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Clinical Psychology Review 24 (2004) 883–908

CLINICAL PSYCHOLOGY REVIEW

The treatment of social anxiety disorder

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Received 30 September 2003; received in revised form 7 June 2004; accepted 12 July 2004

Abstract

We review the available treatments for social anxiety disorder, focusing primarily on psychotherapeutic interventions for adults, but also giving briefer summaries of pharmacological treatments and treatments for children and adolescents. The most well-researched psychosocial treatments for social anxiety disorder are cognitive-behavioral therapies (CBTs), and meta-analyses indicate that all forms of CBT appear likely to provide some benefit for adults. In addition, there are several pharmacological treatments with demonstrated efficacy, and cognitive-behavioral interventions have some demonstrated efficacy for children and adolescents. We outline a number of concerns regarding this literature, including the questions of what influences treatment response and what role combinations of CBT and medication might have. Clearly, although a number of treatments appear well-established in regard to their effects on social anxiety disorder, a number of opportunities for future research remain, including the search for predictors of who will benefit from which treatment.

Keywords: Social anxiety disorder; Cognitive-behavioral therapy; Meta-analyses

1. Introduction

The scope of articles in this special issue is a testament to the interest in the problem of social anxiety disorder and the large amount of information now available regarding the disorder. However, from the point of view of people who suffer with social anxiety disorder, much of the information presented in this issue pales in comparison to one concern: What treatments can reduce their suffering? The purpose of this paper is to report on treatments for social anxiety disorder. We focus on cognitive-behavioral

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doi:10.1016/j.cpr.2004.07.007

therapy (CBT), the most well-researched class of psychosocial treatments for social anxiety disorder. We also provide briefer reviews of research on pharmacotherapy for social anxiety disorder and cognitive-behavioral treatment options for children and adolescents. In surveying this field of research, we are encouraged by how far it has come and excited by the possibilities for the future.

In this review, we use the term CBT as a generic label, including a number of different techniques that are employed in various combinations. One commonality among these techniques is that most, if not all, involve systematic and repeated practice, where the term practice is defined simply as a set of behaviors that the client and therapist work on together, with the client continuing this work outside of session. This set of behaviors is initially at least partially new to the client and requires effortful and purposeful modification of existing behavioral tendencies through repetition of the new behaviors. We include exposure, applied relaxation, and social skills training in the general category of behavioral practice. In addition, most forms of CBT also include a form of cognitive restructuring practice. We describe these techniques in detail below.

1.1. Exposure

Exposure, in which a client enters and remains in a feared situation despite distress, is a key ingredient of most CBT treatments. Exposure is partially predicated on the assumption that the client must fully experience the feared situation in order for change in affective and behavioral symptoms to occur (e.g., Foa & Kozak, 1986). The mechanism underlying the effects of exposure has been debated for decades. A recent conceptualization that we find convincing is that exposure does not lead to the client unlearning fear responses, but rather generates new, more ambiguous learning that competes with, but does not fully replace, the original fear response (Bouton, 2002; Bouton & King, 1986).

The use of exposure typically begins with creation of a fear and avoidance hierarchy. The client brainstorms a list of feared situations and ranks these situations (with therapist assistance) according to the degree of anxiety they elicit. Specific ratings of anxiety and avoidance are typically collected as well. The finished hierarchy acts as a roadmap for exposure practice.

During exposure, the client is instructed to stay in the feared situation, with the expectation that an exposure of sufficient length will produce new learning or habituation and therefore reduce anxiety in that situation. To keep situations manageable, exposures begin with lower-ranked situations (e.g., moderately anxiety-provoking) and move up gradually to more highly feared situations. Exposures are typically performed both in and out of session, with in-session exposures often taking the form of role-plays that simulate, rather than directly reproduce, the feared situation. For example, the client might carry out a casual conversation with the therapist, who takes on the role of a stranger at a party. When situations are impossible to stage, exposure can also be performed using imagery. For a more in-depth discussion of the use of exposure in treating social anxiety disorder, see treatment manuals by Heimberg and Becker (2002) and Hope, Heimberg, Juster, and Turk (2000).

Although exposure is designed to overcome overt avoidance, clinicians should be aware that subtle avoidance can defeat exposure. Clients with social anxiety disorder, for example, often focus on themselves, attending to physiological symptoms of anxiety or their own internal experience, rather than the situation (e.g., Hope, Gansler, & Heimberg, 1989; Stopa & Clark, 1993). Clients may also attempt to mentally distance themselves from exposure situations (e.g., by telling themselves "It's just a role-play"; Hope et al., 2000). If active engagement with the feared situation, and not merely physical placement of the client in a spatial location, is the active ingredient of exposure, then such strategies are essentially

equivalent to physical avoidance of the situation. Not surprisingly, then, the addition of instructions to focus on the situation increases the efficacy of exposure, presumably because they help prevent subtle avoidance (Wells & Papageorgiou, 1998).

A similar, but conceptually distinct form of subtle avoidance is the use of safety behaviors, which are often employed by people with social anxiety disorder to reduce the perceived probability of negative evaluation by others (Clark & Wells, 1995). Safety behaviors take many forms but are typically matched to the accompanying fear. For example, fearful public speakers may hold their hands behind their back or rigid at their sides, in order to prevent themselves from shaking. Similarly, clients who are afraid of appearing unintelligent may only speak after repeatedly rehearsing the exact wording of what they will say. Clients often credit safety behaviors for their successes, even though safety behaviors may, in fact, have a number of negative consequences. In the examples above, a public speaker who holds her arms behind her back may not be perceived as shaking, but she may nevertheless be perceived as a less competent speaker because of a lack of expressiveness. Similarly, the client who mentally rehearses all verbalizations will be at a distinct disadvantage in providing appropriate responses to questions or in appearing suitably spontaneous in casual conversation. Furthermore, these behaviors should prevent habituation or the modification of negative beliefs, because the client never considers the feared consequence as likely to occur so long as he or she engages in the safety behaviors. Indeed, there is evidence that analyzing and halting safety behaviors enhances the efficacy of exposure (Wells et al., 1995).

1.2. Applied relaxation

Progressive muscle relaxation (PMR; Berstein, Borkovec, & Hazlett, 2000) is a well-known technique for the management of the physiological arousal that often accompanies anxiety. However, PMR alone has repeatedly been shown to have minimal effects (e.g., Alström, Norlund, Persson, Hårding, & Ljungqvist, 1984) and, indeed, has been used as control condition (for comparison to exposure and cognitive restructuring) in studies of the treatment for social anxiety disorder (e.g., Al-Kubaisy et al., 1992). PMR alone is generally accepted as insufficient as a treatment for social anxiety disorder, and we know of no evidence that counters this consensus.

However, PMR forms the underlying basis for applied relaxation, which has shown some efficacy in treating social anxiety disorder. In applied relaxation, clients are trained in PMR and then instructed to practice using relaxation during daily activities and, when the client is sufficiently skilled, when confronting feared situations (Öst, 1987). Essentially, then, applied relaxation is a specific treatment modality that employs a combination and adaptation of the general techniques of PMR and gradual exposure to feared situations in order to provide clients with a new coping response.

1.3. Social skills training

The use of social skills training is often justified with a skills deficit model of social anxiety disorder, which assumes that anxiety arises from inadequate social interaction skills. The logical treatment, given this assumption, is teaching and practicing social skills, and this is most typically accomplished with a combination of modeling, behavioral rehearsal, corrective feedback, and positive reinforcement. Evidence regarding social skills deficits in people with high versus low social anxiety is equivocal, with some studies finding differences (e.g., Stopa & Clark, 1993) and others failing to do so (e.g., Rapee &

Lim, 1992). Furthermore, people with social anxiety disorder may possess adequate social skills but fail to enact them as a result of anxiety or negative beliefs about the behaviors, giving the appearance of social skills deficits when, in fact, this is not the case. In addition, social skills training inevitably involves exposure to feared situations, making its effects difficult to separate from those of exposure. Therefore, although there is good reason to believe that social skills training may be helpful, at least for some clients, it is unclear whether the specific aspects of such programs are essential for all clients.

