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Dissemination

Cognitive-Behavioral Therapy for Anxiety: Is Dissemination Working?

Stacy R. Freiheit and Christopher Vye, *University of Saint Thomas*, and Rebecca Swan and Mary Cady, *Anxiety Treatment Resources, Bloomington, Minnesota*

Nearly a decade ago, the APA Division 12 (Clinical Psychology) Task Force on Promotion and Dissemination of Psychological Procedures (1995; Chambless et al., 1996) called for practitioners to use empirically supported treatments (ESTs), yet little is known about its current effect on clinical practice. At the time of the Task Force publication, ESTs were infrequently employed outside of research centers or specialty clinics; thus, dissemination of ESTs was identified as "Behavior Therapy's Next Challenge" (Persons, 1997, p. 465). It was not clear why initial attempts at dissemination failed to greatly influence community clinical practice (Mussell et al., 2000; Mylan et al., 1996). One of the perceived barriers to dissemination of ESTs had been the relative lack of research conducted outside of highly controlled research settings (Chambless & Ollendick, 2001). Insufficient training opportunities and incongruence between practitioners' theoretical orientation and cognitive-behavioral ESTs may also have impeded dissemination efforts (Persons, 1997). In addition, many ESTs are manual-based and psychotherapy manuals have met with some criticism (Carroll & Nuro, 2002). Because very few studies have examined dissemination (Persons 1995; Rosenfield, 2000), it may be beneficial to begin to examine the extent to which recent dissemination efforts have affected clinician practices and how practitioners learn about empirically supported therapies.

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Anxiety disorders are among the most
prevalent classes of psychological disorders
(Dew, Bromet, & Switzer, 2000) and vari-
ous cognitive-behavioral ESTs have been
identified for its treatment (Chambless &
Ollendick, 2001). As an example, treat-
ment-outcome research has supported cog-
nitive-behavioral treatments for OCD,
panic disorder, and social anxiety, and the
empirical results supporting these treat-
ments are among the most robust in the
psychotherapy literature (Barlow & Leh-
man, 1996). In addition, it is the perception
of the authors that ESTs for these anxiety
disorders have been heavily disseminated
through conferences and workshops,
through various publications marketed to
mental health professionals, and in the form
of various texts and manuals.

Recent research has indicated that many
ESTs for anxiety disorders have been sup-
ported in both efficacy (randomized con-
trolled clinical trials) and effectiveness
studies (application of ESTs in community
clinical settings). For instance, exposure and
response prevention has been well-sup-
ported as an effective intervention for OCD
in controlled research designs (DeRubeis &
Crits-Christoph, 1998) and among com-
munity clinics (Franklin, Abramowitz,
Kozak, Levitt, & Foa, 2000). Likewise, cog-
nitive-behavioral interventions for panic
disorder and social anxiety have resulted in
improved outcomes for clients who partici-
pated in controlled clinical trials
(Chambless & Ollendick, 2001) and com-
munity-based clinics (Garcia-Palacios et al.,
2002; Herbert, Rheingold, & Goldstein,
2002; Wade, Treat, & Stuart, 1998). The ef-
fectiveness studies suggest that ESTs can be
exported from the research clinic to the
community setting with similarly successful
results, thus addressing one of the early crit-
icisms of dissemination.

Although recent research has indicated
that ESTs for OCD, panic disorder, and so-

cial anxiety are effective in community clin-
ical settings, it is not clear whether commu-
nity-based psychologists have responded by
using ESTs in their practice. This study is an
initial attempt to examine how dissemina-
tion of ESTs for OCD, panic disorder, and
social anxiety has affected clinical practice.
To address this issue, we assessed four main
areas. First, how often are psychologists
using ESTs versus other interventions when
treating clients with OCD, panic disorder,
and social anxiety? Second, what factors in-
fluence clinicians' choices to employ or not
employ cognitive-behavioral therapies? Third,
given the Task Force (1995) recom-
mendations that ESTs be considered in the
decision-making process for continuing ed-
ucation credits and accreditation of gradu-
ate programs and internships, how are
psychologists trained to provide ESTs? Finally,
because many ESTs for anxiety disor-
ders are described in treatment manuals,
and attitudes about manuals tend to be
mixed (Addis & Krasnow, 2000), we also in-
quired about treatment manual utilization.

Method

Measure

The 14-item survey, "Treatment of
Anxiety Disorders," inquired about partici-
pants' demographic/practice information
and then assessed their utilization of ESTs
versus other interventions, rationale for
using or not using ESTs, use of treatment
manuals, and type of training for ESTs.
Although we were interested in psycholo-
gists' use of and perceptions about ESTs, to
minimize potential bias we omitted the
terms *empirically supported therapy* and *EST*
from the survey.

In the intervention utilization section,
respondents were asked to rate on a 4-point
scale (1 = *never/rarely*, 2 = *occasionally*, 3 =
sometimes, 4 = *frequently*) how often they
used various interventions when treating
individuals with OCD, panic disorder, and

instructions for authors

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social anxiety. Intervention choices for all three anxiety disorders consisted of ESTs based on the Task Force recommendations (1995) and recent review articles of ESTs (e.g., exposure and response prevention for OCD; cognitive restructuring and exposure-based therapy for panic; and cognitive restructuring, exposure, and group psychotherapy for social anxiety; Chambless & Ollendick, 2001; DeRubeis & Crits-Christoph, 1998). Because we were interested in the extent to which various specific exposure strategies were used, as they appear to represent the backbone of empirically supported treatments for these anxiety disorders, we included therapist-assisted in vivo exposure, client self-directed in vivo exposure, and imaginal exposure as response choices. In part to make the purpose of the survey less transparent, we also included strategies often associated with cognitive-behavioral therapy (CBT), but not central to the treatment (e.g., relaxation training and bibliotherapy) or not a part of contemporary cognitive-behavioral treatments for these anxiety disorders (e.g., systematic desensitization). In addition, interventions currently heavily marketed to the local therapeutic community, such as EMDR, energy therapy (i.e., thought-field therapy), meditation, and hypnosis, were included (see Table 1 for the complete list of interventions).

After completing the intervention section, participants were asked if they used CBT interventions. Depending on their answer, they were asked to choose the top two reasons why they did or did not use CBT for anxiety.

The last two questions of the survey assessed utilization of treatment manuals and training experiences. Respondents were asked to indicate whether they used treatment manuals and to check which ones they used. Finally, participants were asked if they had received training. If they had received training, they were asked to indicate how they had been trained in cognitive-behavioral anxiety interventions (no training, clinical supervision with an experienced professional, professional experience or graduate training in an anxiety clinic, or in a professional workshop or conference).

Participants and Procedure

The two-page survey, cover letter, and a pre-addressed, postage-paid return envelope were sent to 500 psychologists randomly selected from Minnesota's Board of Psychology listing. To obtain a homogeneous sample of practitioners with similar

levels of training, only licensed, doctoral-level psychologists were surveyed. Two weeks after the initial mailing, a reminder postcard was sent to all participants encouraging them to complete and return the survey. Consent was inferred if the participant returned the survey. Out of the 444 surveys that were successfully mailed (i.e., excluding the 56 undelivered due to expired addresses), 189 were returned, yielding a 43% response rate.

The average age of the respondents was 51.7 years ($SD = 9.7$), more women (57%) than men (43%) were represented in the

sample, and the majority of participants were white (with 2% African American and 1% Native American). Participants had been practicing psychology for an average of 16.8 years ($SD = 8.7$), with a range from less than 1 year to over 30 years of clinical experience. Many were employed in private practice settings (42%), while fewer worked in medical facilities (21%) or mental health agencies (15%). The remaining 12% worked in other capacities such as forensic assessment, consulting, and academia.

