

Theoretical research | Теоретические исследования

Treatment of Social Anxiety Disorder: Mechanisms, Techniques, and Empirically Supported Interventions

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Social anxiety disorder (SAD) is a prevalent condition negatively affecting one's sense of self and interpersonal functioning. Relying on cognitive but integrating interpersonal and evolutionary models of SAD as our theoretical base, we review basic processes contributing to the maintenance of this condition (e.g., self-focused attention, imagery, avoidance), as well as the treatment techniques geared to modify such processes (e.g., exposure, attention modification, imagery rescripting). We discuss cognitive-behavioral treatments (CBT) as combining multiple treatment techniques into intervention "packages." Next, we review the existing empirical evidence on the effectiveness of CBT. Although CBT has accumulated the most support as superior to other credible interventions, we suggest that many treatment challenges remain. We conclude by discussing the ways to enhance the efficacy of CBT for SAD. Specifically, we highlight the need to (a) elucidate the complex relationship between basic processes and techniques, (b) advance personalized interventions, and (c) include a more diverse and comprehensive array of outcome measures.

Keywords: Social anxiety, mechanism of change, cognitive biases, treatment techniques, personalized interventions.

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Лечение социального тревожного расстройства: механизмы, методы и эмпирически подтвержденная терапия

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Социальное тревожное расстройство (СТР) является распространенным заболеванием, негативно влияющим на самоощущение и межличностное функционирование человека. Опираясь на когнитивные, но интегрирующие межличностные и эволюционные модели СТР в качестве нашей теоретической базы, мы рассматриваем основные процессы, провоцирующие это расстройство (например, сосредоточенное на себе внимание, мысленные образы, избегание), а также методы лечения, направленные на изменение таких процессов (например, экспозиционная терапия, модификация внимания, рескриптинг). Мы рассматриваем когнитивно-поведенческую терапию (КПТ) как объединение нескольких методов лечения в «набор» вмешательств. Далее мы рассматриваем существующие эмпирические данные об эффективности КПТ. Несмотря на то, что КПТ получила наибольшую поддержку в сравнении с другими заслуживающими доверия вмешательствами, мы предполагаем, что многие проблемы с лечением остаются нерешенными. В статье также обсуждаются способы повышения эффективности КПТ при СТР. В частности, мы подчеркиваем необходимость (а) прояснения сложной взаимосвязи между базовыми процессами и методами, (б) продвижения персонализированных вмешательств и (в) включения более разнообразного и комплексного подхода к оценке результатов терапии.

Ключевые слова: социальная тревожность, механизм изменений, когнитивные искажения, методы терапии, персонализированные вмешательства.

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Introduction

Most of us can recall getting intensely self-conscious and uneasy on some occasions, such as giving a speech, interviewing for a job, or getting ready for a date. Whereas for most people, such mental states happen only occasionally, for others, they are frequent and intense, causing a substantial impairment in multiple aspects of daily life, such as work, study, and relationships [3]. Individuals with social anxiety disorder (SAD) experience marked fear of one or more social or performance situations in which they are exposed to unfamiliar people or possible scrutiny [6]. Socially anxious individuals frequently attempt to avoid such feared situations altogether or to regulate their anxiety by subtler avoidance strategies, such as minimizing eye contact with others or speaking in brief sentences.

Social anxiety disorder is the third most common mental health disorder after depression and substance abuse, with lifetime prevalence rates of around 12% in industrialized countries [66]. SAD typically has an early onset and chronic course [79; 95; 103]. Most individuals with SAD experience a comorbid disorder during their lifetime, with the onset of SAD preceding the development of these comorbid conditions [27]. Despite its prevalence, severity, and association with suicide [116], SA lacks the “public relations” of its sibling disorders such as depression or substance abuse [65]. However, SAD has begun attracting scientific attention in the last several decades, leading to rapidly accumulating empirical data regarding the effectiveness of treatment techniques and “treatment packages” geared to alleviate the distress associated with this condition. These scientific efforts resulted in increased knowledge of psychopathological processes involved in SAD maintenance and the effectiveness of treatment techniques and intervention packages. However, the successful treatment of SAD remains a challenge, as even the best available psychological treatments are associated with only about 65% response and only 40% remission [101].