1.4. Cognitive restructuring

The use of cognitive restructuring for people with social anxiety disorder is based on the rationale that it is not the situation, but the person's thoughts about the situation, that generate anxiety (e.g., Beck & Emery, 1985). The client is usually presented with this model and supporting examples. The client and therapist then work together on identifying automatic thoughts, which are defined as negative, often inaccurate thoughts that produce distress (e.g., Heimberg & Becker, 2002). The therapist models disputation of automatic thoughts for the client, and the client then practices identifying and disputing automatic thoughts inside and outside of session. When integrated into a treatment package, cognitive restructuring is most often used before, during, and after exposure in an attempt to enhance its effects. In this framework, exposure is viewed as a method of challenging automatic thoughts and beliefs rather than simply a process of habituation. For a more detailed description of the use of cognitive restructuring in the treatment of social anxiety disorder, see Heimberg and Becker (2002) and Hope et al. (2000).

2. Review of treatment studies

Our empirical review focuses on meta-analytic investigations of the efficacy of various treatment modalities for social anxiety disorder. Meta-analyses summarize the results of available studies using objective, reproducible methods, and report results in terms of effect sizes, which are a method of expressing the magnitude of an effect without to a particular measure. Such syntheses of the treatment outcome literature represent a potentially more rigorous and comprehensible approach to evaluating the scope of the literature than a subjective review (for a review of the problems of qualitative reviews, see Cooper & Hedges, 1994). For more detail on individual studies included in the meta-analyses, the reader may wish to consult other papers from our research group (e.g., Fresco, Erwin, Heimberg, & Turk, 2000; Turk, Coles, & Heimberg, 2002). After a review of the meta-analytic literature, we present the findings of recent critical studies. Finally, we provide some comments on how these results may be seen as part of a greater whole.

2.1. Summary of meta-analytic results

We have identified five meta-analyses that specifically address the treatment of social anxiety disorder (Chambless & Hope, 1996; Federoff & Taylor, 2001; Feske & Chambless, 1995; Gould, Buckminster, Pollack, Otto, & Yap, 1997; Taylor, 1996). Each used somewhat different methods, but most comparisons of interest are shared across several meta-analyses. Therefore, we provide a summary of results by comparison rather than by reviewing each meta-analysis in detail. In discussing effects sizes, we use Cohen's (1988) *d* and his conventions for small (0.2), medium/

moderate (0.5), and large (0.8) effect sizes. Additionally, it should be noted that controlled effect sizes (which are calculated in comparison to the scores of a control group) are, by nature, more conservative than uncontrolled effect sizes (which are calculated by comparing pretreatment means to means at post-treatment or follow-up). The overall results for validated self-report instruments (the focus of most of the meta-analyses) are displayed in Table 1. The meta-analyses all focus on outcomes for clients who have completed treatment (rather than intent-to-treat samples). However, across meta-analyses, drop-out rates for the cognitive-behavioral therapies are modest (averaging about 10–20%, depending on the studies included) and do not appear to vary among the different CBT techniques. It should still be noted that, depending on the nature of drop-out, completer analyses may provide an overestimate of effect sizes (e.g., if participants who drop out are less likely to have benefited from treatment).

All CBT techniques examined (exposure alone, cognitive restructuring alone, cognitive restructuring plus exposure, social skills training, and applied relaxation) showed moderate to large effect sizes at post-treatment in comparison to waiting-list control conditions (i.e., controlled effect sizes), as well as moderate to large within-group effect sizes from pre- to post-treatment (i.e., uncontrolled effect sizes) across the meta-analyses as a whole. Overall, CBT resulted in maintenance of gains or modest further improvements at follow-up assessments (generally of 2–6 months, although Feske & Chambless, 1995; Chambless & Hope, 1996 include studies with follow-up periods up to 12 months). Significant differences between formats of treatment, treatments themselves, or between treatments and placebo interventions, are more difficult to glean from the set of meta-analyses. No significant difference was found between group and individual formats for CBT interventions (Fedoroff & Taylor, 2001; Gould et al., 1997; Taylor, 1996). Taylor's meta-analysis found that only the combination of cognitive restructuring and exposure was superior to placebo at post-treatment. However, this result was only partially replicated in the more recent meta-analysis by Federoff and Taylor, in which exposure plus cognitive restructuring was superior to placebo at post-treatment on observer, but not self-report, measures. Given that Taylor (1996) included only self-report measures, this difference between meta-analyses may be the result of the inclusion of new studies. Overall, however, firm evidence for differences between types of CBT and between treatment and placebo interventions is lacking in these meta-analyses.

Some variants of CBT may be inferior to cognitive restructuring and exposure, although much of the data are equivocal. Effect sizes for cognitive restructuring without exposure and social skills training were examined in three meta-analyses and were nonsignificantly smaller than the effect sizes for cognitive restructuring plus exposure (Fedoroff & Taylor, 2001; Gould et al., 1997; Taylor, 1996). Applied relaxation, examined in one meta-analysis, also showed a nonsignificantly smaller effect than cognitive restructuring with exposure (Federoff and Taylor). Of course, as with any other significance test, these results may be due to lack of power given the small number of available comparisons. The relative efficacy of exposure alone versus exposure plus cognitive restructuring was examined in each meta-analysis, and none found strong indication of difference between these two treatments.

In essence, the CBT techniques described above appear to be helpful to people with social anxiety disorder. In addition, there is little evidence to suggest that either individual or group treatment yields better results (but see Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003, who showed superior outcome for one type of individual CBT in a study conducted after the publication of the meta-analyses examined here). Depending on the weight one gives to nonsignificantly different effect sizes, CBT consisting of cognitive restructuring and exposure may be perceived as having the most evidence to

Table 1
Effect sizes across meta-analyses of CBT treatments for social anxiety disorder

Meta-analysis (study selection criteria)	Type of CBT	Pre-post		Pre-follow-up
		Within-group ES (*N*)	Controlled ES (*N*)	Within-group ES (*N*)
Feske & Chambless, 1995 (*Standard*)	EXP+CR	.90 (12)	.38 (7)	1.10 (10)
	EXP	.99 (9)	1.06 (7)	1.04 (7)
	Beck–Heimberg CBT	.86 (6)		.94 (6)
Chambless & Hope, 1996 (Selection criteria not explicit; appear to be similar to Feske & Chambless, 1995)	Overall CBT	.94 (14)		1.05 (12)
Taylor, 1996 (*Standard*; plus 5 or more participants per trial; combined trials other than EXP+CR or EXP+SST excluded; broad outcome criteria used)	EXP	.82 (8)		.93 (8)
	CR	.63 (5)		.96 (8)
	CR+EXP	1.06 (11)		1.08 (9)
	SST	.65 (4)		.99 (3)
Gould et al., 1997 (*Standard*; plus use of control group)	CR+EXP		.80 (8)	
	EXP		.89 (9)	
	CR		.60 (4)	
	SST		.60 (3)	
	Overall CBT		.74 (27)	
Federoff & Taylor, 2001 (*Standard*; plus 4 or more participants in each trial; trials focused only on specific social phobias excluded; outcome measures acceptably reliable and valid; samples were unique (no overlapping samples); cross-over designs admitted but data limited to prevent carry-over effects)	EXP	1.08 (7)		1.31 (7)
	CR	.72 (7)		.78 (5)
	EXP+CR	.84 (21)		.95 (10)
	SST	.64 (7)		.86 (4)
	AR	.51 (4)		

Standard study selection criteria=explicit, standardized, reliable diagnostic system (usually Diagnostic and Statistical Manual (DSM) third edition or later); participants were diagnosed with social anxiety disorder or clearly could have been; means and standard deviations available in literature or from author; CBT comparable with standard clinical practice used. ES=effect size (Cohen's *d* or Glass's delta, which is on the same metric). *N*=number of studies. EXP=exposure. CR=cognitive restructuring. SST=social skills training. AR=applied relaxation. Empty cells indicate that a particular effect was not reported. Effect sizes based upon self-report data only are presented here.

recommend it. However, it cannot be said on the basis of these results that the combination of cognitive restructuring and exposure is significantly superior to exposure alone.