Because the focus of the current study was to assess familiarity with ESTs for anxi-

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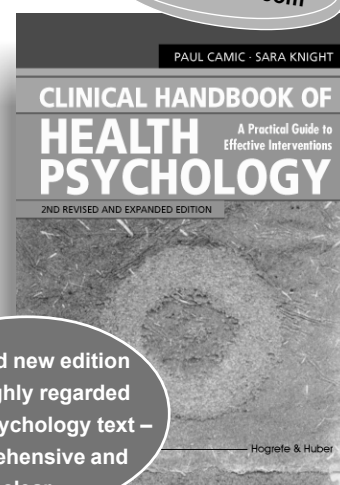
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TABLE 1
Percentage of Psychologists Who Use Various Interventions to Treat Anxiety Disorders

Intervention	Obsessive Compulsive Disorder (<i>n</i> = 69)				Panic Disorder (<i>n</i> = 70)				Social Anxiety Disorder (<i>n</i> = 72)			
	Frequently	Sometimes	Occasionally	Never/rarely	Frequently	Sometimes	Occasionally	Never/rarely	Frequently	Sometimes	Occasionally	Never/rarely
Exposure and response prevention	38	24	12	26	16	24	16	44	20	14	18	48
Interoceptive exposure	3	10	5	82	12	10	2	76	5	6	6	82
Imaginal exposure	23	32	24	21	32	33	14	21	28	34	25	13
Self-directed in vivo exposure	33	25	16	25	36	21	15	28	31	27	20	23
Therapist-directed in vivo exposure	18	21	9	52	15	12	14	58	7	15	25	53
Cognitive restructuring	67	18	7	7	71	19	4	6	69	19	6	6
Breathing retraining	33	18	24	25	70	10	15	4	47	16	19	18
Meditation	16	13	32	39	24	24	21	32	14	28	22	37
Relaxation training	41	25	20	14	71	14	10	4	59	18	15	7
Client self-hypnosis	11	15	15	59	21	14	14	52	14	19	23	44
Therapist-guided hypnosis	11	14	18	58	17	12	12	59	13	14	22	51
Systematic desensitization	25	12	22	40	25	16	28	30	17	25	25	32
Anxiety specific group	2	9	6	83	3	8	6	83	1	7	7	84
Bibliotherapy	37	27	22	13	42	14	21	21	32	21	34	13
EMDR	3	6	8	83	8	5	8	80	5	5	8	83
Energy therapy	3	3	2	92	3	5	2	90	2	6	2	91
Other	46	15	15	23	50	25	8	17	45	36	9	9

ety disorders, the 111 psychologists who rarely treated clients for panic disorder, OCD, or social anxiety in the year prior to receiving the survey were eliminated from subsequent analyses. When asked why they had rarely treated clients for anxiety disorders, 30% of the psychologists stated they were not currently practicing, 23% had not encountered clients with anxiety disorders in their practice, 23% focused on treating a comorbid disorder rather than the anxiety disorder, and 18% referred individuals with these anxiety disorders to other providers. After completing the first two sections of the survey, psychologists who had rarely treated individuals for anxiety disorders were informed they had finished and were thanked for returning their survey.

The results that follow are based on the 78 psychologists who noted that 11% or more of their caseload consisted of clients with panic disorder, OCD, or social anxiety in the past year. Of these, the majority reported a cognitive-behavioral theoretical orientation (71%). A minority of psychologists indicated a behavioral (4%), family systems (4%), constructivist/narrative (3%), solution-focused (3%), or psychodynamic orientation (1%). The remaining 14% of psychologists stated their primary orientation was some other unspecified orientation.

Results

Are Psychologists Using ESTs?

OCD. The most common interventions used to help clients with OCD were cognitive restructuring (*frequently* = 67%), relaxation training (*frequently* = 40%), and bibliotherapy (*frequently* = 37%) (see Table 1). Exposure and response prevention was *frequently* used by 37% of the survey respondents. Nearly as many *rarely/never* used exposure and response prevention in the treatment of OCD (26%).

Panic disorder. When asked about the treatment of panic disorder, those interventions noted to be used by the most clinicians included breathing retraining (69%), relaxation training (*frequently* = 71%), cognitive restructuring (*frequently* = 70%), and bibliotherapy (*frequently* = 43%) (see Table 1). Very few indicated use of interoceptive exposure (*frequently* = 12%; *rarely/never* = 76%). Although not used by most psychologists, other exposure-based interventions were used more frequently than interoceptive exposure (e.g., therapist-assisted in vivo exposure (*frequently* = 14%) and client self-directed exposure (*frequently* = 35%).

Social anxiety disorder. For social anxiety (see Table 1), the most common techniques utilized were cognitive restructuring (*frequently* = 69%), relaxation training (*frequently* = 59%), and breathing retraining (*frequently* = 47%). Group therapy was *frequently* used by only 1% of the respondents. Less than one-third of the psychologists frequently used all of the surveyed exposure methods. Self-directed in vivo exposure (31%) and imaginal exposure (28%) were endorsed by more clinicians than other exposure methods.

Why Are Psychologists Using Cognitive-Behavioral ESTs to Treat Anxiety Disorders?

Eighty-eight percent of the psychologists indicated they used CBT to treat anxiety disorders. When asked to choose the top two reasons they used CBT, they most often reported that CBT is supported by research (74%) and that their own clinical experience reflected the effectiveness of these interventions (48%). Compatibility with their general theoretical orientation (39%) and clinical style of conducting therapy (32%)

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were also common choices. Less frequently endorsed responses for choosing CBT were that they had training in these techniques (10%), CBT was recommended by others (4%), and CBT is compatible with managed care (1%).

Of the 78 respondents who had treated clients with OCD, panic disorder, or social anxiety, 9 (12%) indicated that they rarely used CBT techniques for anxiety disorders. When asked to choose the top two reasons for rarely or never using CBT for anxiety problems, inconsistency with their general theoretical approach (56%), incompatibility with their clinical style of conducting psychotherapy (44%), and ineffectiveness of CBT in their own clinical practice (33%) were the most frequently endorsed reasons. Only one psychologist did not use CBT because his or her clients were not adequately represented in the literature and one psychologist had not received training in CBT interventions.

Are Psychologists Using Treatment Manuals?

Twenty-three percent of psychologists sampled indicated that they do not use manuals or publications when treating anxiety disorders. For the 77% of psychologists

that do use treatment manuals, a variety of publications serve as resources. Among the most frequently used publications were *Mastery of Your Anxiety and Panic* (13%; Craske & Barlow, 2000), *OCD in Children and Adolescents: A Cognitive-Behavioral Treatment Manual* (17%; March & Mulle, 1998), and *Mastery of Your Anxiety and Worry* (11%; Craske, Barlow, & O'Leary, 1992). *The OCD Workbook* (7%; Hyman & Pedrick, 1999), *The Shyness and Social Anxiety Workbook* (6%; Antony & Swinson, 2000), *Overcoming Obsessive-Compulsive Disorder: A Behavioral and Cognitive Protocol for the Treatment of OCD* (4%; Steketee, 1999), and *Overcoming Panic Disorder and Agoraphobia: An End to Panic* (1%; Zuercher-White, 1995) were also used. Two common written responses were *Hope and Help for Your Nerves* (8%; Weekes, 1990) and the *Anxiety and Phobia Workbook* (11%; Bourne, 1995).

How Are Psychologists Trained in Cognitive-Behavioral ESTs for Anxiety Disorders?

Ninety-one percent of the sample indicated they have received training in the use of cognitive behavioral methods for anxiety disorders. For those who received training in CBT techniques for anxiety, 77% re-

ceived training at a workshop or conference. Fifty-one percent had received training during supervision with an experienced professional, and 36% received training through professional experience or graduate training in an anxiety specialty clinic. Nearly 1 in 10 individuals who treat these anxiety disorders indicated that they received no training in CBT for anxiety disorders.

Discussion

It seems that community and private practice psychologists have responded to the Task Force's recommendations (1995). The majority of psychologists who treat individuals for OCD, panic disorder, and social anxiety indicated they are using cognitive-behavioral interventions. Most psychologists are also using treatment manuals and publications. The 23% of the current sample who did not use treatment manuals is consistent with a national survey of psychologists (Addis & Krasnow, 2000).

Even though most psychologists indicated a general cognitive-behavioral approach to treat OCD, panic disorder, and social anxiety, use of specific empirically supported techniques was not always congruent with published ESTs. Although cognitive restructuring was the most frequently used technique for each of the anxiety disorders, exposure-based interventions were a significant omission in community-based clinical practice. Exposure and response prevention, a well-validated intervention for OCD (DeRubeis & Crits-Christoph, 1998; Franklin et al., 2000), was used as often as nonspecific cognitive-behavioral interventions such as breathing retraining and relaxation training when treating clients with OCD. Interoceptive exposure, an effective component of panic disorder treatment (Arntz, 2002), was applied less often than nonempirically supported interventions such as meditation and self-hypnosis with panic disorder patients. For social anxiety, therapists were more likely to employ breathing retraining and relaxation than exposure methods. Across all three areas, psychologists tended to never/rarely directly assist in exposure work. This may be due to a number of factors, such as logistical issues involved in therapist-assisted exposure (e.g., it often requires more than the typical therapy hour) and the importance of training for conducting in vivo exposure-based therapy.