In the present review, we outline the existing state of knowledge regarding the psychological treatment of SAD, focusing on cognitive models and processes. We integrate and expand these cognitive models with interpersonal and evolutionary perspectives on SAD. We then focus on the treatment techniques geared to modify core maintaining processes. Next, we review the existing empirical evidence on the effectiveness of cognitive-behavioral therapy (CBT) for SAD, in which these techniques are utilized. We conclude by discussing ways to enhance the effectiveness of CBT in SAD. Specifically, we highlight the need to (a) elucidate the complex relationship between basic processes and techniques, (b) advance personalized interventions, and (c) include a more diverse and comprehensive array of outcome measures.

Cognitive Models of SAD

Cognitive models differentiate between etiological and maintaining factors of SAD. Genetic, neurobiological, and temperamental factors, as well as the nature of the early environment, are postulated to be involved in the etiology of this condition [95; 97]. Specifically, the risk of developing SAD is increased by over-controlling, critical and cold parenting; insecure attachment; emotional, physical, and sexual maltreatment, and

aversive social experiences [89]. Thus, SAD appears to develop via a complex interplay of biological and psychological factors.

According to cognitive models, socially anxious individuals firmly believe that it is important to make a favorable impression on others and the uncertainty regarding their ability to do so [23; 50; 54; 72; 83; 96]. SAD individuals tend to evaluate their social abilities and skills as low [41] and the standards needed to make a favorable impression as high [84]. Such negative beliefs are activated in social settings, generating a sense of threat and alarm [54]. This perception of threat engenders a chain of cognitive, affective, and behavioral responses, which prevents the disconfirmation of the maladaptive beliefs about self and others. These models emphasize several interrelated processes: self-focused attention, biased information processing (attention, evaluation, memory), negative imagery, enhanced avoidance, and anticipatory and post-event processing.

Recently, the “classical” cognitive models of SAD have been expanded and refined by interpersonal and evolutionary perspectives. The interpersonal perspective highlights the functioning of the affiliation system, which guides people towards potentially rewarding social situations and appears to be critical in the development and maintenance of satisfying social relationships [17]. Indeed, high-SA individuals display fewer approach behaviors such as initiation of social encounters, nonverbal displays of warmth and friendliness, and self-disclosure than low-SA individuals [10; 106]. Significantly, this perspective emphasizes the need to enhance affiliative behaviors in the treatment of SAD.

Recently, cognitive approaches to SAD also incorporated some insights from the evolutionary perspective. According to this perspective, social cautiousness is rooted in an ancient system that regulates social order and controls behaviors that may elicit conflict and disrupt such order — the social-rank system [36]. Specifically, avoidance tendencies seen in SAD are viewed as evolutionary-shaped mechanisms to avoid confrontations with dominant others [36; 37; 44; 108; 110]. Consequently, regulating negative emotions (e.g., shame, humiliation, [71]), reducing submissive behaviors [38; 40; 110], and correcting self-deprecating cognitions regarding social status [18; 41; 44] have been emphasized.

Maintaining Processes in SAD

There is considerable overlap among the processes proposed by cognitive, interpersonal, and evolutionary models for maintaining SAD: all highlight self-focused attention, biased processing of social cues and situations, and self-concealing behaviors. There are also important distinctions between the models, with cognitive models highlighting intrapersonal processes (such as memory, imagery, and emotion-regulation [16]) and interpersonal and evolutionary models emphasizing interpersonal processes (such as enhanced social avoidance and decreased affiliation). Integration of the three models suggests several central core processes detailed below.