2.2. The cognitive restructuring versus exposure conundrum

As the meta-analytic literature currently stands, one is left with the task of making sense of the apparent finding that adding a theoretically driven component (cognitive restructuring) to an apparently

effective treatment (exposure) has no additional effect. This issue deserves closer attention before we review more recent studies and attempt to interpret the results of the literature as a whole. Our research group has written elsewhere about the problems of trying to evaluate exposure alone versus the combination of exposure and cognitive restructuring (e.g., Turk, Fresco, & Heimberg, 1999). For example, if cognitive restructuring plus exposure, compared to a time-equal exposure-only condition, produces equivalent outcomes, there are several possible interpretations. A few of the more defensible interpretations are that cognitive restructuring may not add much, that the outcome is an artifact of the research design, or that cognitive restructuring increases efficiency by requiring that less time be devoted to the conduct of exposures. A more subtle problem is the fact that, since cognitive restructuring involves, in part, mental events that cannot be directly observed, it is difficult to know whether clients receiving exposure alone engage in a form of self-administered cognitive restructuring. In addition, therapists naturally talk clients through exposures and process the results of exposure experiences with clients. At some point, these interactions must take on properties similar to the more formalized interactions involved in cognitive restructuring methods. It is therefore impossible to hold the amount of cognitive restructuring near zero without taking extreme measures that would seriously reduce the external validity of a treatment study (e.g., requiring that clients conduct all exposures between sessions and that therapists and clients do not talk about them).

Similarly, proscribing the use of behavioral experiments to test automatic thoughts (which could and should be construed as exposure) would cripple the task of cognitive restructuring. A purely cognitive restructuring treatment, bereft of behavioral elements, is thus both undesirable and, if the term behavior is used very broadly, actually impossible to achieve. If speaking is defined as a behavior, for example, and positively valenced therapist utterances are treated as reinforcers, it is difficult to see how therapists could avoid engaging in behavioral modification. Moreover, interacting on a regular basis with a person who challenges one's beliefs seems like an exposure in and of itself for people with social anxiety disorder. Given the impossibility of holding one modality constant while adequately performing the other, the supposed dichotomy between cognitive restructuring and exposure may be more a matter of emphasis on aspects of a single technique rather than a difference between two unrelated techniques.

2.3. A proposed resolution to the conundrum

Above, cognitive restructuring was set off from behavioral practice. It has become a tradition to make such a division between techniques derived from traditional behavior therapy and those derived from more recent cognitive frameworks. However, we submit that the dichotomy between behavioral practice and cognitive restructuring, at least from a general CBT perspective, is false. Cognitive restructuring involves practicing a number of behaviors in and out of session. Regardless of one's stance regarding the legitimacy of mental events as a topic of research or a target of intervention, the practice of cognitive restructuring involves the use of verbal behavior, writing behavior, and the production of logical arguments in both written and verbal form. These are certainly behaviors, even if one is uncertain about the status of the mental events these behaviors are supposed to address. Similarly, whether this practice leads to changes in the contents of thoughts (as one might argue based on, e.g., Beck, Rush, Shaw, & Emery, 1979, or Beck, 1995) or to a new way of dealing with mental events (as one might argue based on, e.g., Hayes, Strosahl, & Wilson, 1999, or Segal, Williams, & Teasdale, 2002) is open for debate. Clearly, however, cognitive restructuring is a form of practice that the client is taught in session and

encouraged to use outside of session. Given the empirical evidence reviewed above, this practice seems to work best when paired with the practice of exposure.

From either a cognitive-behavioral or more strictly behavioral point of view, exposure to the situation (in some fashion), or, at the very least, activation of mental representations of the situation, is essential for new learning to occur. From a cognitive perspective, in order to either replace or disregard a maladaptive thought or erroneous belief, the client needs new learning (or a new connection with existing learning) as a reason for doing so. In most instances, the situation provides the strongest forum for this learning, as it leads to the mental events in question, and the client typically ties the content of the mental events to the situation. From a strictly behavioral point of view, the issue is somewhat simpler, but identical in import: The client must remain in the situation long enough for habituation to occur, or for new, competing information to be learned, such that the association between the inherently neutral situation and the negative feared consequence may be reduced in strength through competition with new learning that the situation is actually safe.

Essentially, all CBT practices work on the assumption that the client needs to experience a difference in the situation; they only disagree about what the nature of this difference should be. The technique of applied relaxation suggests that the experience of relaxation, rather than tension, in the situation is the most helpful difference. Social skills deficit models propose the use of social skills training on the assumption that clients need to experience acting skillfully, rather than incompetently, in the situation. In exposure plus cognitive restructuring, the assumption is that clients need to remain in the situation while, at the same time, changing or forming a different relationship with their anxiety-provoking thoughts by noticing what the situation is really like. Here, the difference of prime importance is that of the difference between the client's ideas about the self in relation to the situation versus the client's actual experience of the self in relation to the situation. In our work with clients, we have repeatedly found them to have relatively simplistic, stereotyped expectations regarding social situations. To a certain extent, the important issue is not that these expectations generate inaccurate predictions (although they usually do), but that these expectations are based on a paucity of rich experiences in the social world. It should not be surprising that clients are unable to feel comfortable in a situation that they have never fully experienced.

In our view, the difference between expectations based on limited, inaccurate information and expectations based on rich experience is the fundamental kind of difference that clients with social anxiety disorder need to experience. These kinds of experiences both support and enhance the possibility of further growth and change. Our aim in treating people with social anxiety disorder is to help them reach their own goals, but it is very difficult to adequately define a goal when initial information is faulty and incomplete. If, upon experiencing the situation and their own behavior as authentically as possible, clients find that they wish to make other changes (e.g., relaxing or acting more skillfully in the situation), they are more empowered to pursue such goals than they would have been before the experience. Until they have such an authentic experience, we believe it is very difficult for clients or therapists to truly assess what kinds of changes would allow the client to function best in the situation. In addition, for many clients, the simple experience of truly encountering and systematically processing feared stimuli is sufficient to produce change.

Basically, although other viewpoints propose that certain deficits on the part of the client (e.g., inability to relax or lack of social skill) prevent the client from engaging effectively with the situation, the exposure and cognitive restructuring approach suggests the more basic proposition that clients have, in a way, never really been in the situation to begin with, and that this experience is necessary before other meaningful changes can be made. We propose, therefore, that both cognitive restructuring and

exposure should be considered fundamental and essential aspects of CBT for social anxiety disorder and that they are best considered as interrelated techniques designed to do the same thing: allow the client to experience what the situation is actually like, as opposed to how they fear or think it will be.

