.14)		.32
SFA	AT	26.1 (7.69)	17.3 (7.5)	.04*	1.16*
	CT	23.13 (6.94)	19.4 (8.7)		.47*
B-FNE-S	AT	31.92 (7.67)	26.50 (7.17)	.02*	.72*
	CT	29.47 (8.73)	27.87 (8.73)		.18*

p-value for the difference between groups on symptom scores from pre to posttreatment

* Statistically significant difference between groups, with AT showing greater reduction than CT on SFA and B-FNE-S

Notes: SPAI: Social Phobia and Anxiety Inventory; DASS-D: Depression, Anxiety, Stress Scale – Depression subscale; SFA: Self-Focused Attention; B-FNE-S: Brief Fear of Negative Evaluation – straightforward items; AT: Attention Training; CT: Cognitive Therapy

the B-FNE (F (1, 28) = 18.55, $p = .00$). Significant time by group interaction effects were found for the SFA and B-FNE. Scores were significantly lower pre to posttreatment in the AT condition compared to the CT condition on the SFA (F (1, 28) = 4.27, $p = .04$) and B-FNE measures (F (1, 28) = 5.78, $p = .02$).

Compared to a previous study that assessed group CT for social phobia, comprised of 15 two-hour sessions instead of 6 two-hour sessions (Stangier et al., 2003), the present study showed a 19 point reduction in SPAI scores compared to a 10 point reduction by Stangier et al. (2003).

Intention to treat

An Intention to Treat (ITT) analysis was conducted comparing pre and posttreatment measures for the total sample ($N = 45$). Inputting group mean was used as estimates of posttreatment and follow-up scores for all missing data. A two-way repeated measures analysis of variance (ANOVA) was used to compare the entire data set on all the questionnaires from the battery, pre to post to follow-up. Data for the ITT analyses can be found in Table 2.

The following questionnaires showed a significant improvement over time across both treatment conditions: Social Phobia Anxiety Inventory (F (1, 43) = 25.13, $p = .00$; Cohen's $d = .90$); SFA (F (1, 43) = 14.66, $p = .00$; Cohen's $d = .25$); Brief Fear of Negative Evaluation (F (1, 42) = 12.88, $p = .00$; Cohen's $d = .24$). There was an interaction effect, with a significant reduction on SFA scores in the AT group at posttreatment compared to the CT group (F (1,43) = 4.42, $p = .041$). No significant interaction effect was found for B-FNE scores (F (1,42) = 2.18, $p = .15$).

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Table 2. Mean symptom scores and standard deviations at pre, post and 3-month follow-up for the two groups: Intention-to-treat analyses ($N = 45$)

Measure $N = 45$	Group	Pre	Post	3-month
SPAI	AT	88.9 (35.1)	77.9 (35.5)	53.08 (23.4)
	CT	97.9 (25.7)	79.6 (26.3)	64.53 (23.1)
DASS-D	AT	16.5 (8.1)	16.2 (9.8)	9.67 (6.6)
	CT	20.4 (20.1)	16.2 (9.7)	14.53 (10.3)
SFA	AT	25.5 (7.9)	17.4 (5.3)	13.8 (6.3)
	CT	22.9 (8.5)	19.5 (7.4)	16.4 (7.4)
B-FNE-S	AT	31.3 (6.7)	28.1 (6.6)	25.3 (4.5)
	CT	30.2 (7.8)	29.1 (7.9)	27.3 (4.6)

Notes: SFA: Self-Focused Attention; B-FNE-S: Brief Fear of Negative Evaluation – straightforward items; AT: Attention Training; CT: Cognitive Therapy

Table 3. Means, standard deviations and p-values for posttreatment to 3-month follow-up change on symptom measures for the two groups: completer sample ($N = 27$)

Measure	Condition	Posttreatment	3-month follow-up	$p^{\#}$	Effect size d
SPAI	AT	71.75 (27.5)	53.08 (23.4)	.25	.73
	CT	74.47 (28.3)	64.53 (23.1)		.38
DASS- D	AT	13.67 (9.4)	9.67 (6.6)	.67	.49
	CT	17.07 (10.5)	14.53 (10.3)		.25
SFA	AT	17.25 (7.5)	13.8 (9.1)	.77	.42
	CT	19.4 (8.7)	16.6 (8.8)		.32
B-FNE-S	AT	26.50 (7.2)	23.67 (7.0)	.77	.39
	CT	27.87 (8.7)	25.80 (5.3)		.29

$^{\#}$ p-value for the difference between groups on symptom scores from posttreatment to 3-month follow-up

Notes: SPAI: Social Phobia and Anxiety Inventory; DASS-D: Depression, Anxiety, Stress Scale – Depression subscale; SFA: Self-Focused Attention; B-FNE-S: Brief Fear of Negative Evaluation – straightforward items; AT: Attention Training; CT: Cognitive Therapy

Posttreatment and 3-month follow-up comparisons

Completer sample. Twenty-seven of the 30 completers returned their follow-up questionnaires. Table 3 reports the mean scores on the questionnaires in the assessment battery for posttreatment and 3-month follow-up, in both treatment groups, and the results of each two-way repeated measures ANOVA.

