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# Cognitive Behavior Therapy and Mindfulness-Based Intervention for Social Anxiety Disorder

Kentaro Shirotsuki and Shota Noda

Additional information is available at the end of the chapter

## Abstract

Social anxiety disorder (SAD) is a marked, or intense, fear or anxiety of social situations in which the individual may be scrutinized by others. The most well-known and efficacious psychological treatment for individuals with SAD is cognitive behavior therapy (CBT). Previous meta-analysis reported that the most recommended treatment components of CBT programs for SAD are exposure and cognitive restructuring. In recent years, mindfulness-based intervention (MBI) has shown efficacy in improving SAD. In this chapter, exposure treatment and cognitive restructuring for SAD and MBI for SAD are introduced. Additionally, the benefits of using MBI for SAD are discussed. This chapter also discusses the effects on the improvement of trait-mindfulness for social anxiety. Finally, we indicate the possibilities of the combination of mindfulness and exposure for treatment of SAD.

**Keywords:** social anxiety disorder, cognitive behavior therapy, exposure treatment, mindfulness

## 1. Introduction

Social anxiety disorder (SAD) is the most common anxiety disorder and is characterized by a fear of negative evaluation by others [1, 2]. Patients with SAD or high socially anxious individuals perceive high anxiety in social situations and often avoid social situations. SAD impairs the social, academic, occupational, and economic functioning of patients [3]. SAD is one of the most prevalent mental disorders. Its prevalence in the community is indicated as being up to 13% [4]. The other epidemiological literature reports that its lifetime prevalence in Western countries ranges between 7% and 12% [5, 6]. In Japanese samples [7] from the World Mental Health Japan (WMHJ) survey, researchers estimated that the 12 month prevalence

of SAD was 0.8% among Japanese people. This face-to-face household survey involved 1663 adults (overall response rate, 56%) in four communities in Japan, including two cities and two rural population areas. It is also suggested that there is a continuum between social anxieties or fears and SAD.

Individuals with SAD are often afraid of social situations and social interaction. For example, these situations are public speaking, conversation, telephone, writing, and so on. Individuals, who have excessive fear of public speaking, often avoid this activity because they have various negative cognitive assumptions and images about failure to give an "adequate" performance. Before a speaking session, they feel too much anxiety and perceive physical arousal symptoms. In addition, they think that they will not deliver a good performance and that catastrophic things will happen. When conducting their tasks, they feel that they cannot control outcomes and their performance. They do not look at the faces in their audience and they speak fast. Afterwards they realize that their speech was bad and they will be evaluated as "negative" or "insignificant" people. Therefore, they usually avoid these situations.

These negative cognition and avoidance behaviors are traditionally summarized in a cognitive model or cognitive behavior model. In this chapter, we report on the previous cognitive behavior therapy (CBT) model of SAD and the technique of CBT for SAD. Additionally, we introduce recent research in mindfulness-based therapy and discuss the future direction of a psychotherapy that takes SAD into account.

## 1.1. The cognitive behavior therapy model

Cognitive and cognitive-behavioral models of SAD posit that negative cognition maintains social anxiety symptoms. These models describe the relationships between negative cognition, behavior, and somatic symptoms in SAD. In these models, cognition includes self-focused attention, interpretation, rumination, self-perception, social negative evaluation, and other cognitive values [8, 9]. Clark and Wells [8] suggested that patients with SAD develop a series of negative assumptions and overestimate how negatively other people will evaluate their performance in social situations. In social situations, patients with SAD perceive social danger for themselves. These negative processing biases produce somatic symptoms and behavioral symptoms, which interact to heighten social anxiety symptoms. In their cognitive-behavioral model, Rapee and Heimberg [9] suggested that individuals with SAD and highly socially anxious individuals have a greater expectancy of negative occurrences. Also, they predict a greater cost of these occurrences for themselves than do less anxious individuals in social situations. Additionally, they indicated that these probability and cost estimates are related to state anxiety in social situations.

The estimated social cost of this is a specific expression of dysfunctional beliefs about the potential outcome of a social encounter [10]. The cognitive behavioral model of Hofmann and Otto provided general treatment model of SAD. In the model, maintaining the factors of SAD is discussed and indicates the importance of the overestimation of the negative consequences, the perception of low emotional control, negative self-perceptions, negative rumination, and so on. Symptoms of SAD can be classified into cognitive, behavioral, and physical categories [11]. Cognitive symptoms include negative self-evaluations or catastrophizing what other people think of the individual in social situations. Individuals with SAD may have thoughts such as

"I am stupid," "Everyone thinks I'm acting weird," and so on. People with SAD tend to think that their thoughts are factual and put too much focus on them. Behavioral symptoms include avoiding or prematurely escaping from social situations to reduce anxiety or avoid negative evaluation by others. Individuals who cannot avoid or escape may engage in safety behaviors [12].