A final question that might be raised on this point is whether recent results from Clark, Ehlers, McManus, Hackmann et al. (2003; see below), regarding a therapy that is described as cognitive, has any impact on the general conclusion drawn above. We do not believe it does. Careful consideration of the elements of the therapy finds them all in line with the goals of allowing the client a full experience of the situation and contrasting this experience with the client's fears and beliefs. Certainly, the use of video feedback and external focus are in line with this goal. Experiments with safety behaviors may, at first, appear to be primarily an attempt to convince the client that he or she must change behavior in the situation. However, this argument misses the point that safety behaviors are essentially self-taught behaviors that are designed to hide what clients think of as the way they naturally come across. Thus, encouraging clients to abandon safety behaviors, and showing that abandoning such behaviors helps them meet their goals, actually provides an even stronger endorsement of the message that clients need to fully experience the situation before they can make changes in a skillful manner.

2.4. Recent studies

Thus far, we have focused primarily on meta-analytic studies because we believe they most effectively remove such considerations as reviewer bias and the otherwise unavoidably idiosyncratic nature of individual studies. However, we also wish to present the most complete review of the treatment literature, which requires attention to more recent studies that have not yet been included in a published meta-analysis.

Although this review has focused on CBT techniques, we are also aware of promising results of an uncontrolled trial of interpersonal psychotherapy for social anxiety disorder (Lipsitz, Markowitz, Cherry, & Fyer, 1999). Although controlled trials are needed, this study provides an example of a manualized, non-CBT form of psychotherapy that may be efficacious in treating social anxiety disorder. Although many specific forms of social anxiety disorder (e.g., fear of public speaking) seem somewhat less intuitively amenable to interpersonal techniques, we have routinely found that our clients with generalized social anxiety disorder voice complaints that might be well addressed through interpersonal methods. We thus look forward to more information about the effects of this therapy.

A more well-documented variety of social anxiety treatment is the individual cognitive-behavioral therapy pioneered by D.M. Clark and colleagues. This therapy is based on the cognitive model of social anxiety disorder presented by Clark and Wells (1995). Controlled evaluations have begun to appear in the literature (e.g., Clark, Ehlers, McManus, Hackmann et al., 2003; Stangier et al., 2003) and suggest that this therapy may be a strong addition to existing forms of CBT.

Clark, Ehlers, McManus, Hackmann et al. (2003) compared their individual CBT to both placebo and fluoxetine in participants who met criteria for generalized social anxiety disorder. The placebo and drug conditions were not significantly different, which may result from questionable efficacy on the part of fluoxetine (see below) or because participants in both conditions received self-exposure instructions. Regardless, CBT showed significantly stronger effects when compared to both conditions at post-test and at a 12-month follow-up. Indeed, the uncontrolled effect sizes for the CBT condition were quite large (Cohen's d larger than 2.0 on a composite of social anxiety disorder-related measures), although within the range of uncontrolled effect sizes reported in recent trials of CBT for

other disorders (e.g., CBT for generalized anxiety disorder; Borkovec, Newman, Pincus, & Lytle, 2002). A recent presentation on this therapy from the same research group has suggested that the individual cognitive therapy is superior to exposure plus applied relaxation (Clark, Ehlers, McManus, Grey et al., 2003). The comparison between these two treatments represents a fairly stringent test, given that both treatments involve systematic exposure to social situations, which is arguably a key ingredient in any CBT for social anxiety.

Stangier et al. (2003) compared the individual CBT to both group CBT and wait-list. Both the individual and group therapies were based on the model of D.M. Clark and colleagues. Overall, the individual therapy was superior to both group therapy and wait-list, with individual therapy showing large effect sizes and group therapy showing more moderate effect sizes. This finding is in contrast to the findings of the meta-analyses, in which individual and group therapy were found to be equivalent. The results of this study may indicate that this particular therapy is less effective in group format. The effect sizes, which were derived by comparing the treatment conditions to wait-list, were numerically smaller than the uncontrolled effect sizes reported by Clark, Ehlers, McManus, and Hackmann et al. (2003), but still quite large (a mean of 1.17 for social anxiety disorder measures). The work of Stangier and colleagues is of particular interest given that it represents a general replication of Clark, Ehlers, McManus, Hackmann et al. but in a different setting (i.e., a different country with a different language, although it should be noted that D.M. Clark supervised the treatments and is a coauthor of the paper).

An individual form of Heimberg's CBT for social anxiety disorder has also recently been investigated (Zaider, Heimberg, Roth, Hope, & Turk, 2003). In an initial trial, this manualized treatment, which is a modified form of cognitive-behavioral group therapy described by Heimberg and Becker (2002), was compared to a wait-list control. Full results are not yet available, but controlled effect sizes on a variety of validated self-report measures of social anxiety disorder symptoms are available and were quite large (mean d=1.19).

There have, of course, been other recent studies of the outcome of psychotherapy in social anxiety disorder, some of which are addressed in other sections of this paper (e.g., Foa et al., (2003), trial comparing CBT, medication, and the combination to placebo). However, the above studies represent the bulk of well-controlled trials addressing most directly the issue of what effect specific psychotherapies have on social anxiety disorder. Having reviewed the results of the meta-analyses and results of more recent studies, the task remains to synthesize these results and evaluate the variety of hypotheses that might be generated for interpreting the results.

2.5. Interpretation of effects

The overall message of the meta-analyses appears to be that all forms of CBT work reasonably well, but little difference can be found between them. We have already addressed, at length, why this finding makes a great deal of sense in a general CBT framework. That is, they may produce similar effects because they effect the same change through different means. An alternative view is that treatments have failed to distinguish themselves from each other because they are largely ineffective. However, the generally moderate to large controlled effect sizes indicate that the treatments have impact: A truly ineffectual treatment would not produce a moderate controlled effect size, even in comparison to a wait-list control. Nevertheless, the issue deserves further consideration. Given that the meta-analyses were inconsistent regarding whether CBT surpassed placebo, it could be argued that the

effects of CBT, although not ineffectual, are nonspecific. Comparisons to the effects of CBT in other anxiety disorders, as well as evaluations of the clinical significance of the effects, may be helpful in further clarifying these issues.

There are only slight indications that CBT for social anxiety disorder may have lagged behind the treatment for other anxiety disorders. Effect sizes for the treatment of panic disorder by behavioral or cognitive-behavioral methods have varied across meta-analyses, with some finding medium-to-large effects (e.g., a mean controlled ES of .68; Gould, Otto, & Pollack, 1995) and some finding more consistently large effects (e.g., mean controlled ES of 1.3–1.4; Clum, Clum, & Serls, 1993). Thus, the range of controlled effect sizes reported for CBT for social anxiety disorder overlap with but do not extend as high as the range of effect sizes reported for CBT for panic disorder. Similarly, when only recent, methodologically rigorous studies of the empirically supported treatments for generalized anxiety disorder are considered, the effects are somewhat larger than typically reported for social anxiety disorder (a controlled effect size of 1.2, Westen & Morrison, 2001). However, when a broader range of studies is considered, the controlled effect size for CBT is reduced and within the same range as the controlled effects reported for CBT for social anxiety disorder (e.g., d=0.90 in Gould, Safren, Washington, & Otto, 2004). Overall, then, past CBT for social anxiety disorder, showing moderate to large effects, appears to produce effects of the same general class as CBT for panic disorder and generalized anxiety disorder, although CBT for these disorders has shown more consistently large effects. It is only in comparison to more recent studies that the effects reported in the social anxiety disorder meta-analyses may appear somewhat small. We discuss this issue further below.

Not all studies (particularly older ones) provide information on clinically significant change, making it difficult to interpret, in a meta-analytic fashion, just how meaningful a moderate to large effect size is to the participants involved. However, the literature does contain instructive examples. Heimberg et al. (1990) reported the percentage of participants, by condition, whose social anxiety symptoms were reduced by two or more standard deviations. The uncontrolled effect size for this study is well within the general range found for studies of CBT, although the controlled effect size is smaller, most likely because of comparison to a highly stringent control condition (an educational supportive group therapy). Regardless, at 6-month follow-up, 65% of participants showed clinically significant change, versus 35% of participants in the control condition. Thus, a treatment with an effect size typical of those reported in the meta-analyses can result in a large percentage of clients who demonstrate clinically significant change. Thus, while the meta-analyses indicate that there is significant room for improvement in treatment, they also indicate that these treatments produce desirable results. Of course, because not all studies present results such as the above, there is no way to guarantee that all studies with similar effect sizes produced similar improvement. However, the evidence is clear that one cannot support the argument that all the therapies produced similar effect sizes because they were similarly ineffective.