Self-focused Attention. In SA, the perception that one is observed by others can lead to heightened self-focused attention. This shift of mental focus is experienced as enhanced attention toward one’s physiological symptoms, negative images of the self, or thoughts regarding the negative ways one is judged by others [23; 55]. Indeed, under the perceived

scrutiny of others, socially anxious individuals become more aware of their bodily sensations (sweating, blushing). These sensations, in turn, are perceived as visible and indicative of weakness. Such internally focused processing may prevent an individual from concentrating on the emotions and reactions of others and thus miss important social cues [81].

Attention Biases. Selective attention to, and difficulties with, disengagement from social threats (e.g., facial expressions and features; voice) are viewed as central in maintaining SAD [43; 52; 91; 92]. Evidence that individuals with SAD exhibit enhanced vigilance, early engagement, and difficulty disengagement from threats have been documented [70; 107]. Moreover, some evidence suggests that attention bias modification alleviates SA symptoms [15]. Although many conceptual and methodological issues remain [114], attentional biases among high-SA individuals may interfere with learning new, benign information from one's surroundings and may result in avoidant behaviors, thereby preventing disconfirmation or inhibition of one's beliefs about oneself and others.

Evaluation Biases. Evaluation biases include interpreting ambiguous information and estimating the probability and cost of non-ambiguous events. SA appears to be specifically and positively related to the propensity to negatively interpret ambiguous social information and negatively related to the formation of positive interpretations [11; 32; 58; 105]. Moreover, SA is associated with the tendency to evaluate the cost of social mishaps as high [39]. Decreasing individuals' probabilities and consequences of negative social events (e.g., loss of affiliation or social status) appear to be promising for alleviating SA [12; 76] and is indeed present in many CBT interventions [23; 82].

Memory Biases. Memories of social events recalled by individuals with SAD contain more self-referential information and fewer external sensorial details than memories recalled by non-anxious individuals [84]. Moreover, SA-severity is related to the re-living of socially stressful events [12; 100] and seeing these events as central and identity-defining [42]. Importantly, socially anxious individuals exhibit a greater tendency to remember social (but not neutral) events from an external "observer" perspective than from their own "field" perspective [29].

Negative Images. SA individuals commonly experience involuntary and distressing negative self-images during social encounters [49]. In such situations, they may picture themselves as unattractive or incompetent and as behaving in embarrassing, shameful, or humiliating ways [85]. SA individuals then mistakenly assume that these images are accurate reflections of the way they appear to others [53]. Importantly, whereas negative self-evaluations and self-perceptions are found in many psychopathologies [112], negative self-images appear to be uniquely associated with SA [58].

Emotion Regulation. Several maladaptive emotional processes are postulated to be involved in social anxiety. First, emotion differentiation (i.e., the ability to distinguish between various affective states and classify felt experiences into discrete emotion categories) is impaired in SA [60; 62; 63]. Lack of differentiation, particularly concerning negative emotions, may impair emotion regulation and result in a low perceived emotional control [60]. Emotion regulation refers to the processes by which individuals influence

which emotions they have, when they have them, and how they experience and express them [47; 48]. Such strategies include cognitive reappraisal and response modulation (e.g., emotion suppression). Dysfunctional regulation of negative and positive emotions is viewed as one of the core vulnerabilities in SAD [30; 45; 59; 68]. Enhancing the use of a wide repertoire of emotion regulation skills to dampen and control negative affect [67] as well as to upregulate positive affect [70] is seen as promising to alleviate SA-related distress [46].

Anticipatory and Post-Event Processing. This processing refers to mental activities and content preceding and following social situations. Although temporally distinct, post- and pre-event evaluations are correlated and influence each other [115]. During anticipatory processing, socially anxious individuals mentally preview upcoming social interactions and possible rejection, embarrassment, or humiliation scenarios. This focus enhances anticipatory anxiety and avoidance behaviors. Similarly, post-event processing typically involves reviewing the social event, focusing on one's anxious feelings and assumed (negative) image. This process may cause interpersonal interactions to be encoded negatively, resulting in shame, self-blame, and negative predictions regarding future interactions [1; 13].