## 1.2. Cognitive behavior therapy: CBT for SAD

There are several studies of effective treatment for SAD [13–17]. These treatment programs include psycho-education, exposure, cognitive restructuring, and original interventions. Typical CBT techniques for the treatment of SAD include exposure, applied relaxation, social skills training, and cognitive restructuring [17]. In their meta-analytic review, they reported that the most recommended treatment components of CBT programs are exposure and cognitive restructuring. Clark et al. [18] reported high-effect levels for individual CBT. This program consisted of helping clients to develop a list of personal safety behaviors, conducting self-focused attention experiments where the focus of attention is shifted to social situations, psychoeducation about their model [8], video feedback, behavioral experiments, identification of problematic anticipatory and post-event processing, and modification of assumptions about dysfunction. Depending on the assessment point, uncontrolled effect levels in their study ranged from 2.14 to 2.53.

Rapee et al. [14] examined possible differences between standard cognitive behavioral group therapy (CBGT) and an enhanced CBGT program. Standard CBGT consisted of standard cognitive restructuring plus in vivo exposure. The enhanced CBGT program was augmented with several additional treatment techniques, including performance feedback and attention retraining. These programs were conducted in therapist facilitated groups of approximately six participants. Both types of CBGT package had sufficient improvement on SAD symptoms, with the enhanced treatment showing better effects than standard treatment on the cost of negative evaluation and negative views of one's skills and appearance.

CBT for SAD is classified as both group therapy and individual therapy. Both types of therapies have merits and demerits as discussed in the following section. The merits of group therapy are: (1) presence of others when being exposed in social conditions is useful for increasing the degree of a threat and reality; (2) others' modeling becomes possible in exposure settings; (3) cooperative consciousness among patients toward treatment is developed; and (4) simultaneous intervention for various patients become possible, among others. On the other hand, group therapy has some demerits as follows: (1) presence of others might activate fears of negative evaluation, which might inhibit patients' spontaneous behaviors and speeches; (2) the threat of exposure might increase excessively; (3) the relationships between therapists and patients tend to become weak; and (4) the presence of others might make it difficult for participants to participate in the program, among other problems. The merits of individual therapies are: (1) therapists can easily adapt the program to the cognitive and behavior characteristics of each patient; (2) participation in treatment is easier, compared to group therapy; (3) individual patients' needs and questions are sufficiently dealt with; and (4) participants can freely express their speeches and behaviors without considering others, among other benefits. On the other hand, it is considered difficult to get the merits of group therapy as described earlier through individual therapies, from the perspective of its structure.

### 1.3. Exposure

Exposure technique is one of the best ways to deal with SAD symptoms. In the treatment of SAD, in vivo exposure often has been used. In exposure therapy, the following approaches are involved: psychological education about exposure, development of anxiety hierarchy worksheets, specifying exposure settings, execution of exposure, and anxiety assessment before and after exposure. In psychological education, participants learn in advance the characteristics of anxiety and what will be conducted in exposure therapy. They need to sufficiently understand the nature of psychological burden when implementing the therapy.

Through developing an anxiety hierarchy worksheet, the situation of anxiety and the degree of anxiety in each situation become clear. Through setting discussion in concrete situations, problems are shared between the therapist and client. The first aim of exposure therapy is to reduce anxiety. Social settings tend to change in the condition where anxiety feelings are high. For example, speech situations usually finish in a few minutes. Participants tend to finish the situation with high anxiety, which leads to avoidance behaviors in the next anxiety situation. It is important to properly expose themselves to each anxiety situation repeatedly. Exposure therapy is often conducted during a treatment session (regardless of inside or outside of the treatment institutions) or in an actual setting as homework. Though imagined exposure is also effective, when exposure in real life can be used, this can be related to daily situations.