It is tempting to conclude that recently formulated therapies represent a large step forward from previous forms of CBT. Indeed, perhaps the most immediately striking difference between the meta-analyses and more recent studies are the disparities between the effect sizes reported. How these results may be most appropriately interpreted requires more thorough evaluation, given that it is very difficult to compare individual studies to the molar results of meta-analyses. For example, some aspects of these apparent differences may be at least partially due to the passage of time (e.g., CBT

therapies in general may be improving at the same time that knowledge about the disorder accumulates), artifacts of the populations studied (e.g., more recent studies have tended to focus on people with generalized social anxiety disorder, who are more impaired but have more room to improve than people with specific social fears), or advances in measurement (e.g., the use of more reliable measures). Indeed, the results presented by Zaider et al. (2003) suggest that an updated treatment based on Heimberg's group CBT produced effect sizes larger than those produced by the original protocol and similar to those reported in studies of the CBT developed by Clark, Ehlers, McManus, and Hackmann et al. (2003), Stangier et al. (2003). In short, then, these studies must be interpreted in the context of comparable studies of other treatments. An updated meta-analysis of the treatment of social anxiety disorder appears to be in order.

2.6. A final word about meta-analyses

In suggesting that a new meta-analysis is needed, we would also like to offer some suggestions as to how such an effort could avoid pitfalls we see in their predecessors. Although we have stated, and believe, that meta-analyses offer an objective alternative to the inherently subjective nature of qualitative reviews, we do not believe that the meta-analyses described above fully deliver on that promise. Like any other statistical procedure, meta-analysis is based on certain assumptions that, if violated, make interpretations unclear. For example, generalizing from the conclusions reached by the above meta-analyses is only meaningful in as much as the studies analyzed are an unbiased sample of the types of treatment studies that could be conducted (for a discussion of this and related issues, see Matt & Cook, 1994). To us, it appears clear that there are some systematic differences between the classes of treatment studies, and these differences may affect outcome. For example, treatments combining cognitive restructuring and exposure have often been tested against more stringent controls, such as pill placebo or education-support control conditions, than exposure-alone, which has been most often compared to a wait-list control, or social skills training, which has most frequently been examined in uncontrolled studies. More stringent control conditions are typically employed in the interest of the most careful evaluation of the effects of cognitive restructuring and exposure treatments, but they may, ironically, place these treatments at a disadvantage in the environment of meta-analysis. We believe that these issues deserve further, systematic consideration in order to determine what effect such variations may have on the results of meta-analyses. Such a systematic review could also address the issues regarding passage of time and methods of measurement, mentioned above as a potential explanation for the effect sizes found in more recent studies. Until such a systematic review is available, we invite the reader to look beyond the meta-analyses and directly evaluate the groups of studies they examine.

3. Predictors of treatment response to CBT

Although CBT has been found to be efficacious in the treatment of social anxiety disorder, as previously noted, a number of clients still do not achieve clinically significant improvement by the end of therapy. Several studies have examined the role of particular variables in predicting response to treatment and their influence on overall therapeutic outcome.

3.1. Expectancy for improvement

Expectancy for change during treatment has been shown to be significantly related to outcome among individuals receiving both individual and group CBT. In one study, individuals who reported higher expectancy for benefit and who had stronger beliefs regarding the efficacy of the treatment were more likely to improve and maintain their gains on measures of anxious apprehension and self-ratings of conversation role-play anxiety and performance (Chambless, Tran, & Glass, 1997). In another study (Safren, Heimberg, & Juster, 1997), clients' expectancy ratings prior to treatment significantly predicted clinicians' ratings of the severity of social anxiety disorder at the end of treatment, above and beyond clients' pretreatment severity scores. Expectancy for change was also strongly related to post-treatment scores on self-report measures of social anxiety and depression. Interestingly, clients' expectancy ratings were strongly related to pretreatment severity, duration of illness, and subtype of social anxiety disorder, suggesting that individuals with more severe and enduring forms of social anxiety are less likely to expect to benefit from treatment.

In a study comparing the efficacy of exposure plus anxiety management to that of exposure plus a nonspecific control treatment, Butler, Cullington, Munby, Amies, and Gelder (1984) found expectancy ratings at pretreatment to be unrelated to therapeutic outcome. However, expectancy ratings at session four were related to improvement on measures of social anxiety, as individuals receiving exposure plus anxiety management, who demonstrated greater improvement by the end of treatment, rated their expectancies for improvement significantly higher than individuals in the exposure plus control treatment group. The latter finding is difficult to interpret, however, because a rating of expectancy at that point in treatment might be based on how well the treatment had actually worked so far, making it partially a measure of outcome, which should, of course, be expected to relate to improvement. Despite this difficulty, the preponderance of evidence suggests some relationship between expectancy and outcome.

Low expectancy for improvement may affect treatment outcome in a number of ways, such as putting a damper on the degree to which clients are willing to engage in challenging exposures or homework assignments. Early detection of low expectancy for improvement among clients seeking treatment for social anxiety disorder may allow clinicians to improve the likelihood of treatment response by addressing these beliefs prior to focusing on presenting concerns. However, there have been no empirical demonstrations of this effect to date.

3.2. Homework compliance

An important ingredient of CBT for social anxiety disorder has been between-session homework assignments. These assignments most often consist of exposures to anxiety-evoking situations as well as self-administered cognitive restructuring activities. To date, three studies have examined the relationship between homework compliance and outcome of CBT for social anxiety disorder. For the most part, clients classified as homework compliant did not achieve better outcome scores at post-treatment than those who were less compliant (Edelmann & Chambless, 1995; Woody & Adessky, 2002). However, in one study, compliant clients reported greater decreases in avoidant behaviors and less anxiety while giving a speech at 6-month follow-up (Edelmann & Chambless, 1995). The contribution of homework compliance to treatment outcome during each phase of therapy has also been examined, with differential effects evident as the focus and content of homework assignments systematically changes over the

course of treatment (Leung & Heimberg, 1996). In the Leung and Heimberg study, completion of assignments during the first phase of treatment (weeks 1 and 2), which primarily focused on education regarding the cognitive-behavioral model of social anxiety and the initiation of self-monitoring exercises, was minimally related to treatment outcome; whereas compliance during the last phase of treatment (weeks 8–12), with homework focused on in vivo exposures and associated cognitive preparation, showed a strong relationship to outcome. Interestingly, compliance with homework assignments during the middle phase of treatment (weeks 3–7) was positively correlated with social anxiety, suggesting that symptoms of social anxiety increased upon the introduction of exposure-based homework assignments (among those individuals who were compliant). We have often seen such increases in anxiety symptoms in our clinical work, and it is not surprising when one considers that clients are, often for the first time, exposing themselves to feared situations. The fact that later compliance results in improvement corresponds to our clinical impressions that clients who remain committed to the treatment and their homework move past this initial surge of anxiety to make substantial and significant gains. However, an alternative explanation for the relationship between homework compliance and reduction of social anxiety symptoms may be that individuals who derive meaningful benefit from treatment and believe in its rationale are more willing to complete homework assignments, especially during later phases of treatment. Further investigations on the topic of homework compliance are warranted.