The relative lack of exposure-based interventions for clients with anxiety disorders is consistent with research published a decade ago. When clients with anxiety dis-



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TABLE 2
Successes, Challenges, and Recommendations for Dissemination

SUCCESSSES	RECOMMENDATIONS
<ul style="list-style-type: none"> • The majority of psychologists reported using CBT to treat anxiety • Many psychologists chose CBT interventions because they were supported by research • Most psychologists refer to anxiety treatment manuals • The majority of psychologists had received training in CBT for anxiety disorders 	<ul style="list-style-type: none"> • More specificity is needed in training in CBT approaches to anxiety • Obstacles among clinicians to the use of exposure-based strategies should be studied • The importance of exposure work should be emphasized in training • The impact of different methods of disseminating information about CBT approaches should be studied
CHALLENGES	
<ul style="list-style-type: none"> • CBT approaches used often did not conform to empirically supported CBT protocols • CBT approaches used were similar across the anxiety problems studied • Exposure-based interventions were rarely used despite strong empirical support 	

orders were asked to describe what they did in psychotherapy, only 19% indicated they had completed an in vivo exposure exercise (Goisman et al., 1993). It seems that dissemination of ESTs for anxiety disorders may have had little effect on the utilization of exposure-based interventions. An alternate explanation could be that psychologists are aware of exposure-based methods, but clients refuse them. Future studies may attempt to clarify why exposure-based methods are infrequently used even though there is strong empirical evidence supporting their effectiveness.

In all, these findings raise some concern about the success of dissemination efforts for CBT interventions for anxiety. While psychologists appear to have been favorably influenced by the empirical literature in their choice to use cognitive-behavioral strategies, the findings suggest that many clinicians may lack knowledge about specific therapeutic interventions for OCD, panic disorder, and social anxiety. That nearly a quarter of psychologists did not use treatment manuals may contribute to the lack of knowledge about treatment interventions specific to each of the anxiety disorders.

Further research should examine reasons why psychologists do and do not employ ESTs. Rather than deficiencies in dissemination, issues of comorbidity as well as misdiagnosis by clinicians may introduce ambiguity into these results, though we attempted to minimize these influences in the design of the survey. Further research

should examine the extent to which psychologists can make fine distinctions between various intervention methods. The general finding of frequent use of a broad set of strategies may reflect difficulty among psychologists in distinguishing among and accurately labeling CBT interventions for anxiety. It may also reflect a possible failure of the community of anxiety disorders researchers and clinicians to communicate the importance of treatment specificity to the broader professional community.

Limitations

This study employed a rather short and general survey designed to obtain initial information about psychologists' practices in the area of anxiety disorders. The use of a brief, self-report survey method may have limited the accuracy and richness of the obtained data. The sample size was adequate but not large, and it is unclear to what extent various factors related to the variables under study influenced the choice to respond or not respond. Although many of the surveys were undeliverable, potentially yielding a biased sample, the demographic characteristics of the sample were similar to a previously published survey study of psychologists in Minnesota (Mussell et al., 2000). Demand characteristics may also have had a significant influence on the results. Although the term *empirically supported therapy* was not used in the survey, references to cognitive-behavioral interven-

tions may have influenced the results. As such, the percentage of psychologists indicating use of CBT strategies may be an overestimate. In addition, the sample was from a single midwestern state and it is unknown to what extent the psychological community may differ from other geographical locations. The sample of respondents represented an experienced group of clinicians and it is possible that younger, less experienced psychologists are more likely to have received training in and use current empirically supported CBT interventions for anxiety.

Conclusions

The results of this study are simultaneously encouraging and concerning. On the one hand, there appear to be many practitioners offering CBT interventions and the empirical basis for CBT interventions appears to have been influential in their adoption in practice. On the other hand, the CBT offered may often not conform to current empirically supported protocols, and treatment may not be driven by specific treatment models. Finally, some psychologists never or only rarely use current ESTs.

It is important to begin to study how practitioners learn about empirically supported interventions and the effect of various dissemination methods, such as readings, conferences, and workshops. When examined among clinical psychology graduate students, CBT training resulted in increased positive attitudes and use of CBT

techniques (Freiheit & Overholser, 1997). However, less direct methods of exposure to new interventions (e.g., readings and didactic presentations) had less influence on the use of behavioral strategies than experiential training methods in school psychology (Shapiro & Lentz, 1985). Dissemination of ESTs for anxiety disorders may be most effective when psychologists receive training that includes behavioral practice of EST interventions.

The theme of the 2003 annual conference of the Anxiety Disorders Association of America was "Getting Effective Help to Those Who Need It." It is unlikely that most of the psychological help for anxiety disorders will be delivered within research-based and specialty clinics. Rather, the broader community of mental health practitioners represents a knowledgeable consumer group that must be educated about ESTs. As behavior therapists, we are used to thinking about and investigating methods for behavioral change. Ultimately, dissemination is an issue of changing clinician practices in an effort to get effective help to those in need. As behavior therapists, it is imperative that we continue to participate in leading this effort.

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AUTHOR NOTE

This study was presented at the 2003 annual convention of the Anxiety Disorders Association of America held in Toronto, Canada. ✉

Readiness to Change PTSD Symptoms and Other Problems Among Veterans Participating in a Motivation Enhancement Group

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Recent studies have indicated that treatment programs may have a limited effect on symptom reduction for Vietnam veterans with long-standing PTSD (Fontana & Rosenheck, 1997; Johnson et al., 1996). In response to these findings and concerns about treatment compliance in this population (Zaslov, 1994), Murphy, Rosen, Cameron, and Thompson (in press) have suggested that ambivalence or lack of awareness about the need to change PTSD symptoms may contribute to poor PTSD treatment outcome. Their conceptualization of PTSD treatment response is based on the transtheoretical model (Prochaska, DiClemente, & Norcross, 1992). This model of readiness to change describes five stages of change associated with different beliefs about the need to change and actions toward change, including lack of problem awareness (*precontemplation*), ambivalence about the need to change (*contemplation*), initial steps towards change (*preparation*), engagement in efforts to change (*action*), and maintaining change (*maintenance*). Beliefs about the need to change have been found to predict psychotherapy dropout (Brogan, Prochaska, & Prochaska, 1999; Smith, Subich, & Kalodner, 1995), and motivation enhancement interventions targeting beliefs about the need to change have been effective in reducing HIV risk behaviors (Carey et al., 1997) and alcohol use (Borsani & Carey, 2000; Project Match Research Group, 1998).

According to a readiness-to-change model, patients may not be motivated to engage in treatment activities aimed at problems that they do not believe they have or need to change, and therefore they will not learn or utilize the coping skills essential

to good posttreatment functioning. This may be particularly applicable to trauma survivors with PTSD, who often view hypervigilance, isolation, anger, and mistrust not as symptoms requiring change, but as justifiable and adaptive coping strategies related to safety. Unfortunately, there has been little research on the application of readiness-to-change concepts to PTSD. A study of adult survivors of child abuse found variation in the belief about the need to change (Koraleski & Larson, 1997). In the one study of readiness to change among combat veterans, Rosen et al. (2001) found that PTSD patients varied in their readiness to address both alcohol and anger problems, despite high levels of problem severity, and could be categorized into four motivational subtypes consistent with the stages of change. Importantly, motivation to change alcohol problems was independent of that for anger.

The present study was undertaken as a preliminary examination of inpatient combat veterans' response to the PTSD Motivation Enhancement (ME) Group, a brief intervention that targets beliefs about the need to change PTSD symptoms and comorbid problems. There were two primary research questions: (1) What PTSD symptoms and related problem behaviors are patients unsure about the need to change? (2) By the end of the PTSD ME Group, do patients decide that they need to change these potential problem behaviors more frequently than deciding they do not need to change them?