### 1.4. Cognitive biases

There are some types of information-processing biases in SAD. Attentional biases, interpretation biases, memory biases, and cost/probability biases are often modified in bias modification. The effects of cognitive restructuring have been indicated through various studies. For example, Clark et al. [19] indicated the following as intervention targets of cognitive therapy: (1) attention, or an increase in attention and reduction in observation of others and making association with others' responses; (2) recognition of physiological responses, or the use of incorrect inner information that causes excessively negative ideas about how others think of the self; (3) safety behaviors (avoidance), or the excessive use of explicit or implicit safety behaviors; and (4): information-processing biases, or the processing of information before and after an issue. They thus compared the effects of cognitive therapy and exposure + applied relaxation therapy. The results indicated the high impact of cognitive therapy on improving SAD symptoms, indicative of the effectiveness of the intervention in cognition characteristic of SAD.

The research on the treatment of SAD has thus focused on the effectiveness of using cognitive therapy techniques to change specific cognitions or thought patterns [14, 18, 19]. However, SAD treatment research has also focused on the reduction of cost and probability bias. Foa et al. [20] reported that the reduction of cost bias strongly predicted the reduction of SAD symptoms. Rapee et al. [14] showed that a change in cost bias was highly related to a decrease in the severity of SAD symptoms using a group CBT (CBGT) program. Shirotsuki et al. [21] suggested that repeated exposure and reduction of cost bias may have an effect on the improvement of SAD symptoms.

### 1.5. Video feedback

Video feedback (VF) is one of the important and effective techniques in most CBT treatment programs. Individuals with SAD try to watch their video before receiving sufficient cognitive preparation. Clark et al. [18] reported a high impact from individual CBT. This program consisted of developing with patients a personal set of safety behaviors and a self-focused attention experiment: shifting the focus of attention to the social situation. In video feedback sessions, individuals with SAD watch their actual social tasks, which are public speaking and conversation. They often recognize their performance is worse than actual performance. Therapists try to change the discrepancy between subjective and objective perceptions of social performance. VF involves providing individuals with video playback of their social performance following their participation about social task, such as a public speech or a one-on-one conversation [22]. High socially anxious and individuals with SAD watch the real situation through recorded video. Video feedback involves video recording socially anxious individuals while they are trying a social task, that is, a speaking task or conversation. It is anticipated that review of the recording corrects distorted self-evaluations, including the underestimation of social skills [23].

Though video feedback sessions are effective, it is necessary to consider that participants might have a resulting psychological burden. Shirotsuki [24] indicated the effects of the interpretation of video images: when watching video images, sometimes, participants cannot perceive themselves objectively owing to their negative interpretation of the video images, which reduces the self-evaluation of their performance. It is considered important to try to make participants watch video images objectively before the session.

### 1.6. Mindfulness

In recent years, researchers and clinicians have developed intervention programs that include mindfulness. Mindfulness is defined as "paying attention in a particular way—on purpose, in the present moment and nonjudgmentally" [25]. Bishop et al. [26] distinguished two components of mindfulness. The first component is "self-regulation of attention." Self-regulation of attention is observing and attending to the changing field of thoughts, feeling, and sensations from moment to moment. This leads to a feeling of being very alert to what is occurring in the here-and-now [26].

The second component is "orientation to experience." Orientation to experience is an attitude of openness, acceptance, and curiosity about the present moment. Experiential avoidance which is the opposite concept of orientation to experience is at the heart of all psychological distress [27]. It is to avoid one's own experience such as thought, feeling, cognition, behavior, and sense of body. Experiential avoidance is reduced by increasing the mental state of orientation to experience; as a result, psychological distress improves [28].

Many researchers have found relationship between trait mindfulness and mental health criteria. Baer et al. showed that trait mindfulness was negatively correlated with alexithymia, dissociative activities, difficulties in emotion regulation, and neuroticism [29]. Higher levels of trait mindfulness predict lower levels of anxiety, depression, and negative cognition, and

higher levels of well-being [30]. Coffey et al. found that the improvement of trait mindfulness has been found to positively influence mental health [31]. The improvement of trait mindfulness also negatively impacts on anxiety, depression, and negative cognition [31, 32]. To enhance levels of trait mindfulness, mindfulness training (MT) can be used. MT includes body scan, gentle mindful yoga exercises, sitting meditation, walking meditation, eating meditation, among others (**Table 1**). MT is effective for improving stress, stress reactivity, anxiety, and depression [30, 33–35].