3.3. Subtype of social anxiety disorder and avoidant personality disorder

A number of studies have examined the influence of subtype of social anxiety disorder (i.e., generalized versus nongeneralized) and avoidant personality disorder (APD) on CBT outcome. Most studies assessing the impact of subtype on response to treatment have found few differences with respect to degree of improvement; however, individuals with the generalized subtype of social anxiety disorder have consistently been found to be more impaired prior to and following treatment (e.g., Brown, Heimberg, & Juster, 1995; Hope, Herbert, & White, 1995). One study found that individuals with generalized social anxiety disorder were less likely to achieve moderate or high end-state functioning at the end of treatment (Turner, Beidel, Wolff, Spaulding, & Jacob, 1996). Thus, CBT appears to be equally effective for clients with both types of social anxiety disorder in terms of producing change, and differences between the two groups that are present at post-treatment are likely an artifact of differences in pretreatment severity.

Individuals with social anxiety disorder and comorbid APD have consistently demonstrated more severe symptomatology before and after treatment than those without APD, a finding very similar to that observed in individuals with the generalized subtype. Nevertheless, most studies have found both groups to improve at the same rate, suggesting that a comorbid diagnosis of APD has little specific effect on outcome and may be more an indicator of greater severity of social anxiety disorder than a separate diagnostic category (Brown et al., 1995; Heimberg, 1996; Heimberg, Holt, Schneier, Spitzer, & Liebowitz, 1993; Hofmann, Newman, Becker, Taylor, & Roth, 1995; Hope et al., 1995; Van Velzen, Emmelkamp, & Scholing, 1997). Two studies have examined the effect of APD on treatment outcome among persons with generalized social anxiety disorder. Brown et al. (1995) found similar rates of response to group CBT among individuals with generalized social anxiety disorder with and without APD. However, Feske, Perry, Chambless, Renneberg, and Goldstein (1996) found clients with comorbid generalized social anxiety disorder and APD to improve at a poorer rate than those with generalized

social anxiety disorder alone. Studies that did not consider subtype of social anxiety disorder (thereby confounding generalized social anxiety disorder and APD) have found clients with comorbid APD to benefit much more slowly from treatment than clients without APD (Van Velzen et al., 1997). The undesirable effect of APD (or more severe types of social anxiety disorder) on outcome in some studies may be due to the reluctance of individuals with these characteristics to fully engage in treatment, particularly those components involving interaction with others (e.g., in-session exposures). However, the relatively weak results across studies suggest APD has little specific effect on treatment outcome.

3.4. Axis I comorbidity

Social anxiety disorder has commonly been found to be highly comorbid with other Axis I disorders, such as other anxiety disorders, depression, and substance use disorders (Kessler et al., 1994; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992). Therefore, it is important to understand how comorbidity affects the course of treatment. In an examination of the effect of Axis I comorbidity on response to group CBT at both post-treatment and 12-month follow-up, clients with a comorbid anxiety disorder responded similarly to those with uncomplicated social anxiety disorder (Erwin, Heimberg, Juster, & Mindlin, 2002). However, individuals with a comorbid mood disorder were found to have more severe social anxiety, both before and after treatment. Therapeutic gains were maintained by individuals in all three groups through 12-month follow-up. Chambless et al. (1997) found pretreatment levels of self-reported depression to be the single most significant predictor of treatment outcome. More depressed individuals were less likely to improve on measures of anxious apprehension and anxiety than less depressed individuals. Other studies examining the influence of comorbid Axis I disorders (i.e., dysthymia, GAD, or simple phobia) on treatment outcome have found equivocal results, with some suggesting the presence of additional Axis I disorders has little to no influence on the rate of overall improvement or the level of end-state functioning (Mennin, Heimberg, & Jack, 2000; Turner et al., 1996; Van Velzen et al., 1997).

3.5. Anger

Though some evidence exists to suggest that individuals with social anxiety may be more likely to experience difficulties with anger than those without an anxiety disorder (Fitzgibbons, Franklin, Watlington, & Foa, 1997; Meier, Hope, Weilage, Elting, & Laguna, 1995), only one study has examined the influence of anger on response to treatment in individuals receiving CBT for social anxiety disorder (Erwin, Heimberg, Schneier, & Liebowitz, 2003). Individuals with higher levels of trait anger were more likely to terminate treatment prematurely. Among those who completed treatment, elevations in state anger, trait anger, and the tendency to suppress the expression of angry feelings at pretreatment were significantly associated with greater post-treatment social anxiety, fear of negative evaluation, and depressive symptoms, even after controlling for pretreatment levels of social anxiety. Further research should examine whether anger exerts an effect on outcome by increasing attributions for one's anxiety to others' behavior rather than one's own, which may undermine motivation for self-change. It will also be important to examine whether intervening with problematic anger and anger suppression helps the client become more available to the treatment experience, and, if so, what methods are most efficacious for such an intervention.

4. Pharmacological treatments for social anxiety disorder

Since the late 1970s, there has been increasing interest in medication options for the treatment of social anxiety. Early studies of drug treatments provided only equivocal support for their efficacy (at least partly due to methodological flaws, heterogeneous samples, and poorly operationalized diagnostic criteria; see Blanco, Anita, & Liebowitz, 2002). However, a number of recent empirical studies (e.g., Stein, Fyer, Davidson, Pollack, & Wiita, 1999; Van Ameringen et al., 2001) and meta-analyses (Blanco et al., 2003; Fedoroff & Taylor, 2001; Gould et al., 1997; Hidalgo, Barnett, & Davidson, 2001; Van der Linden, Stein, & van Balkom, 2000) now suggest that several medications are useful in treating social anxiety disorder. For a number of years, the monoamine-oxidase inhibitors (MAOIs), including drugs such as phenelzine sulfate, were considered the pharmacological treatment of choice for social anxiety disorder (Blanco et al., 2002). However, newer medications, such as the selective serotonin reuptake inhibitors (SSRIs), have been utilized with increasing frequency. In recent years, the SSRIs paroxetine and sertraline and the norepinephrine-serotonin reuptake inhibitor venlafaxine have been approved by the Food and Drug Administration for the treatment of social anxiety disorder.

In a recent meta-analysis, Blanco et al. (2003) found phenelzine to produce the largest improvement in measures of social anxiety, with an overall controlled effect size (ES) of 1.02. However, phenelzine did not perform significantly better than other medications included in this investigation, including the high potentcy benzodiazepine clonazepam (ES=.97), the anti-convulsant gabapentin (ES=.78), the reversible inhibitor of monoamine oxidase-A brofaromine (ES=.66), and the SSRIs (ES=.65). Effect sizes for the SSRIs sertraline, fluvoxamine, and paroxetine ranging from .30 to 2.2 have been reported (Van der Linden et al., 2000). Well-tolerated, safer drugs like the SSRIs may be better first-line treatments for social anxiety disorder, reserving highly efficacious medications with some associated health risks, such as phenelzine, for use where other treatments have been ineffective (Blanco et al., 2003).

4.1. CBT in comparison to medication

The relative efficacy of cognitive-behavioral and pharmacological approaches has important implications for those looking to provide their clients with the best treatment available. However, because few studies have directly compared the efficacy of CBT and pharmacotherapy for social anxiety disorder, conclusions regarding which treatment modality is most effective are difficult to make. A handful of individual studies and meta-analytic investigations of studies that have examined these approaches separately provide the clearest picture of how these two modalities compare. Gould et al.'s (1997) meta-analysis examined effect sizes of 24 controlled trials that evaluated either cognitive-behavioral or pharmacological treatments for social anxiety disorder. Both pharmacological and cognitive-behavioral treatments were superior to control conditions, as demonstrated by controlled effect sizes of .62 and .74, respectively. These two approaches, however, were not significantly different from each other. Furthermore, CBT and medication had nearly equivalent rates of attrition at post-treatment and follow-up; however, the latter finding should be interpreted with caution, as a large number of pharmacotherapy studies failed to include follow-up data.