On the symptoms measures, The Social Phobia Anxiety Inventory (SPAI) showed a continued significant decrease in scores from posttreatment to 3-month follow-up (F (1, 25) = 22.81, $p = .00$). The DASS- D did show significant improvement in the posttreatment to 3-month follow-up period (F (1, 25) = 4.85, $p = .04$).

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Table 4. Means and standard deviations for posttreatment to 3-month follow-up comparisons of symptom scores for groups who received either some ($n = 7$) or no ($n = 20$) additional treatment during follow-up

Measure	Additional treatment	Posttreatment	3-month follow-up	*p*
SPAI	Yes	84.0 (24.5)	70.7 (24.7)	.92
	No	69.5 (28.1)	55.5 (22.4)	
DASS- D	Yes	20.9 (9.4)	15.4 (11.6)	.37
	No	13.7 (10)	11.3 (7.9)	
SFA	Yes	19.28 (6.3)	14.7 (7.5)	.46
	No	18.15 (8.8)	15.6 (9.5)	
B-FNE	Yes	28.7 (9.5)	25.6 (5.5)	.63
	No	26.8 (7.5)	24.6 (6.4)	

* $p < .05$ for interaction of time by group effect comparing posttreatment and 3-month follow-up scores for the two groups

Notes: SPAI: Social Phobia and Anxiety Inventory; DASS-D: Depression, Anxiety, Stress Scale – Depression subscale; SFA: Self-Focused Attention; B-FNE-S: Brief Fear of Negative Evaluation – straightforward items; AT: Attention Training; CT: Cognitive Therapy.

The results showed a significant decrease in scores on the Self-Focused Attention (SFA) questionnaire ($F\,(1, 25) = 7.39$, $p = .01$), and the Brief Fear of Negative Evaluation (B- FNE) ($F\,(1, 25) = 7.49$, $p = .01$) at 3-month follow-up. No significant interaction effects were found for the posttreatment to 3-month follow-up period (all p's $> .05$).

Compared to a previous study assessing group CT for social phobia by Stangier et al. (2003), we found a similar reduction in SPAI scores at 3-month follow-up compared to Stangier et al.'s (2003) 6-month follow-up results ($M = 65$, $SD = 23$ present study versus $M = 63$, $SD = 17$ in Stangier et al. (2003)).

In the posttreatment period, seven participants reported receiving additional psychological treatment. The means and standard deviations for the sample that received additional treatment and the sample that did not are shown in Table 4. There was potential for this extra treatment to confound the data collected at 3-month follow-up, in which those who received extra treatment may show greater improvement in scores due to the additional treatment received. Two–way ANOVAs were conducted comparing those who had received additional treatment to those who had not, on all the questionnaires in the assessment battery. Analyses were conducted as a function of time by group. The results are summarized in Table 4 and show that there were no significant interaction effects. The participants who received extra treatment in the posttreatment period did not score significantly higher or lower on the assessment measures, posttreatment to 3-month follow-up, compared to those who did not receive additional treatment during this period. That is, all participants improved consistently and receiving extra treatment did not affect the rate of improvement.

Intention to treat

An ITT analysis was conducted on the posttreatment to 3-month follow-up data using the entire completer and non-completer samples combined ($N = 45$). Inputting group mean was

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used as estimates of posttreatment and follow-up scores for all missing data. A two-way repeated measures analysis of variance (ANOVA) was used to compare scores as a function of time, and group by time. The following measures showed a significant effect of time across all participants with a decrease in scores from posttreatment to 3-month follow-up: SPAI (F (1, 43) = 15.31, p = .00, Cohen's d = .26); DASS- Depression subscale (F (1, 43) = 4.39, p = .04, Cohen's d = .04); B- FNE (F (1, 43) = 6.72, p = .01, Cohen's d = .14). There was a stronger reduction on SFA scores in the AT group at follow-up (F (1,43) = 4.72, p = .04) compared to the CT group. There was also a trend for the B-FNE scores in the AT group at follow-up to be lower than the CT group (F (1,42) = 3.43, p = .07).