Enhanced Avoidance. Avoidant behaviors are believed to be central in maintaining SAD. Direct avoidance of social situations involves refraining from attending social events such as work events, parties, and one-to-one meetings. More subtle avoidance strategies include looking at one's phone during a party, refraining from disclosing self-relevant information, and maintaining a "low-key" appearance. Although partially effective in regulating SA in the short run, these avoidance strategies tend to increase anxiety in the long run, most likely because they impede the modification and updating of prior negative predictions [23] and prevent the accumulation of novel social experiences. Indeed, engaging in avoidant behaviors is found to lead to impaired performance [99], enhanced feelings of inauthenticity and incompetence (low social rank), and decreased feelings of belongingness and affiliation [94].

Reduced Affiliation. SAD is characterized by a dysregulation of the affiliative system [10; 109]. Individuals with SAD tend to display lower frequency and intensity of affiliative intent (e.g., smiling) during relationship formation [90] and show less unintentional movement synchrony, a marker of affiliative mode. Self-protective motivation and discounting positive social signals may maintain social impairment in SA. They affect high-SA individuals' ability to engage in actions that lead to emotional closeness [35]. Combined, enhanced avoidance and reduced affiliation contribute to the persistence of SA by decreasing opportunities for rewarding interaction.

Modifying Maladaptive Processes in SAD: Main Techniques

In the following, we list the main techniques geared to modify the maladaptive processes contributing to the maintenance of SAD. Importantly, in a context of a full-fledged individualized intervention, these techniques are embedded in a secure and authentic therapeutic relationship [34]. Establishing a secure bond and a close and supportive alliance with the therapist is central to most intervention programs. It is

particularly important in treating individuals with SAD, given their reduced utilization of affiliative modes of interaction [36].

Psychoeducation in CBT typically includes familiarization with the clinical picture of the condition and the model underlying the treatment (such as the model used by Clark & Wells [23]). It further includes information regarding the factors contributing to treatment success, such as self-observation and engagement in treatment-related activities outside of therapeutic sessions. It is emphasized that the treatment includes a set of skills and that practice is encouraged to achieve proficiency in these skills.

Attentional Control is a common strategy to counteract painful self-awareness. These exercises may take the form of concentrating on non-threatening aspects of the environment, such as the actual behaviors and emotions of others [81]. For example, the ability to focus on the appearance of others or learn a new fact about them may offer a way out of painful self-awareness. Alternatively, direct attentional control training was also found to reduce this self-awareness [33].

Exposure is the most efficient way to counteract avoidance behaviors is by enhancing exploratory and approach behaviors. Exposure is a collaborative process in which the client, guided by the therapist, chooses to engage in challenging situations voluntarily and systematically. Importantly, the process of exposure differs in several ways from spontaneously encountering anxiety-provoking situations. First, the client actively chooses and plans these encounters, facilitating a sense of agency. Second, exposures are planned with pre-specified goals (e.g., to ask one's boss for a raise). It is the therapist's role to navigate the treatment such that exposures have a chance to modify the client's beliefs regarding the outcome of these social situations. It is emphasized that the importance of examining one's predictions is more central than achieving the "social" goal (such as actually getting a raise). Third, exposures are planned to be conducted systematically so that easier tasks and encounters are followed by more challenging ones. An exposure hierarchy is created to allow for gradual progression (and a fair amount of repetition) of those tasks. Fourth, exposures are preceded and followed by an "envelope" of collaborative discussion between the therapist and the client. Before exposure, the therapist attempts to elicit *specific* predictions regarding the most likely outcome of the exposure (e.g., "My boss would be angry with me for even trying to get a raise"). Exposures are effective primarily when new, belief-inconsistent information is encountered (e.g., "Although my boss did not agree to the raise, I was able to state my case clearly. My boss was not angry, and even expressed appreciation of my work"). The construction of specific predictions allows for a more effective correction of faulty prior beliefs. To facilitate these corrective experiences, clients are invited to reflect on what was learned during the exposure. Finally, the collaborative work with the therapist before and after the exposures emphasizes the potential of affiliative bonds that include sharing thoughts and feelings in a close and empathic setting, a rare context for many individuals with SAD [36].