In contrast, a meta-analysis by Fedoroff and Taylor (2001) found pharmacotherapies to be more effective than cognitive-behavioral treatments. In particular, SSRIs and benzodiazepines yielded the

largest effect sizes, both performing better than control conditions but not significantly different from one another. In fact, benzodiazepines were found to perform better than the MAOIs and CBT (i.e., cognitive restructuring, cognitive restructuring plus exposure, and social skills training). However, the SSRIs were not significantly better than these treatments, nor were the MAOIs more effective than CBT. Because most pharmacotherapy studies failed to provide follow-up data, Fedoroff and Taylor (2001) were not able to compare CBT and medication with respect to their ability to maintain therapy gains beyond post-treatment assessment, which has been demonstrated for CBT elsewhere (e.g., Heimberg, Salzman, Holt, & Blendell, 1993; Liebowitz et al., 1999; see below). Though pharmacotherapies appear to be somewhat more effective than cognitive-behavioral interventions in the short-term (Fedoroff & Taylor, 2001), further research comparing these two approaches over long-term follow-ups may provide additional support to the assertion that CBT is a more effective treatment across longer time periods, with more durable, lasting effects than those produced by pharmacological agents.

As addressed earlier, few studies have directly examined the relative efficacy of CBT and specific medications for social anxiety disorder. A multi-site study conducted by Heimberg and colleagues (Heimberg et al., 1998; Liebowitz et al., 1999) addressed this issue in an investigation of Cognitive Behavioral Group Therapy (CBGT), phenelzine, pill placebo, and a credible psychological placebo (Educational Supportive Group Psychotherapy). Both phenelzine and CBGT were associated with higher rates of response at 12 weeks (77% of treatment completers receiving phenelzine and 75% of treatment completers undergoing CBGT were classified as treatment responders) than pill placebo and attention-placebo conditions (Heimberg et al., 1998). Rates of attrition across conditions did not differ. Interestingly, 52% of clients in the phenelzine group met responder criteria after 6 weeks of treatment, compared to only 28% of individuals receiving group CBT, suggesting the onset of benefits occurs much more rapidly with the medication treatment than the psychosocial therapy. Overall, phenelzine was superior to CBGT on some dimensional measures, despite similar rates of response at 12 weeks (Heimberg et al., 1998).

Liebowitz et al. (1999) assessed the long-term outcome of clients receiving either phenelzine or CBGT and who met responder criteria after 12 weeks of treatment in the Heimberg et al. (1998) study. After a 6-month maintenance phase and an additional 6-month follow-up phase, 50% of clients from the phenelzine group had relapsed, compared to only 17% of clients who had received CBGT. Taken together, these results suggest that, although phenelzine may offer more immediate benefit, the coping skills gained during CBGT may help clients to maintain their treatment gains and prevent a significant proportion of the relapses observed in the medication group (Liebowitz et al., 1999).

Results of other published studies comparing the efficacy of CBT to medication treatments have been difficult to interpret due to methodological limitations. Several studies compared CBT to medications that have not been shown to surpass placebo in previous research, making it impossible to generalize to medications that do (Clark & Agras, 1991; Clark, Ehlers, McManus, Hackmann et al., 2003; Turner, Beidel, & Jacob, 1994). A number included instructions for self-exposure in the medication conditions, thus including an aspect of CBT in the medication protocol (e.g., Clark, Ehlers, McManus, Hackmann et al., 2003; Gerlerntner et al., 1991; Otto et al., 2000). One (Otto et al., 2000) included no control condition. Additional, better designed studies directly comparing CBT to various pharmacological agents are greatly needed to aid professionals in providing their clients with the most effective and up-to-date care available. Studies addressing CBT and pharmacotherapy combinations may provide additional information for confronting this challenge.

4.2. CBT–medication combinations

Given that both medication and psychotherapy appear to have data to recommend them, interest in the possibility of combining the two approaches has grown. Indeed, many people with social anxiety disorder who seek help at our clinic are already taking some form of psychoactive medication, making the possible interactions of medication and psychotherapy an extremely practical concern. However, as members of our research group have argued elsewhere (e.g., Heimberg, 2002; Zaider & Heimberg, 2004), there is no certainty that two treatments are better than one unless they potentiate each other or target different aspects of the disorder. If medication and psychotherapy basically serve the same function through different means, combining the two may not have any more effect than that of increasing the dose of one or the other. In addition, although it is possible that one treatment may have properties that enhance the other (e.g., medication that reduces anxiety may make it easier for a therapeutic alliance to be established), it is equally possible that one treatment may have properties that detract from the other (e.g., a client who has responded well to a medication might have little motivation for psychotherapy or homework assignments). It is therefore crucial to systematically examine the ways in which these treatments might interact.

At present, relatively little published evidence is available regarding the treatment of social anxiety disorder using combination treatment. Two studies combined CBT with medications that have not performed better than placebo (Clark & Agras, 1991; Falloon, Lloyd, & Harpin, 1981). Other studies provide potentially interesting information about combining CBT and medication. Blomoff et al. (2001) tested sertraline versus pill placebo, each in conjunction with either physician-assisted exposure or non-directive encouragement and support, in a 2×2 design. At week 8, clients receiving sertraline plus exposure showed significantly more improvement than clients receiving pill placebo and supportive care. At week 12, at which point the exposure therapy ended, all active treatments were superior to the placebo and non-directive encouragement condition, but there were no differences between active treatments. By week 24, sertraline was superior to pill placebo, and there was a trend for the exposure conditions to be superior to the support conditions. Exposure appeared to add somewhat to sertraline, at least in terms of efficiency (i.e., the combination treatment showed significant change earlier), but there were few significant differences between sertraline with and without exposure. The long-term results, however, were quite different. A 1-year follow-up of clients in this study reported by Haug et al. (2003) showed that those who received exposure and supportive treatment continued to improve, whereas clients in the other conditions, including the combination treatment, failed to do so. In fact, there was some indication that clients who received sertralineã with or without exposureã deteriorated during the follow-up period, although all active treatment conditions were superior to placebo interventions alone. It may be that sertraline actually impeded the effects of exposure in the long run, even though the combination appeared more beneficial in the short term. A more general issue brought up by this study, however, is the relatively high rate of relapse experienced by clients who take medication alone, about which we have more to say below.

There are two large-scale multi-site studies, as yet unpublished, that also address the issue of combination treatment. Heimberg and Liebowitz recently compared phenelzine, CBGT, the combination of phenelzine and CBGT, and pill placebo. Preliminary data suggest that there may be a modest benefit for the combination treatment, but the full data set is not yet available (Heimberg, 2003). Similarly, Foa et al. (2003) reported on a recently completed a study with a similar design using fluoxetine. Preliminary

results of this study suggest that all active treatments were superior to placebo, but the combined treatment did not show any additional efficacy in initial analyses.

It is possible that combination treatments may reduce the high rate of relapse found for the most favored medication treatments for social anxiety disorder. In studies of placebo-controlled discontinuation with paroxetine (Stein, Veriani, Hair, & Kumar, 2002; Stein et al., 1996) and sertraline (Walker et al., 2000), and in an uncontrolled discontinuation study with phenelzine (Liebowitz et al., 1999), relapse rates varied between 30% and 60%, but were consistently higher than relapse rates reported for group CBT (17%; Liebowitz et al., 1999). Because the available evidence suggests that CBT may have a lower relapse rate, it seems logical to explore the possibility that CBT may help reduce relapse upon medication discontinuation. Although this strategy has been successfully employed in the treatment of panic disorder (e.g., Otto et al., 1993), data are still needed to examine whether it will be useful for social anxiety disorder.