## 1.7. The relationship between trait mindfulness and social anxiety

Some researchers have started to examine the effects of mindfulness on social anxiety. Previous studies have reported that trait mindfulness is negatively correlated with self-reported social anxiety, and trait mindfulness has a direct effect on social anxiety [36, 37]. Kocovski et al. also indicated that trait mindfulness predicts subsequent changes in social anxiety and that social anxiety predicts subsequent change in trait mindfulness [38]. Recent studies have provided relationships among trait mindfulness, social anxiety, and maintaining factors of social anxiety as mechanism of mindfulness on social anxiety. According to Clark and Wells and Rapee and Heimberg [8, 9], self-regulation of attention, avoidance behavior, and negative cognition are the factors that maintain SAD social anxiety disorder (SAD).

Noda et al. showed that trait mindfulness affects social anxiety through self-regulation of attention, avoidance behavior, and fear of negative evaluation by others in negative cognition,

| Techniques | Features |
| --- | --- |
| Body scan | The aim is to be aware of the sensation of your body you pay attention to, and accept nonjudgmentally occuring experience at the time. You can monitor the sensation of body in here and now. You can also improve sensitivity of body. |
| Gentle mindful yoga exercises | The aim is to be aware of what is experiencing in your body while doing yoga.You can monitor one's present monent experience, in here and now, such as stretching. You can experience  "myself as a whole". |
| Sitting meditation | The aim is to pay attention to breath, be aware of the flow of breathing. By paying attention to breathing, you can focus on here and now. And you be aware the sensation of body that accompanies breathing. |
| Walking meditation | The aim is to be aware of something you are experiencing while walking.You can be aware the sensation of the foot, the sensation of the body accompanied with walking, the sensation with the ground. You can be aware of "sense of your presence in the place". |
| Eating meditation | The aim is to be aware of the sensations of smelling, tasting, chewing, and swallowing through eating. You can monitor the five senses in here and now. |

**Table 1.** Main techniques and simple features of mindfulness training.

while Schmertz et al. reported that trait mindfulness impacts on social anxiety via cost/probability bias in negative cognition [37, 39]. Moreover, Okawa et al. showed that trait mindfulness affects social anxiety via rumination in negative cognition [40]. **Figure 1**, based on the earlier research, provides a mechanism for assessing the impact of mindfulness on social anxiety. This indicates that trait mindfulness affects social anxiety through maintaining various factors. Based on this research, it is considered that an increase in trait mindfulness would be not only effective for social anxiety but also for its maintenance factors. Research such as this supports the conclusion that trait mindfulness is strongly related to social anxiety symptoms.

Additional treatment studies of MT for SAD patients have been conducted. Previous research has reported that MT is effective in treating social anxiety symptoms [41, 42]. A therapeutic intervention program that includes MT is called Mindfulness-Based Intervention (MBI). MBI for SAD includes Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT), Acceptance and Commitment Therapy (ACT), and Mindfulness and Acceptance-based Group Therapy (MAGT).

### 1.8. Mindfulness-based stress reduction

MBSR was developed by Kabat-Zinn [43]. It is the most well-known MBI and has gained empirical support in the treatment of psychological symptoms. The protocol of MBSR is composed of MT. Previous research has shown that MBSR is effective for treating stress, anxiety, depression symptoms, improving self-regulation, and the purpose of life [34, 44]. Goldin and Gross [41] conducted MBSR for SAD patients. Individuals (N = 16) diagnosed with SAD participated in 8 weekly 2.5 h sessions of MBSR. The main components of treatment were mindfulness meditation techniques such as breath-focused attention, body scan-based attention to the transient nature of sensory experience, shifting attention across sensory modalities, open
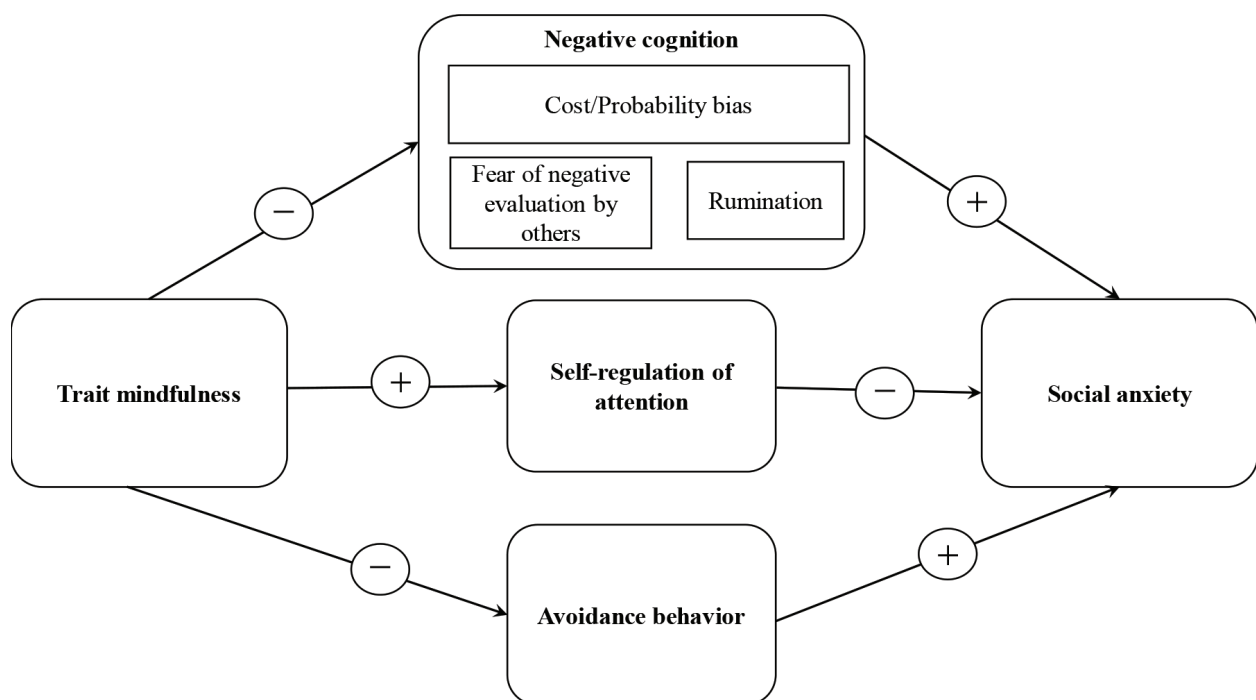