Cognitive Restructuring refers to a therapeutic technique involving multiple sub-components: (a) understanding the range of emotions elicited by a particular situation (emotion identification and emotion differentiation), (b) linking these emotions to components of the situation and their meaning, and (c) question this meaning, usually

engaging in re-appraisal. This sequence is geared to allow new perspectives to emerge [24]. The cognitive restructuring may begin with work on emotion differentiation between emotion-infused thoughts and actual emotions (“I feel stupid” vs. shame) or between distinct emotions (shame vs. guilt). It is emphasized that specific emotions are associated with certain core meanings (e.g., shame is associated with hypothesizing that unsavory characteristics of the self are revealed). Next, meaning-questioning entails identifying, evaluating, and modifying unhelpful thinking [48; 111]. Identifying unhelpful thinking involves recognizing an event (internal or external) in which a negative emotion was experienced. The therapist then invites the clients to attend to their thoughts at the time of, before, and after the event’s occurrence. Next, the client and the therapist can evaluate how helpful such thoughts were in the given context. This process calls for examining the evidence for and against a certain thought and the utility of focusing on certain aspects of the event. Finally, in the modification stage, the therapist facilitates the discovery of additional information and examination of other possible points of view. As a result, a more helpful and balanced viewpoint can be adopted. Learning to differentiate between emotions, link them to meaning, and question these meanings are discussed as acquired skills.

Imagery Rescripting is a therapeutic technique that aims to update core negative representations of the self and modify the meaning of socially stressful memories [98]. Clients are invited to relive a painful past autobiographical experience and then re-imagine this experience in a way in which the needs of the younger self are understood and addressed [9]. Thus, clients may be invited to express compassion for their younger selves or imagine them behaving differently than they did [98]. Imagery rescripting has been found to effectively reduce SA and promote significant changes in negative self-beliefs (see [75] for review). Although the significance of imagery versus verbal processing of memories is still debated [80], the amassed evidence points to the importance of detailed processing of autobiographical memories to reduce SA severity.

Effectiveness of CBT for SAD

So far, we have focused on distinct processes presumed to maintain SA and the associated techniques aimed to rectify the operation of these processes. As our previous review illustrates, some studies examine the effects of single techniques on alleviating SA distress. However, most existing data on the effectiveness of empirically-based treatment of SAD are grounded in examining the effectiveness of “packages” of techniques. The most researched type of such a package is CBT. Most empirically supported CBT programs are implemented throughout approximately 12–16 sessions. CBT consists of a group of different but theoretically related interventions, each emphasizing a different intervention “package.” For example, cognitive therapy (based on Clark & Wells’s [23]) typically includes psychoeducation, attentional control, cognitive processing, and memory rescripting. In addition, it includes behavioral experiments to test ominous predictions, a technique bearing a resemblance to exposure. Based on Rapee and Heimberg’s conceptualization [96], a model includes psychoeducation, exposure, and cognitive restructuring. Despite the differences between these packages, they share significant similarities, thus being reviewed as a single interventional modality.

Empirical data examining the effectiveness of CBT compares this intervention either to the wait-list control condition, to placebo, or to other intervention “packages.” The effect size of CBT compared to the wait-list condition varies from 0.81 to 1.56 [78]. A meta-analysis of randomized controlled trials for SAD [21] found a mean controlled effect size of 0.41 for CBT compared to a placebo condition. Importantly, CBT for SAD has also been found to be effective in naturalistic conditions [104], and most individuals with SAD exhibit some improvement over just a short course of CBT (up to 16 sessions [73]). CBT was also compared to alternative treatments using a randomized design. CBT was found to be more efficacious than interpersonal psychotherapy (IPT, [102]), as well as acceptance and commitment therapy (ACT, [51]). Other studies compared CBT to a manualized version of psychodynamically oriented therapy (PDT) for SAD (e.g., [74]). Results of PDT and CBT were comparable for social anxiety and depression symptom improvement, with CBT outperforming PDT concerning remission rates and reduction of interpersonal problems.