Method

Participants

Participants were 243 male combat veterans who attended the PTSD ME Group

during their stay in a 60-day VA inpatient PTSD treatment program. Program admission criteria included (a) diagnosis of combat-related PTSD (verified by military records, including DD-214, and Clinician Administered PTSD Scale [CAPS; Blake et al., 1995]); (b) not currently psychotic; and (c) at least 2 weeks abstinent from substance use. The ethnic composition of the sample was 58.9% white, 12.4% African American, 10.8% Hispanic, 5.0% Native American, and 12.8% other or mixed race. The sample consisted largely of Vietnam veterans (91.6%). Only 15.5% of the participants reported that they were currently employed, and most (81.4%) were receiving compensation for some type of service-connected disability. Mean age of the sample was 49.34 years ($SD = 4.82$). These patients consisted of 80% of all admissions to the treatment program during the 18-month study period. The other patients who did not attend the PTSD ME Group were receiving other treatment during the time the group was offered, including a parenting group, couples therapy, or medical services. The PTSD ME Group participants did not significantly differ from these nonparticipating patients on age, marital status, employment, ethnicity, years of education, service connection status, or length of stay.

PTSD ME Group Treatment

The PTSD ME Group is described in detail elsewhere (Murphy et al., in press) and will be briefly summarized here. The manualized brief intervention is conceptually based on the stages of change and utilizes motivational interviewing principles and techniques (Miller & Rollnick, 1991), which have been modified for group treatment and PTSD-related problems. The rationale for the PTSD ME Group is that increased recognition of the need to change specific PTSD symptoms and other problems will lead to better PTSD treatment adherence and outcome because patients will perceive coping skills learned in treatment as more personally relevant to their problems. As explained to the patients, the purpose of the group is to help them avoid being "blind-sided" by unrecognized problems. For example, a patient who believes that social isolation is an acceptable coping strategy will likely withdraw from family or other social support under stress or after interpersonal conflict, which can lead to a downward spiral or sequence of other problems such as depression, hypervigilance, substance use, and reexperiencing symptoms.

A patient who recognizes that social isolation is definitely a problem will be more likely to use adaptive coping skills to address problems directly or use social support instead of withdrawing from others.

The PTSD ME Group protocol consists of seven 90-minute sessions that focus on the use of decision-making skills to help patients recognize the need to change any unacknowledged PTSD-related problems. A key part of the group is having patients generate a list of behaviors or beliefs that might be a problem for them, called "might have" problems. These possible unrecognized problems are defined as problems they have wondered if they have, or problems that others have told them they have, but the patient disagrees. Participants then use decision-making tools taught in the PTSD ME Group to help them decide if these "might have" problems are actually problems they definitely have. In the first PTSD ME Group module, "Rationale and Review" (Session 1), group leaders review the purpose, procedures, and potential value of the group. The second module (Sessions 2 and 3) is called "Comparison to the Average Guy," in which patients compare their behavior to estimated age-appropriate norms in order to help them judge how problematic their behavior might be. For example, patients who are constantly hyperalert to danger but feel that this approach to daily life is appropriate are asked to compare their behavior to safety-related behaviors that might be considered normative in terms of frequency (e.g., number of times checking locks at night), severity of consequences (e.g., effect on family), or purpose (e.g., caution versus a sense of "life or death"). In the third module (Sessions 4 and 5), "Pro's and Con's," patients use decision balance techniques to determine the need to change specific behaviors or coping styles that they are unsure are problematic. The fourth module (Session 6), "Roadblocks," focuses on identification of individual cognitive and emotional factors that may be preventing the patient from considering changing problematic behaviors. For example, veterans have often reported that fears of being perceived as weak, or shame about the distress they have brought to loved ones, will inhibit their willingness to admit to or even think about a possible problem they have. Cognitive distortions that may be roadblocks include all-or-nothing thinking—for example, "If I admit to having one more problem, I will have to acknowledge being a complete failure."

Finally, each patient attends a seventh session—a repeat of the first session they at-

tended. This could be any of the sessions, due to the rolling admissions policy of the program. This seventh session was added because veterans often needed a session or two before fully comprehending the concepts of the group, and so frequently did not fully benefit from the first session they attended.

Procedure

Data were collected over an 18-month period from all patients ($N = 243$) who attended the PTSD ME Group for any number of sessions. Demographic data were obtained approximately 1 week after admission to the program. Data on beliefs about the need to change PTSD symptoms and other problems were obtained at the end of each group session.

Measures

Problem awareness and ambivalence about change. After each group session, patients listed on a form any problems they "might have," defined as either "problems I've wondered if I have" or "problems others have told me I have, but I disagree." On the same form, patients also listed previously identified "might have" problems that they had since decided were *definitely* a problem for them ("changed to definitely have") or *definitely* not a problem ("changed to don't have"). Rosen et al. (2001) have previously reported significant associations between combat veterans' categorization of alcohol and anger as "definitely have," "might have" and "don't have" problems and their scores on the University of Rhode Island Change Assessment (McConaughy, Prochaska, & Velicer, 1983).

Problem categorization. The authors devised a preliminary scheme for classifying patients' open-ended description of problems (e.g., "fly off the handle easily") into diagnostic or symptom categories called "problem types." Examples of patient reports for each problem type are included in Table 1. Problem types that were unrelated to physical or psychological health (e.g., legal problems) or reported by 15% or less of the participants are not presented here. Participants were counted as reporting a single problem type regardless of how many individual problems they listed that fit that category (e.g., if "angry all the time" and "rage" were both listed as "might haves," the patient was considered as having reported the problem type of "anger" only once), although this was infrequent. For multiple problems in the same problem type, classification of a problem type as

"changed to definitely have" or "changed to don't have" was determined by which category had the greater number of separate problems so classified by the participant. For example, if the patient initially reported that "isolate," "stay away from people," and "keep to myself" (all isolation problem type) were "might haves," but later classified two of these problems as "definitely have" and one as a "definitely don't have," the patient would be considered as having reported the isolation problem type as a "changed to definitely have."

Results

With regard to areas where veterans with combat-related PTSD are most often unsure about the need to change (Research Question 1), the percentages of patients who listed various PTSD symptoms or related behaviors as "might have" problems are shown in Table 1. The problem most often reported by patients as a "might have" was anger (48%). Approximately one-third of the patients labeled isolation, depressive symptoms, trust, and health as a "might have," with about one-fourth reporting conflict resolution, alcohol, communication, relationship/intimacy, restricted range of affect, and drugs as "might haves."

Changes in problem ambivalence or awareness during treatment (Research Question 2) were examined using chi-square analyses (expected values of 50%) to determine if the proportion of veterans who reclassified "might have" problems to "changed to definitely have" was higher than the proportion reclassifying these problems to "changed to don't have" for each problem type (see Table 2). Significantly more veterans reclassified the following "might have" problems to "definitely have" than to "don't have" problems: anger, $2(1, n = 53) = 23.11, p < .0001$; isolation, $2(1, n = 42) = 13.71, p < .0001$; anxiety, $2(1, n = 20) = 12.80, p < .0001$; authority, $2(1, n = 14) = 4.57, p < .05$; guilt, $2(1, n = 29) = 15.21, p < .0001$; emotional masking, $2(1, n = 16) = 13.71, p < .05$; relationship/intimacy, $2(1, n = 21) = 5.76, p < .05$; smoking, $2(1, n = 25) = 11.56, p < .001$; and trust, $2(1, n = 33) = 10.94, p < .001$. For being crazy/losing control, significantly more veterans reclassified it to "don't have" than reclassified it to "definitely have," $2(1, n = 23) = 12.56, p < .0001$.

Of course, ambivalence or awareness is only a concern if patients are objectively experiencing problems (if one is not having problems, there may be no need to change).