**Figure 1.** The mechanism of mindfulness on social anxiety.

monitoring of moment-to-moment experience, walking meditation, and eating meditation. As a result, MBSR showed significant reduction in self-reported social anxiety symptoms and negative cognition ($\eta^2$p = .59 on the Liebowitz Social Anxiety Scale; $\eta^2$p = .53 on the Rumination Style Questionnaire) and significant improvement in self-reported self-esteem ($\eta^2$p = .51 on the Rosenberg Self-Esteem Scale). In another study, individuals (N = 22) diagnosed with SAD participated in 8 weekly 2.5 h sessions of MBSR and an all-day meditation retreat for MBSR [42]. The MBSR produced significant reductions in self-reported social anxiety symptoms effect size (ES) = 1.48 on the Liebowitz Social Anxiety Scale-Fear; ES = 1.40 on the Liebowitz Social Anxiety Scale-Avoidance).

### 1.9. Mindfulness-based cognitive therapy

MBCT is developed to prevent relapse of major depression [45]. It combines elements of cognitive therapy approach and MT to reduce the symptoms of depression and the recurrence of depression. Teasdale et al. [46] found MBCT has prevented relapse and recurrence in patients with a history of three or more episodes of depression. MBCT is not only effective for depression but also other disorders. Piet et al. [47] conducted MBSR for SAD patients. Fourteen young participants aged 18–25 years with SAD participated in 8 weekly 2 h sessions of MBCT. The main components of treatment were mindfulness meditation techniques such as body scans, gentle mindful yoga exercises, and sitting meditation. The result of this intervention study showed that the MBCT produced significant prepost improvements with moderate to high ESs (0.77 on the Social Phobia Composite measure, and 0.90 on the Liebowitz Social Anxiety Scale).

### 1.10. Acceptance and commitment therapy

The theoretical basis of ACT is a relational frame construct that is a behavior analytic theory of language and cognition [27]. It focuses on understanding behavior through linguistic contexts or frames. It also includes techniques designed to promote mindful awareness of internal experiences. ACT aims to promote namely the improvement of orientation to experience and cognitive defusing that is a shifting of mental contexts by cultivating patient's awareness of awareness to allow them to view thoughts as thoughts and not as facts [27, 28]. Dalrymple and Herbert [48] conducted ACT for SAD patients. Nineteen individuals diagnosed with SAD participated in a 12 weekly 1 h program integrating exposure therapy and ACT. The results revealed that significant improvements occurred in self-reported social anxiety symptoms, yielding large effect size gains (ES = 0.72 on the Liebowitz Social Anxiety Scale-Fear, ES = 1.24 on the Liebowitz Social Anxiety Scale-Avoidance). In another study by Ossman et al. [49], individuals (N = 22) diagnosed with SAD participated in 10 weekly 2 h sessions of ACT. Here, ACT produced significant reductions in self-reported social anxiety symptoms (ES = 0.82 on the Liebowitz Social Anxiety Scale-Fear and ES = 1.71 on the Liebowitz Social Anxiety Scale-Avoidance).