5. Treatment of children and adolescents

Cognitive-behavioral approaches to treating childhood and adolescent social anxiety disorder have largely consisted of modified versions of commonly used adult interventions. For example, Kendall's (1990) Coping Cat Workbook was designed to facilitate children's interest and involvement in treatment goals, with an emphasis placed on (a) recognizing anxious feelings and somatic reactions to anxiety, (b) clarifying cognitions in anxiety-provoking situations, (c) developing a plan to help cope with the situation, and (d) evaluating performance and administering self-reinforcement where appropriate (Kendall et al., 1990). Variations of this treatment with children and adolescents have often included components such as role-playing, relaxation training, and graded exposures (Kendall, 1994). Other approaches to treating social anxiety disorder in children and adolescents have utilized social skills training (Beidel, Turner, & Morris, 2000; Spence, Donovan, & Brechman-Toussaint, 2000) or a developmentally appropriate version of Heimberg's CBGT (Albano, Marten, Holt, Heimberg, & Barlow, 1995; Hayward et al., 2000). Until recently, however, only a limited number of studies have examined the efficacy of such interventions for children and adolescents with anxiety disorders (e.g., Kendall, 1994; Kendall et al., 1997; Silverman et al., 1999), and only a small subset of these studies have examined treatments specifically designed for children and adolescents with social anxiety disorder (e.g., Beidel et al., 2000; Gallagher, Rabian, & McCloskey, 2004; Hayward et al., 2000; Spence et al., 2000).

Beidel et al. (2000) assessed the efficacy of a behavioral intervention specifically targeted for children with social anxiety disorder. Sixty-seven children (ages 8–12) were randomized to either a behavioral treatment aimed at enhancing social skills while decreasing social anxiety (Social Effectiveness Therapy for Children, SET-C) or to a program targeting study skills and test-taking strategies ("Testbusters"). The primary components of SET-C included child and parent education regarding social anxiety, social skills training and peer generalization experiences, and in vivo exposure. Children in the SET-C group received 12 weeks of treatment, with each week consisting of one group session and one individual session. Uncontrolled effect sizes at post-treatment for SET-C ranged from 0.59 to 2.30 for measures of social anxiety, whereas those for Testbusters ranged from 0.13 to 0.49. Moreover, 67% of children in the SET-C group no longer met criteria for social anxiety disorder following treatment, whereas only 5% of children in the Testbusters group no longer met criteria following treatment. Further, at 3-year follow-up,

87% of children who were labeled as responders at post-treatment were found to maintain their treatment gains (Turner & Beidel, 2001).

Albano et al. (1995) evaluated a cognitive-behavioral treatment specifically designed to address social anxiety in adolescents (CBGT-A) based on Heimberg's CBGT for adults (Heimberg & Becker, 2002). Four of five adolescents no longer met criteria for social anxiety disorder after 16 sessions of CBGT-A and maintained their gains through a 1-year follow-up. In a replication study, Hayward et al. (2000) conducted a controlled trial of CBGT-A with a sample of 35 adolescent females who were randomly assigned to either CBGT-A or a no-treatment control group. The percentage of adolescents who no longer met criteria for social anxiety disorder was significantly higher in the CBGT-A group than in the control condition. However, in contrast to the findings of Albano et al. (1995), differences between CBGT-A and the control condition were no longer significant at 1-year follow-up.

As with treatments for adults with social anxiety disorder, the above results are impressive but suggest that additional improvements can be made. Given the special relationship of children with their parents or guardians, it seems logical to test whether the involvement of parents in treatment might enhance the efficacy of CBT. Spence et al. (2000) compared CBT alone to CBT in conjunction with parental involvement and a wait-list control in a sample of children aged 7ã 14. Children in both treatment conditions were found to be significantly improved, compared to those on the wait-list, on a variety of measures. These improvements were maintained 1 year after the end of treatment. However, with parental involvement, 87.5% of children no longer met criteria for social anxiety disorder at the end of treatment, compared to 58% in the CBT only group. These findings are consistent with an expanding literature regarding the benefits of involving parents and families in the treatment of anxious children (e.g., Cobham, Dadds, & Spence, 1998; Mendlowitz, Manassis, & Bradley, 1999). Most recently, Gallagher and colleagues (2004) examined a brief group cognitive-behavioral treatment for children (ages 8–11) with social anxiety disorder that included parental involvement during an initial therapy session. Twenty-three children were randomly assigned to either a 3-week cognitive-behavioral group treatment (n=12) or to a wait-list control group (n=11). Prior to the commencement of the group intervention, children attended an initial session with their parents, during which details of the treatment protocol were described and explanations were given for specific treatment components (e.g., fear thermometer, daily diary). In addition, parents were involved in the development of a fear and avoidance hierarchy for their children (to be used in subsequent sessions involving exposures) and were informed that their children would be asked to complete homework assignments as part of the intervention. Parents were not formally involved in the treatment beyond this initial session. During the first of three group sessions, children were taught to recognize the various components of anxiety (i.e., cognitive, behavioral, and physiological) and were introduced to basic cognitive techniques, such as recognition and modification of negative self-talk. The remaining two sessions were dedicated to further cognitive work and in vivo exposure exercises within the group. At post-treatment assessment, both parent and child self-report and interview data indicated significantly fewer children from the treatment group endorsed social anxiety disorder symptoms or met criteria for social anxiety disorder compared to those in the wait-list condition. These gains were maintained at a 3-week follow-up. A comparison of this intervention to one without the parent orientation would be a useful next step.

Compared to the adult literature, far fewer studies have examined the efficacy of CBT for treating childhood and adolescent social anxiety disorder. Nevertheless, various CBT packages for children and

adolescents with social anxiety disorder have produced clinically significant changes, in both group and individual formats, and appear to be promising avenues of intervention. Further research is needed to better establish the enduring effects of these treatments. As in the adult literature, it remains unclear which components of treatment (e.g., psychoeducation, cognitive restructuring, exposure, relaxation training) make the largest contribution to positive outcomes. Additional empirical studies assessing different treatment combinations will likely shed light on these issues.

6. Conclusions and future directions

The empirical evidence reviewed above suggests we now have efficacious psychosocial and pharmacological treatments for social anxiety disorder. In this respect, the field has advanced considerably since the diagnosis of social anxiety disorder (social phobia) was introduced. However, as outlined above, there remains a significant lack of understanding regarding which treatments work best, for which individuals, and what factors lead to better treatment outcome. In addition, even the best treatments have nonresponders (e.g., approximately 1/6 for group CBT; Liebowitz et al., 1999). Assuming that everyone with social anxiety disorder has the potential to improve, these findings suggest that either the same treatments do not work for everyone or that modifications in existing treatments need to be made.

Indeed, we have had little opportunity in this review to discuss how different treatments might affect people with social anxiety disorder differently, largely because there is little to no information in the literature on this subject. Recently, forms of treatment focusing on emotional regulation (e.g., Dialectical Behavior Therapy; Linehan, 1993), mindfulness (e.g., Mindfulness-Based Cognitive Therapy, MBCT; Segal et al., 2002), and experiential techniques (e.g., Greenberg & Paivio, 1997) have been of increasing interest to us. Of course, there is no guarantee that what works for one disorder will work for another; for example, MBCT may reduce relapse in depression, but whether mindfulness might have a useful place in CBT for social anxiety disorder (e.g., through enhancing clients' ability to focus on the environment rather than on themselves) is less clear. Nor is it clear that all treatment approaches are compatible with the basic CBT paradigm. When there is a compelling theoretical, empirically supported reason to introduce a technique into a standard CBT package, however, we are inclined to investigate it. We look forward to a future in which treatments for social anxiety disorder continue to become more varied and sophisticated.

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