TABLE 1
Percentage of Participants Listing PTSD Symptoms and Other Problems as "Might Have"

Problem Type	Examples of Patient Report	% (n)
Irritability or Anger	flying off the handle, rage, aggression	47.7 (116)
Isolation	ignore people, keep to myself	35.0 (85)
Depressive Symptoms	depression, suicidal thoughts, sadness	35.0 (85)
Trust	distrust, lack of trust, suspicious	34.0 (83)
Health	hepatitis, overeating, headaches	33.7 (82)
Conflict Resolution	accepting feedback, defensive, stubborn	29.2 (82)
Alcohol / Alcoholism	drinking, booze	28.0 (68)
Communication	assertiveness, listening skills	26.3 (64)
Relationship / Intimacy	fear of intimacy, relationships	22.6 (55)
Restricted Range of Affect	cold, lack of feelings, no emotions	21.8 (53)
Drug / Substance Abuse	drug addiction, pot	21.8 (53)
Smoking	cigarettes	21.4 (52)
Guilt	guilt feeling, survivor guilt	21.0 (51)
Being Crazy	insane, crazy, mental problems	18.5 (45)
Control / Perfectionism	controlling, being in control all the time	17.3 (42)
Emotional Masking	suppressing feelings, stuffing feelings	16.0 (39)
Anxiety	nervousness, jittery, panic	16.0 (39)
Hypervigilance	on guard, weapons	15.6 (38)
Authority	authority figures, taking orders	14.8 (36)

Two sets of post-hoc analyses of variance considered whether patients' ambivalence about change was related to the severity of their PTSD symptoms, as assessed by the PTSD Checklist (Weathers, Litz, Herman, Huska, & Keane, 1993). First, separate analyses for each problem type (e.g., anger, isolation, or hypervigilance) indicated that PCL Intrusions, Avoidance, and Hyperarousal subscale scores did not differ between patients who initially identified a problem as "might have" and patients who initially reported the same type of problem as a "definitely have," "don't have," or who did not list the problem at all. Second, among patients who initially classified a particular type of problem as a "might have," those who later reclassified that problem to "definitely have" (i.e., decided they do need to change) had similar PCL subscale scores as patients who reclassified the same problem as "don't have" or kept the problem as "might have." These results suggest decision-making about "might have" problems was independent of overall severity of PTSD symptoms.

Discussion

Our findings indicated that patients were ambivalent or lacked awareness about the need to change many PTSD symptoms and other problematic behaviors, particularly anger. However, patients often became more willing to acknowledge these prob-

lems during treatment. For 9 out of 19 categories of PTSD symptoms and related problems, veterans more often decided a problem initially identified as a "might have" was definitely a problem rather than definitely not a problem. Although these findings suggest that a readiness-to-change model and motivational-enhancement approaches may be helpful in addressing combat-related PTSD problems, conclusions must be considered preliminary due to the study's limitations. Because there was no control group, changes in ambivalence or awareness cannot be attributed to PTSD ME Group participation, and may have been as a result of the concurrent treatment interventions, nonspecific treatment factors, or spontaneous change over time. Other limitations involve the lack of evidence for the reliability and validity of the problem type categorization scheme and the method of assessing readiness to change. Further, the generalizability of this study is limited to inpatient combat veterans. Despite these limitations, these results indicate the potential value of further research on the relationship between readiness to change and posttreatment functioning, and on the differential effect of adding a motivation-based intervention component to conventional PTSD treatment.

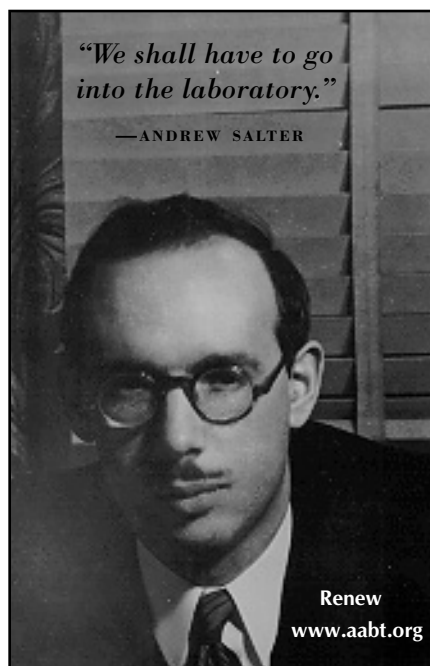
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TABLE 2
Participants' Decisions About the Need to Change Problems Initially Reported as "Might Have"

Problem Type	Problem Acknowledgment		
	Changed to "Definitely Have"	Remained "Might Have"	Changed to "Don't Have"
	% (n)	% (n)	% (n)
Guilt	49.0 (25)	43.1 (22)	7.8 (4)
Anxiety	46.2 (18)	48.7 (19)	5.1 (2)
Smoking	40.4 (21)	51.9 (27)	7.7 (4)
Irritability or Anger	40.4 (44)	51.4 (56)	8.3 (9)
Isolation	39.3 (44)	50.0 (42)	10.7 (9)
Depressive Symptoms	32.5 (27)	41.0 (34)	26.5 (22)
Trust	31.3 (26)	60.2 (50)	8.4 (7)
Communication	31.3 (20)	46.9 (30)	21.9 (14)
Emotional Masking	30.8 (12)	59.0 (23)	10.3 (4)
Authority	30.6 (11)	61.1 (22)	8.3 (3)
Relationship / Intimacy	29.1 (16)	61.8 (34)	9.1 (5)
Alcohol / Alcoholism	27.9 (19)	50.0 (34)	22.1 (15)
Health	27.2 (22)	53.1 (43)	19.8 (16)
Hypervigilance	26.3 (10)	50.0 (19)	23.7 (9)
Restricted Range of Affect	21.2 (11)	59.6 (31)	19.2 (10)
Drug / Substance Abuse	20.8 (11)	50.9 (27)	28.3 (15)
Control / Perfectionism	19.0 (8)	69.0 (29)	11.9 (5)
Conflict Resolution	11.4 (8)	70.0 (49)	18.6 (13)
Being Crazy / Losing Control	6.8 (3)	47.7 (21)	45.5 (20)

Note. A small number of participants endorsed multiple problems later coded as the same problem type and moved an equal number of these problems to "definitely have" and "definitely don't have." These patients were dropped from the chi-square analyses reported in the text, and are not included above. For this reason the total *n* for a particular problem type in this table may be smaller than the *n* reporting the same problem type as "might have" in Table 1.



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Attention Training as an Intervention for Anxiety: Review and Rationale

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One goal of cognitive behavior therapy (CBT) is to assist clients in mitigating cognitive biases associated with emotional disorders. This is often accomplished through the use of cognitive restructuring techniques (e.g., Beck & Emery, 1985; Burns, 2001; Zinbarg, Craske, & Barlow, 1993) in which clients are asked to identify and record maladaptive cognitions, then challenge the cognitions with contradictory evidence and generate new, accurate thoughts (e.g., Craske, Barlow, & O'Leary, 1993; Greenberger & Padesky, 1995). Ideally, as maladaptive schema are modified, this technique should become more spontaneous and habitual, and balanced thinking should replace negative thinking as the dominant response. Although this technique aids in the treatment of mood and anxiety problems, some have argued that changing beliefs may not be sufficient to correct all aspects of an emotional disorder, such as preconscious attentional biases (Papageorgiou & Wells, 1998). Indeed, a subset of studies on attentional biases related to anxiety have failed to demonstrate clear treatment effects (e.g., Watts, McKenna, Sharrock, & Trezise, 1986) or complete mitigation of selective attention (e.g., Lavy, van den Hout, & Arntz, 1993). Such biases are found to occur across the anxiety disorders (McNally et al., 1994); therefore, the identification of techniques that reliably mitigate attentional biases warrants attention from researchers.

A strategy known as attention training (ATT) is currently being tested for the correction of attentional biases related to anxiety and other disorders. The logic behind ATT is simple and appealing: If attentional biases toward threat (e.g., selective attention, difficulty disengaging from threat-related cues) function as vulnerability factors for anxiety (Daglish & Watts, 1990; Mathews & MacLeod, 2002), then perhaps manipulation of these biases will correspond to, or even cause, decreased anxiety. The idea poses the very interesting empirical question of whether we can improve mood through the use of cognitive training

techniques, in the complete absence of a traditional psychotherapeutic intervention.

Although these ideas may be new to some clinical psychologists, researchers in cognitive neuroscience have long been aware of the functional proximity of the attentional and emotional systems. For instance, Derryberry and Rothbart (1988) found that those who reported having good command over attention also reported less overall negative affect than those with poorer control. Executive skills (such as focusing, dividing, and shifting attention) contribute to the regulation and management of emotional responses (Posner & Rothbart, 1998) and the attainment of motivationally significant goals (Frijda, 1994; Levenson, 1994). Additionally, evidence from brain imaging studies (Bush, Luu, & Posner, 2000; Drevets & Raichle, 1998; Mayberg et al., 1999) indicates that the affective and cognitive segments of the attentional system of the brain are capable of reciprocal inhibition, implicating attention as a major factor in the treatment of emotional disorders.

The methodology of ATT involves modified versions of popular experimental tasks (e.g., dot probe, flanker task, Stroop) that tap cognitive operations such as orienting and disengaging attention. Emotional cues such as disorder-relevant words (e.g., "suffocate" in panic disorder; "embarrass" in social phobia) or pictures (e.g., disgusted faces in social phobia) replace neutral stimuli. In the typical laboratory paradigm assessing information-processing biases, performance on these tasks is considered an outcome variable (Williams, Mathews, & McLeod, 1996); in ATT biases are used as independent variables to manipulate mood.