Speech task

Using a two-way analysis of variance (ANOVA) comparisons were made between pretreatment (AT: M = 22.1 (SD = 5.7); CT: M = 18.8 (SD = 8.5)) and posttreatment scores (AT: M = 15.3 (SD = 7.9); CT: M = 12.6 (SD = 6.8)). Analyses were conducted between groups and as a function of time. Results from the SAR show a significant reduction in self-reported pre-speech anxiety over time (F (1, 28) = 25.92, p = .00; Cohen's d = .48). No time by group interaction effects were found.

Clinical significance and reliable change index

Following Jacobson and Truax (1991), we examined whether changes pre to posttreatment were clinically significant for each group for the SPAI as our primary outcome measure. For example, the mean normative data for the SPAI on 288 functioning healthy participants (community and undergraduate sample) has been shown to be 78.49 (SD = 26.43) according to Osman et al. (1996). Thus the score of clinical significance for each group is:

$$c(AT) = \frac{s_0M_1 + s_1M_0}{s_0 + s_1} = \frac{26.43(93) + 27(78.49)}{26.43 + 27} = \frac{2457.99 + 2040.74}{53.43} = 84.2$$

$$c(CT) = \frac{s_0M_1 + s_1M_0}{s_0 + s_1} = \frac{26.43(98) + 29(78.49)}{26.43 + 29} = \frac{2590 + 2276.21}{55.43} = 87.8$$

In theory, anyone who has a posttreatment SPAI score under 84.2 for AT and 87.8 for CT would have found treatment to be effective. To ensure what percentage of people benefited from the treatment, the reliable change index (RCI) for SPAI scores pre to posttreatment per subject was computed:

$$RCI = \frac{(\text{SPAI score Pre} - \text{SPAI score Post})}{\text{Standard error of difference}}$$

Results found that 56.2% of participants in the CT and 50% of participants in the AT showed actual improvement on symptoms with an RCI greater than 1.96; 37.5% in the CT and 42.9% in AT had a small improvement in symptoms but did not recover and treatment

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had not effect on 6.3% of participants in CT and 7.1% participants in AT. There were no differences between groups pre to post in RCI scores ($t_{28} = .69$, $p = .49$).

Similar RCI calculations were performed for pretreatment to follow-up for each participant. Results found that 73.3% of participants in the CT and 75% of participants in the AT showed actual improvement on symptoms with an RCI greater than 1.96; 20% in the CT and 16.7% in AT had a small improvement in symptoms but did not recover and treatment had not effect on 6.7% of participants in CT and 8.3% participants in AT. There were no differences between groups pre to follow-up in RCI scores ($t_{25} = .46$, $p = .65$).

Discussion

Although preliminary, this is the first study to evaluate the efficacy of AT in reducing symptoms of social phobia relative to CT. The Social Phobia Anxiety Inventory (SPAI) showed significant changes from pre to posttreatment for both treatment groups and the degree of change in SPAI scores was similar between groups. In contrast, the social anxiety of waitlist controls has been shown, on average, to get worse or stay the same (Taylor, 1996). This amelioration of symptoms continued after the posttreatment period, with both treatment groups at 3-month follow-up showing continued significant improvement in symptoms scores. These results indicate that AT is equally effective as CT in treating the symptoms of social phobia over a relatively brief six-session group intervention. These results are consistent with previous studies showing that CT is effective in reducing scores on anxiety symptom measures (Taylor et al., 1997; Stangier et al., 2003) and that AT is effective in reducing levels of self-reported anxiety (Wells et al., 1997). In fact, the effects at follow-up of the 6-week group CT in this study were comparable to those of a 15-week group CT (Stangier et al., 2003). In addition, the symptom changes pre to post and pre to follow-up, as measured by the SPAI, were clinically significant in both groups.

Both treatment groups showed significant improvements from pre to posttreatment on the Self-Focused Attention (SFA), which measured negative attentional focus. However, AT had a greater effect in reducing SFA than did CT at posttreatment; these results were replicated in the ITT analysis. The results from posttreatment to 3-month follow-up show a continued improvement or maintenance of change in the SFA for both treatment groups. This indicates that the effect AT and CT have on changes to attentional processes is not diminished over time. However, only the ITT analysis showed a significantly greater reduction on SFA scores in the AT group at follow-up compared to the CT group.