### 1.11. Mindfulness and acceptance-based group therapy

The MAGT for SAD developed by Fleming and Kocovski [50] was based on the ACT. Some of the mindfulness exercises included in this protocol could be adapted from the MBCT. The main components of treatment in the protocol are mindfulness exercises, and acceptance of

thoughts and feelings, and acceptance of social anxiety exercises. Kocovski et al. conducted MAGT for SAD patients [51]. Individuals (N = 53) diagnosed with SAD participated in 12 weekly 2 h sessions of MAGT. Consequently, the MAGT results showed significant reductions in self-reported social anxiety symptoms ($d$ = 1.32 on the Social Phobia Inventory). In another study [52], individuals (N = 29) diagnosed with SAD participated in 12 weekly 2 h sessions of MAGT. As a result, the MAGT produced significant prepost improvements with high ESs (1.00 on the Liebowitz Social Anxiety Scale, 1.09 on the Social Phobia Scale, and 1.03 on the Social Interaction Anxiety Scale). From the earlier research, MBI appears to be an effective intervention for SAD, with generally large effect sizes on social anxiety symptoms.

## 2. Future direction

### 2.1. The possibilities in the combination of mindfulness and exposure for the treatment of SAD

The most well-known and effective psychological treatment for individuals with SAD is cognitive behavioral therapy (CBT). However, although CBT has been found to be efficacious in reducing social anxiety, there are patients who do not achieve clinically significant improvement following CBT [17]. According to Leichsenring et al., remission rates were nearly 40% for CBT [53]. Thus, the development of intervention protocols that are more effective for improving social anxiety symptoms than traditional CBT is demanded.

Exposure, which is a key ingredient of most CBT, is effective for improving social anxiety symptoms [54]. But, it is indicated that exposure tend to be avoided and dropped by patients [55]. According to Van Velzen et al., 34.4% of patients with SAD dropped-out from exposure programs [56]. In another study by Hofmann, the attrition rate of exposure group therapy was 21% [23]. From the above, it is considered that exposure is an intervention that carries with a strong mental burden.

The crucial factor causing patients with SAD to avoid and drop-out from exposure is experiential avoidance, which is based on thoughts, feelings, cognition, behavior, and sensation in the body in social situations. Experiential avoidance is a disturbance factor in the effective treatment of exposure, promoting the maintenance of anxiety [55]. By enhancing mental state of mindfulness, we would be promoted to increase awareness of one's experience and to accept what we are currently experiencing. Thereby, experiential avoidance is reduced [44], and willingness enhanced [55]. These findings suggest that incorporating MT into exposure for treatment of SAD may prevent patients from avoiding and dropping-out exposure. The combination of cognitive approach and exposure is thus more effective for improving social anxiety symptoms than only exposure [54]. Because MT seeks to reduce negative cognition [41, 47], and to enhance decentering and change cognitive flexibility [44], it functions as an approach that changes negative cognition. In addition, MT brings the improvement of self-regulation to our attention [41]. The low self-regulation of attention is core maintaining factors of social anxiety [8]. These findings suggest that the combination of MT and exposure may be more effective for improving social anxiety symptoms than traditional exposure therapy.

We propose the following procedure as the most appropriate combination of mindfulness and exposure for SAD. First, MT is conducted. Through MT patients will be persuaded to increase their awareness of experiences such as negative cognition, social anxiety, trembling, and sweating in social situation, and then it leads to accept these experiences. As a result, negative cognition, social anxiety, and fear of physical response are alleviated. The effect of maintaining factors on social anxiety would be reduced. Therefore, the mental burden of patients to exposure would reduce, and these effects may prevent patients from avoiding and dropping-out exposure. In addition, maintaining mechanism of social anxiety would improve. This shows that MT could prevent relapse and recurrence following therapy.

Second, exposure is reinforced. Through exposure the therapist encourages patients to face anxiety in social situations. They should notice their experience in facing social situations. And they may understand the differences in their experience between preexposure and post-exposure situations. Exposure thus produces a significant reduction in social anxiety [54]. Because social anxiety would be improved by MT, exposure after MT may be more effective for improving social anxiety and maintaining the effect of treatment than exposure alone.

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