Although the experimental tasks and methodological details (e.g., length of training session, number of sessions) differ across studies testing ATT, the same basic strategies have been used. Participants engage in brief (e.g., 15- to 30-minute) repeated practice on experimental tasks that feature neutral stimuli, rather than anxiety-related words or pictures as targets, and

anxiety-related words or pictures as distractors. In some ATT programs, independent daily practice is also encouraged. The net effect of training is the gradual automatizing of the tendency to disengage attention from anxiety-related cues and focus attention on neutral cues. Alternatively, some versions of ATT seek to redirect attention from interoceptive to exteroceptive cues in an attempt to decrease self-focused attention related to emotional disorders (Wells, 1990).

The Self-Regulatory Executive Function Model

The first studies of ATT were based on Wells and Mathews' Self-Regulatory Executive Function model of psychopathology (S-REF; 1996). S-REF was developed to augment models such as Beck's (1967) schema theory of emotional disorders, which was useful for generating hypotheses regarding the content of thoughts, but ignored metacognition and other process variables. According to the authors, an understanding of the "online" processing configuration that maintains an emotional disorder is essential for effective treatment (Wells & Mathews, 1996).

The S-REF model (Wells & Mathews, 1996) posits a multilevel cognitive architecture comprised of three interacting levels: automatic and reflexive units, attentionally demanding voluntary processing, and stored knowledge including self-beliefs. The model attempts to better integrate conceptualizations of treatment with the role played by complex metacognitive processes, such as levels of processing and control of attention. According to S-REF, emotional disorders result from heightened self-focused attention, reduced cognitive efficiency, attentional bias, and activation of self-beliefs and appraisal. Resources available for processing corrective material are reduced or unavailable, leading to performance deficits and rigidity of the cognitive system. Moreover, individuals with disorders lack awareness that many cognitive abilities are within conscious control, thus precluding the use of viable emotion-regulation strategies based on focusing and shifting attention.

Based on this model, Wells developed an intervention designed to increase attentional control as a means of correcting the S-REF system. The intervention consists of a series of auditory tracking tasks in which participants are asked to focus and maintain attention on external auditory cues, such as the therapist's voice or the ticking of a clock. Tracking becomes more difficult as

targets become more remote and interfering noises increase. Next, participants are asked to switch attentional focus between two external auditory cues, and finally, to track several different noises simultaneously. Rather than teach participants to distract from anxiety-related material, ATT fosters an ability to disengage with ease, allowing for the “switching off” of perseverative tendencies. Wells’ intervention has been used successfully with individuals with panic disorder (Wells, 1990; Wells, White, & Carter, 1996), major depression (Papageorgiou & Wells, 1998), social phobia (Wells et al., 1999), and hypochondriasis (Papageorgiou & Wells, 2000) in single-subject investigations.

Summary of Studies Based on the S-REF Model

An ABCB design was used to test the effectiveness of ATT with a participant with panic disorder and “an inability to relax” (Wells, 1990, p. 274). Five sessions of ATT led to the elimination of panic attacks in the “B1” phase, which were subsequently reinstated in the “C” phase using an autogenic training method meant to increase self-focus. Attacks were again attenuated following six sessions of ATT (the “B2” phase), and benefits were maintained 3 and 12 months after the final session of treatment. ATT also led to a decrease on self-reported levels of anxiety severity.

Papageorgiou and Wells (1998) tested the intervention in a sample of three older participants with chronic hypochondriasis. Duration of illness ranged from 11 to 35 years. The same auditory tracking task was practiced for 8 to 10 sessions plus independent daily practice. At posttreatment all participants demonstrated improvements on measures of anxiety, depression, and frequency of health-related worry. None met *DSM* criteria for hypochondriasis. These benefits were still apparent at 6-month follow-up, despite the termination of attentional exercises at posttreatment.

ATT was tested in three cases of anxiety (two participants had panic disorder and one social phobia) across therapists and settings, with a reversal design used with one of the three participants (Wells, White, & Carter, 1996). ATT showed effectiveness in reducing panic attacks, general anxiety levels, and maladaptive beliefs. The participant in the reversal design showed an attenuation of benefits during the implementation of an intervention that was incompatible with the hypothesized effects of

attention training, but improved when the treatment was reinstated.

Papageorgiou and Wells (2000) have most recently applied ATT to the treatment of recurrent major depression. After completing 3-to-5-week baseline phases, four participants completed eight sessions of ATT and independent daily practice. All participants showed clinically significant improvement on measures of depression, anxiety, self-focused attention, and maladaptive cognitions at posttreatment, 3-6-, and 12-month follow-up assessments. The authors note that ATT resembles mindfulness approaches currently being used to prevent relapse in major depression (Teasdale, Segal, & Williams, 1995), but identify three advantages of ATT. First, ATT is based on a theoretical model of emotional dysfunction, whereas mindfulness is based on Buddhist practices; second, mindfulness is a relapse-prevention strategy whereas ATT is used for both treatment and prevention; and third, mindfulness encourages self-focus through the use of breathing exercises while ATT seeks to attenuate self-focused attention.

The investigations by Wells and colleagues marked the first attempts to treat disorders using an attentional manipulation and provided a viable alternative to psychotherapeutic interventions. However, all of these studies used single-subject designs and a relatively narrow array of outcome measures. Additionally, some of the participants in these studies were taking anxiety medications, which may have influenced outcome. Lastly, because attention probes were not always used, the authors could not rule out the possibility that the investigations led to a direct improvement in mood with no actual attentional effects.

ATT Studies Based on the Anxiety Vulnerability Hypothesis

Results of the second wave of ATT studies are now beginning to emerge, and some of the limitations of earlier work have been addressed in this cohort of investigations. The anxiety vulnerability hypothesis, rather than the S-REF model, provided the theoretical underpinnings for this series of studies. Based on investigations using the emotional Stroop and dot probe paradigms, some have hypothesized that attentional biases toward threat predispose an anxiety vulnerability, rather than elevated levels of anxiety leading to subsequent attentional biases (e.g., MacLeod, Mathews, & Tata, 1986; Mathews & MacLeod, 1994). This hypothesis was tested in a sample of

women undergoing cervical biopsy (MacLeod & Hagan, 1992). The relative difference in participants’ latencies to name the text color of negative stimulus words as compared to positive words predicted the degree of emotional response to subsequent diagnoses of cervical pathology. Results suggested that degree of attentional bias precedes and predicts emotional responses to subsequent stressful event. A second study by MacLeod (1999) tested Singaporean high school graduates on an emotional Stroop. Color-naming latencies on negative words predicted emotional response to migration to Australia to attend college. These two studies suggested that attentional biases play a causal role in anxiety vulnerability. However, evidence did not unequivocally rule out the presence of a causal third variable such as neuroticism.

MacLeod et al. (2002) conducted two studies to test whether the induction of temporary attentional biases would affect responses to subsequent stressful events. Study 1 participants were those who scored in the middle third of the distribution of scores (range = 35 to 43) on the trait scale of the Spielberger State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1983). Participants completed training on a dot probe task designed to train an attentional bias either toward or away from negative words. The dependent variable of interest was reaction time to identify the probe as either a single or double dot after it appeared in the location of either the threat or nonthreat word on a visual display featuring word pairs. The investigators also tested two different latencies to stimulus mask (long versus short) to test whether stimuli must be consciously perceived for a bias to emerge, or to play a causal role in emotional responses. A three-way interaction was found between training group, probe location, and exposure condition. Further analyses indicated that the effect was caused by a training group-by-probe location interaction in the long, but not the short, exposure condition. Those given training designed to encourage them to attend toward threat were more quickly able to discriminate probes that replaced threat words than nonthreat words, whereas this effect did not emerge for those given training designed to encourage them to attend away from threat cues. This effect was only detected in the unmasked condition. Additionally, the authors found a trend toward a more negative reaction to a stress task (insoluble anagrams) in the “attend negative” group. However, premanipulation assessments of attentional biases and

vulnerability to negative moods were not conducted, giving rise to the possibility that there may have been differences on these variables at baseline.