Similarly, a significant reduction in scores from pre to posttreatment was observed for both treatment groups on the Brief Fear of Negative Evaluation (B- FNE). The posttreatment and 3-month follow-up data showed a significant improvement in scores on the B-FNE for both groups. All of these results were replicated in the ITT analysis. Importantly, AT was found to reduce B-FNE scores more than CT between pre to posttreatment; however this difference disappeared at follow-up. This finding was unexpected as challenging (and changing) unrealistic cognitions is the primary focus of CT (Clark et al., 2003). It is therefore possible that bypassing the appraisal of thoughts and paying less attention to self-focused symptoms is an effective way of creating cognitive shift. AT may also impact metacognitive beliefs about internal symptoms. However, it is also possible that CT requires more sessions to achieve its full benefit relative to AT. The significant interaction effects found in the completer sample for the B-FNE were not replicated in the ITT.

The Depression subscale of the DASS showed no change in symptom severity from pre to posttreatment, but did show a significant improvement from posttreatment to 3-month follow-up. The results for the 3-month follow-up data remained significant in the ITT analysis. The decrease in scores from posttreatment to 3-month follow-up may reflect the improvement in anxiety symptoms, which in turn assisted in alleviating some (perhaps secondary) depression symptoms. Due to the high comorbidity of the two disorders (Kessler, Nelson, McGonagle, Swartz and Blazer, 1996), this finding is consistent with the possibility of generalization of treatment effects.

This study also examined whether the significant statistical change of SPAI scores for both AT and CT were also reliable measures of clinical significance. Following Jacobson and Truax (1991), changes pre to posttreatment were shown to be clinically significant, with 63.3% of participants showing actual improvement in symptoms, 26.4% had a small improvement in symptoms but did not recover, and 9.9% of participants showed no change in symptoms after treatment. Similarly, calculations were performed for pretreatment to follow-up for each participant, showing that 81.5% of participants had recovered, 9.9% had a small improvement in symptoms, and 6.6% remained the same. There were no differences between groups on measures of clinical change. This is important to note as 6 weeks is a very short, yet effective, treatment protocol for both AT and CT.

One of the strengths of this study was the intention to treat (ITT) analyses. It has been suggested that the effectiveness of treatments tested in randomized trials can be overestimated if only the less severe participants complete the trial and data analyses are based solely on this sample (Hollis and Campbell, 1999). Although, there is some evidence to suggest that people with more severe social phobia may be more committed or motivated to stay in therapy (Rapee, Abbott, Baillie and Gaston, 2007). The non completer sample in this study was found to be no different to the completer sample in terms of severity of symptoms, marital status, educational attainment, levels of comorbidity or pretreatment scores; however, non-completers were more likely to be younger. This suggests that the non-completer sample were not more severe or chronic than the completer sample, but potentially less ready or able to engage in therapy.

The findings from this study are promising for the future of AT in the treatment of social phobia, but there are limitations that need to be considered when reviewing the results. Due to resource limitations and the nature of the setting, it was not possible to incorporate a waitlist control group into the study design. Furthermore, assessment of treatment fidelity and diagnostic reliability should be assessed by blind raters in future studies. The reliance on self-report is also a limitation, although a behavioural speech task was also included. In addition, the study was comprised of a small sample size. Despite this, significant results between groups were still detected on several measures. However, the effect sizes reported for these interactions are considered small (Valentine and Cooper, 2003), but this is not unusual for a study that compares two active treatments with a relatively short intervention (Kazis, Anderson and Meenan, 1989). In the posttreatment to 3-month follow-up phase, monitoring the level of continued skills practice would have given insight into the sustainability of the treatment effects. Homework compliance was not monitored in this study, yet the role of participation motivation has been shown to be an important factor in the effectiveness of treatment (Rapee et al., 2007).

There are limitations in the design of this study that should be addressed in future studies. Specifically, it is possible that more sessions of CT are necessary to show its full benefits. This

argument potentially also applies to AT; thus future research should aim to expand treatment sessions in future comparisons of AT and CT. It would also be beneficial for future research to replicate Wells' AT findings by comparing AT to a waitlist control condition. Regarding the measures used in this study, the B-FNE is not a specific measure of the cognitive content of social anxiety fears. Thus, future research could also aim to include more specific measures of threat appraisal and negative self-beliefs. The version of the SAR employed measured anticipatory anxiety about an upcoming speech rather than anxiety experienced during a speech; including measures of performance appraisal and anxiety experienced during a speech would strengthen future studies.

In summary, the present study contributes to the growing body of evidence that supports the usefulness and efficacy of AT in treating social phobia and consistent with the key role hypothesized in current models. The results from this study also indicate the independent efficacy of AT in treating social phobia, which may have important implications for the treatment of people who do not respond to standard cognitive and behavioural interventions. The impact of AT in conjunction with other attention-based techniques, such as attention modification training, is an area yet to be investigated that may further enhance outcomes in treating social phobia.

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