Providing access to state-of-the-art interventions for SAD is a major societal challenge. There has been a fair amount of progress toward advancing this important frontier by developing variants of well-established CBT protocols in the form of guided internet-based interventions [8; 28]. Internet-based CBT typically entails some contact with therapists who guide the treatment [7]. Importantly, the efficacy of CBT has been demonstrated in individuals [2; 21; 78], groups [113], in virtual reality exposure [20; 22] and in internet-delivered interventions [61; 88].

The UK and the German governments publish treatment guidelines based on the recommendations of independent societies synthesizing the available research evidence. The German [14] and British (NICE, [86]) guidelines for treating SAD recommend CBT as the first line of treatment. According to the German guidelines, individuals with SAD should be offered PDT only if CBT is unavailable, was shown to be ineffective, or if the adequately informed patient expresses a preference for this treatment [14].

Despite these encouraging findings, the treatment of SAD remains a considerable challenge: many patients either do not stay in therapy (attrition rates tend to be around 20%, [57]), fail to respond to CBT (40–57%), do not exhibit clinically significant symptom reduction even after completing the full course [26], or remain considerably symptomatic at the end of treatment (only 40% reach remission, [101]). Moreover, even following a full course of CBT, many patients reported reduced well-being and satisfaction with the quality of their interpersonal relationships [31].

Discussion

In the following, we consider the reasons for the limited effectiveness of CBT. First, these difficulties may stem from a complex and only partially understood association between maintaining processes and treatment techniques. Importantly, the relationship between techniques and processes is unlikely to be adequately modeled by one-on-one associations (see [19; 56]). Rather, each treatment technique (e.g., exposure) may impact multiple processes (such as attention, interpretation, and emotion regulation). Similarly, a modification in a specific process may be a part of several distinct techniques (e.g., attention control may be involved in the exposure and cognitive restructuring). In other

words, the mechanism of change in SA (as well as in other disorders) is likely to be multidetermined and multifactorial.

Second, the “packaging” of treatments is likely lacking in nuance, imperfectly capturing the maladaptive processes of a specific individual. This suggests that an intervention needs to be individually tailored, drawing from a range of theoretically-sound and empirically tested techniques and adapting them to a specific individual in a given societal, cultural, and life-span context [93]. Moreover, based on the central mechanisms postulated to be implicated in the disorder, a clinical evaluation may provide an individualized profile, allowing a precise selection of therapeutic techniques. However, such personalized interventions may only become clinically relevant if we can predict the treatment outcome at the level of a single patient. Unfortunately, most predictions so far rely on group-based methods that do not yield predictions suitable for individual patients. Thus, novel analytical methods are needed [77].

Third, the partial success of CBT may be due, at least in part, to a rather partial view of vulnerability in SAD, which focuses almost exclusively on negative affect in the context of the social-rank system (e.g., assertiveness). Many studies examining the outcome of CBT address only a subset of inter-and intra-personal outcomes. For example, a sense of authenticity and belongingness and the ability to experience and savor positive emotions (such as pride, [25; 45; 64]) typically remain outside the scope of many assessments. The importance of addressing both social approach and avoidance (in the context of hierarchical and affiliative relationships) is underscored by the partial independence of these systems [87]. Indeed, a CBT treatment enhanced by affiliative approach techniques resulted in significantly greater satisfaction with social relationships immediately after and 12 month after treatment with a more standard CBT-like package [4; 5]. These findings strongly favor addressing positive social functioning in SAD interventions.

The endpoint of therapy for SAD is to enable clients to increase self-compassion and become authentic and relaxed in the presence of others. Developing and empirically assessing the utility of single therapeutic techniques, feeding these efforts back to the understanding of basic processes, and assessing the impact of combinations of these techniques remains the best way to enhance the effectiveness and precision of our interventions.

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