Study 2 included baseline measures of bias toward emotional stimuli, which did not differ between groups. Earlier findings were replicated; those trained to attend away from threat showed increased latencies to discriminate probes in the vicinity of the negative, as opposed to neutral words; conversely, those trained to attend toward threat showed decreased latencies to discriminate probes in the vicinity of negative, as opposed to neutral words. Furthermore, baseline measures of reaction to the stress task were collected and revealed no significant differences across groups. However, following ATT, the “attend negative” group showed a significantly greater dysphoric response to stress than the group given the reverse training. The degree to which attentional bias changed as a function of training was significantly correlated with the degree to which emotional vulnerability changed on a measure of anxiety, but not depression.

MacLeod et al. (2002) concluded that the dot probe paradigm is an effective means of manipulating attentional bias, and that the induced attentional biases modified the degree of negative affect experienced in response to a laboratory stressor without causing a direct effect on emotional state. These two studies provide the first evidence that biases induced in the lab have an immediate and powerful effect on vulnerability to negative moods following a stressor. It is currently unknown whether the biases induced in the study are similar to those found among clinical samples, as these studies included nonclinical participants who reported moderate levels of anxiety on a self-report measure. Future studies will also be needed to test the efficacy of attention training for the mitigation of emotional distress in participants with anxiety disorders.¹

A two-study replication by Rutherford, MacLeod, and Campbell (2002) used a similar version of ATT in 8 to 10 sessions in a sample of high trait-anxious participants. Probes followed nonthreat words in the “avoid threat” group but both threat and nonthreat words in the control condition. The extended training consisted of 7,500 trials over the 3 weeks prior to exams. Both studies yielded subliminal and supraliminal

ATT benefits in the “avoid threat” group, and a reduction in trait anxiety preceding a naturally occurring stressor.

Amir, Selvig, et al.’s version of ATT (2002) used facial stimuli (neutral, disgust, happy) as targets in a paradigm based on the dot probe with 10 individuals who met criteria for generalized social phobia. Participants viewed a display featuring two faces, one of which was replaced by a dot, and were then asked to identify the cue that had been replaced by the dot. Trials were designed to focus attention away from faces depicting disgust and toward the same faces displaying neutral expressions. Three sessions of training separated by 1 day were completed over 1 week. The manipulation led to decreases on both self-report and clinician-rated measures of anxiety, with moderate effect sizes. There were no changes on measures of depression. A replication included eight sessions of attention training administered over 4 weeks, with 160 trials in each practice session, making it approximately three times more potent than the paradigm used in the prior study. Interestingly, results were not appreciably better than those obtained with the shorter version; however, depression scores decreased as a result of the longer treatment. The authors concluded that information processing approaches may show promise for understanding and treating anxiety.

Vasey, Hazen, and Schmidt (2002) randomly assigned 23 undergraduate worriers (40% of whom met criteria for generalized anxiety disorder) to either attention retraining for threat stimuli (ARTS) based on the dot probe or a sham intervention. Participants scored above the 90th percentile on the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990) and appeared very similar to clinically anxious patients on other self-report measures. ARTS consisted of five 30-minute sessions at 5-day intervals, with each session consisting of 216 trials, 94% of which trained attention away from threat and toward neutral cues. The sham condition consisted of 50% of trials that trained attention toward threat and 50% toward neutral cues. Data from 17 participants indicated that ARTS resulted in an 11 ms decrease in response latency toward neutral cues, whereas sham ARTS led to a 2.9 ms increase in bias score. Moreover, ARTS led to a decrease on the PSWQ that was equivalent in effect size to a typical 12-session

CBT effect (average within-group effect sizes were 1.76 for ARTS and 1.84 for CBT). Effect size of the between-group effect on a composite outcome measure was 1.53. Vasey et al. report that ARTS was most effective with those participants who had the most severe worry and those with a preexisting attentional bias toward threat. The program awaits replication in a larger patient sample, and durability of effects beyond 30 days will also need to be assessed.

Possible Neural Mechanisms of Attention Training

The provocative results summarized above illustrate the complex interplay of human cognition and emotion. At the neural level, the relation between affect and cognition can be partly explained by the functional topography of the anterior cingulate (AC), one of the primary brain structures in the limbic system. Information about the AC has emerged from a convergence of brain imaging meta-analyses, electrophysiology, cytoarchitectural, and lesion studies. According to a summary by Bush et al. (2000), there are separate and distinguishable AC substrates activated during cognitive versus emotional processing. The regions of the AC that become activated during cognitive processing (areas 24b-prime, c-prime, and 32-prime) are bidirectionally connected to the lateral prefrontal, parietal, and motor-related cortices; those which are activated during affective processing (areas rostral 24 a-c and 32, ventral 25 and 33) are bidirectionally connected to the orbitofrontal cortex, amygdala, periaqueductal gray, nucleus accumbens, and hypothalamus.

Drevets and Raichle (1998) posit that the cognitive and affective systems have the capacity for reciprocal inhibition. During tasks that activate the cognitive system, concurrent suppression of the affective tract from baseline conditions can be observed via brain imaging techniques (e.g., Corbetta, Miezin, Dobmeyer, Shulman, & Petersen, 1991; Ghatan et al., 1995; Sweeney et al., 1996). Conversely, during emotional processing, the cognitive tract is suppressed as compared to baseline conditions (Bench, Friston, Brown, Scott, Frackowiak, & Dolan, 1991; Drevets et al., 1995). This reciprocal inhibition effect was tested by Mayberg et al. (1999) in control and patient samples. Induced sadness led to activation of the subgenual AC (part of the emotional processing substrate) and decreases in the right prefrontal cortex, an area known to mediate attentional process-

¹ Interested readers can download a copy of the ATT paradigm used by MacLeod et al. (2002) at the following Web site: www.psy.uwa.edu.au/user/cogemo/atrain.htm.

ing independent of mood state. The authors also studied the effects of resolution of chronic depression and found increased right frontal metabolism and improved attentional performance, as compared to an untreated condition. These findings are consistent with the clinical observation that when an individual is engaged in a demanding cognitive task, he or she is less likely to engage in simultaneous emotional processing; during intense emotional processing, complex cognitive skills such as decision making and problem solving are likely to be compromised (Drevets & Raichle, 1998).

This neural conceptualization can potentially explain (a) findings supporting Wells' version of effortful attention shifting as a therapeutic intervention and (b) results demonstrating effortful malleability of anxiety-related biases via effortful cognitive processing (e.g., Amir, Freshman, & Foa, 2002; Amir et al., 1996; Derryberry & Reed, 2002). This model has yet to be tested in anxiety patients; however, it is possible that ATT trains the allocation of attention toward cognitive rather than emotional processing, leading to the suppression of the emotional tract at the neural level and decreased anxiety at the behavioral level.

In versions of ATT by MacLeod et al. (2002), Rutherford et al. (2002), Vasey et al. (2002), and Amir, Selvig, et al. (2002), however, the intervention did not require effortful redirecting, but instead occurred through implicit learning or other automatic means. Vasey (personal communication, 2003) has suggested that during ATT, participants may learn that minor threat cues such as pictures or words have no signal value, thus eliminating the bias itself rather than teaching an effortful means of controlling attentional focus.

Critique of ATT as a Psychotherapeutic Intervention

Although ATT shows promise as an intervention component for anxiety and mood problems, appropriate clinical trials have yet to be conducted. Perhaps ATT will be used as an adjunct to CBT, as the two are theoretically compatible. It may be the case that patient groups derive unique benefits from ATT and CBT, making combined approaches most effective; alternatively, an interaction of CBT and ATT may exist, with each intervention exerting positive effects on one's ability to engage in the tasks of the other. For example, those who are able to ignore interoceptive cues and instead attend to exteroceptive cues (a skill that could result from ATT) might also become more

skilled at generating alternative interpretations of events in CBT-related exercises than those who are internally focused. Those who interpret situations in a less catastrophic manner (a skill that could result from CBT) might be very good at disengaging from threat cues in ATT as compared to those who are more prone to catastrophic thinking.

For use in clinical trials, ATT has several benefits over the current group of psychotherapies for anxiety disorders. ATT does away with expectancy effects that confound most therapy outcome studies, allowing for enhanced internal validity. Vasey et al. (2002) report that 91% of ATT participants were unaware that they had been randomized into an active condition, and instead believed that they were receiving a placebo. This aspect of the intervention may also lead to lower treatment credibility ratings in clinical trials, which would provide a very conservative test of the specific mechanism of the intervention (i.e., a shift in attentional focus). ATT requires fewer sessions than CBT for seemingly equivalent short-term effects. Additionally, the intervention is easy to administer and standardize, especially if partly computerized.

Simpson and colleagues (2000) reported that in their studies of the interplay of affect and attention, performance anxiety was a powerful mediator. The mitigation of attentional biases was attenuated among participants who were anxious about their performance on the tasks. The authors found the greatest reductions in emotional activity occurred when attentional task demand was high and performance anxiety low. Emotional activity reduced the least when attentional demand and performance anxiety were both either high or low. These findings highlight the need for repeated practice on ATT tasks until performance anxiety has subsided; alternatively, efforts should be made to dissipate performance anxiety before the onset of ATT.

As mentioned earlier, ATT has shown efficacy with linguistic, pictorial, or auditory cues, suggesting that ATT affects a general attentional mechanism that is modality-independent, such as the AC. Moreover, effects in early studies by Wells were independent of stimulus valence, and occurred as a more general effect of attentional shift from internal to external cues. Therefore, the effects of ATT may be entwined with nonspecific improvements in executive functioning (e.g., improvement in the ability to focus and shift attention toward or away from cues, regardless of cue valence) rather than a correction of biases

toward negative cues per se. The fact that the effects of attention training generalize beyond the stimuli used in the training program (MacLeod et al., 2002) may also be an indication of a more general improvement in the ability to focus and shift attention. This alternative hypothesis could be easily ruled out if pre- and post-training executive test batteries are administered. If the tests show improvement as a result of ATT, then some degree of general executive skill improvement may have occurred, conceivably as a result of training.

Future studies of ATT should strive to improve methodological and measurement aspects. Durability of benefits in most of the current studies has been assessed over brief follow-up intervals (e.g., 1 week following the last training session), and all investigations have included nonclinical or small clinical samples. Attention probes are needed to rule out alternative hypotheses. Outcome measures should be diversified to tap anxious responding in the behavioral and physiological systems as well as the cognitive. Regardless of limitations, ATT appears to be a promising strategy for improving mood, is consistent with contemporary models of emotion and cognition, and should be considered a possible adjunct to the cognitive restructuring techniques used often in CBT. Clinical trials comparing ATT or combined treatments including ATT are needed to evaluate the use of the technique as a viable treatment strategy for anxiety.

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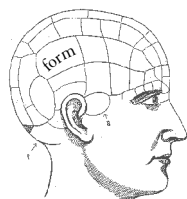
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Through these
shapes and sizes
may you find
propensities
and talents

ADVERTISING

in the Behavior Therapist

Display Ad Preparation

- printing method: offset
- black-and-white
- halftone screening: 133 LPI
- trim size: 8 1/2" x 11"
- binding: saddle stitched
- PDF, Quark files, and camera-ready art accepted
- proof must accompany digital file submissions

Display Advertising

AD SIZES	INCHES (width x depth)	RATE
back cover	7 1/8 x 7	\$550
full page	7 1/8 x 9 7/16	\$400
2/3 page	4 11/16 x 9 7/16	\$275
1/3 page H	4 11/16 x 4 3/4	\$175
1/3 page V	2 3/16 x 9 7/16	\$150
1/6 page H	4 11/16 x 2 3/16	\$75
1/6 page V	2 3/16 x 4 11/16	\$75
1/2 page V	4 11/16 x 7 1/4	\$250
1/2 page H	7 1/8 x 4 3/4	\$250

Thinking of Advertising?

Contact AABT for information on:

- estimates
- display ad design
- multi-placement discounts
- deadline stratagems

CLASSIFIED ADS are only \$4.00 per line. We send you an invoice after publication. E-mail classified ads directly to Stephanie Schwartz, Advertising Manager, at sschwartz@aabt.org (facsimile: 212-647-1865). Camera-ready art may be sent electronically; or: mail hard copy to Stephanie Schwartz, AABT, 305 Seventh Ave., 16th floor, New York, NY 10001.



ISSUE	DEADLINE
January	December 2
February	January 2
Spring	February 3
Summer I	March 3
Summer II	May 3
September	August 2
October	September 3
Winter	November 3

Awards will be presented during AABT's convention in New Orleans, November 18–21.

2004 STUDENT AWARDS PROGRAM

President's New Researcher Award

AABT's President, Patricia A. Resick, Ph.D., invites submissions for the 26th Annual President's New Researcher Award. The winner will receive a certificate and a cash prize of \$500. Submissions will be accepted on any topic relevant to behavior therapy.

Eligible papers must (a) be authored by an individual with five years or less posttraining experience (e.g., post-Ph.D. or postresidency); and (b) have been published in the last two years or currently be in press. Submissions can consist of one's own or any eligible candidate's paper. Papers will be judged by a review committee consisting of Patricia A. Resick, Ph.D.; Jacqueline B. Persons, Ph.D., AABT's Immediate Past-President; and J. Gayle Beck, Ph.D., the AABT President-Elect. Submissions must be **received by Monday, August 16, 2004**, and must include four copies of both the paper and the author's vita. Send submissions to: AABT President's New Researcher Award, 305 Seventh Ave., 16th floor, New York, NY 10001.

Virginia A. Roswell Student Dissertation Award

This award will be given to a student based upon his or her approved doctoral dissertation proposal. The research should be relevant to behavior therapy. Accompanying this honor will be a \$1,000 award to be used in support of research (e.g., pay participants, purchase testing equipment) and/or to facilitate travel to the AABT convention. Eligible candidates for this award should be student members, have already had their dissertation proposal approved, and be investigating an area of direct relevance to behavior therapy, broadly defined. A student's dissertation mentor should send a letter of nomination and provide a 3- to 5-page summary of the proposal. Anything longer than 3 to 5 pages will not be considered. The summary should minimally include a brief introduction to the area of research, methodological design, and a description of the participants. Please send an e-mail version as well as a hard copy of all materials to the program chair, John C. Guthman, Ph.D., AABT Awards and Recognition Committee, 131 Hofstra University, Hempstead, NY 11549; e-mail: cccjcg@hofstra.edu. In addition, send 1 duplicate copy of your submission to AABT, Student Dissertation Award, 305 Seventh Ave., New York, NY 10001.

Elsie Ramos Memorial Student Poster Awards

These awards will be given to three student poster presenters (student first authors only), member or non-member, at AABT's 38th Annual Convention in New Orleans. The winners will each receive a 2004 AABT Student Membership, a 1-year subscription to an AABT journal of their choice, and a complimentary general registration at AABT's 2005 Annual Convention in Washington, DC. To be eligible, students must complete the submission for this year's AABT convention by **March 1, 2004**. The proposal must then pass AABT's peer review process. AABT's Awards and Recognition Committee will judge all student posters. See page 9 for submission information.

AABT

CALL FOR PAPERS

Trish Long, Ph.D., Program Chair



C O M O R B I D I T Y

*The Reality
and Challenges
of Clinical Practice
and Research*

Over the past several decades, significant advances have been made in the development and empirical validation of cognitive-behavioral treatments for a broad range of disorders and problems. We have also begun the important work of disseminating these therapies in a way that is accessible to clinicians and clients. Unfortunately, we still face many challenges in understanding and effectively working with people with comorbid conditions.

Despite the advances that have been made in working with single diagnoses, many clients who suffer psychological distress display problems in multiple areas. How can clinicians work most effectively with individuals who have co-occurring problems? How does/should research explore comorbid conditions and evaluate treatment effectiveness in these cases? What are the implications of having problem conditions that fit in multiple diagnostic categories? How does comorbidity affect theory development? How do issues of comorbidity intersect with issues of gender, education, socioeconomic status, race, sexual orientation, and (dis)ability status?

Submit on-line:
www.aabt.org

DEADLINE:
March 3, 2004

The theme of comorbidity has been selected in the hope that examination and discussion of the questions described above, as well as others, will enhance the practice and evaluation of the behavioral therapies. Submissions that highlight these areas will receive special consideration. Submissions may be in the form of symposia, roundtables, panel discussion, or posters. Research and clinical presentations are sought.

AABT'S 38TH ANNUAL

C O N V E N T I O N

November 18–21, 2004

 NEW ORLEANS

the Behavior Therapist

Association for Advancement of Behavior Therapy
305 Seventh Avenue, 16th floor
New York, NY 10001-6008

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e-mail: publications@aabt.org

www.aabt.org

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