# Internet-mediated Cognitive Behavioral Group Treatment for Social Phobia with and without Comorbid Depression

vorgelegt von

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**ABSTRACT**

The present study is the first Internet-mediated treatment outcome study for social phobia with and without comorbid depression. This dissertation aimed to evaluate an Internet-mediated cognitive behavioral group treatment (I-CBGT) for social phobia in a Korean population. Twenty social phobics without depression and sixteen social phobics with comorbid depression received 8 sessions of Internet-mediated cognitive behavioral group treatment. The treatment was delivered in a closed Internet community using e-mail, e-bulletin boards and real time chatting according to a standardized treatment manual. Participants in both conditions showed significant improvements at posttreatment and at follow-up. The results of the study demonstrated that Internet-mediated cognitive behavioral group treatment was effective to improve social anxiety and depressive symptoms. Comorbidity with depression and subtypes of social phobia (generalized social phobia vs. specific social phobia) did not affect the rate at which participants improve. Implications of the Internet-mediated treatment for social phobia and limitations of the current study are discussed.

Key words: Internet. Social phobia. Comorbidity. Depression. Cognitive-behavioral group treatment.

**ZUSAMMENFASSUNG**

Die vorliegende Untersuchung ist das Resultat über die erste Internetvermittelte Psychotherapiestudie im Bereich von sozialer Phobie mit und ohne komorbide Depression. Das Ziel dieser Dissertation ist es, eine Internetvermittelte kognitive Verhaltensgruppentherapie (I-CBGT) für soziale Phobie in der koreanischen Bevölkerung auszuwerten. Zwanzig Patienten ohne komorbide Depression und sechzehn Patienten mit komorbider Depression, haben an acht Sitzungen der kognitiven Verhaltenstherapie teilgenommen. In Anlehnung an ein standardisiertes Handbuch fand die Behandlung in Form einer geschlossenen Internetgemeinschaft statt, die sich per E-Mail und über Internetforen austauschte, und in Form von Chats in Echtzeit miteinander kommunizieren konnte. Patienten beider Krankheitsbilder, die an der Therapie teilnahmen, zeigten nach Abschluss der Therapie und in der Nachbehandlung signifikante Verbesserungen. Die Resultate der Studie zeigten, dass I-CBGT bezüglich sozialer Angst und Depression erfolgreich war. Untersucht wurden die zwei Faktoren Komorbidität mit Depression und Subtypen der sozialen Phobie (generalisierte soziale Phobie vs. spezifische soziale Phobie). Die Studie zeigte, dass keiner der zwei Faktoren einen Einfluss auf das Behandlungsresultat hatte.

Schlüsselwörter: Internet. Soziale Phobie. Komorbidität, Depression. Kognitive Verhaltensgruppentherapie.

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# ABBREVIATIONS

| | |
|---|---|
| ADIS-R | Anxiety disorders interview schedule-revised |
| ANCOVA | Analysis of covariance |
| ANOVA | Analysis of variance |
| APA | The American Psychiatric Association |
| BDI | Beck depression inventory |
| CBGT | Cognitive Behavioral Group Treatment |
| CBT | Cognitive Behavioral Therapy |
| C1 | Condition 1 |
| C2 | Condition 2 |
| C3 | Condition 3 |
| DSM | The Diagnostic and Statistical Manual of Mental Disorders |
| FNE | Fear of Negative Evaluation scale |
| I-CBGT | Internet-mediated cognitive behavioral group treatment |
| I-ES | Internet-mediated educational supportive group treatment |
| LSAS | Liebowitz social anxiety scale |
| MANOVA | Multivariate analysis of variance |
| MAOIs | Monoamin oxidase inhibitors |
| Ps | Participants |
| PTSD | Posttraumatic stress disorders |
| RTQ | Reaction to treatment questionnaire |
| SADS | Social avoidance and distress scale |
| SD | Standard deviation |
| SSRIs | Selective serotonin reuptake inhibitors |
| TKS | Taijin Kyofusho |
| VR | Virtual reality |

# 1. INTRODUCTION

The rapid development of Internet and new communication technologies is having a growing impact on psychology and psychotherapy. Technologies that hardly used in the past decades, such as e-mail, chatting, instant messenger, videoteleconferencing and Internet are becoming familiar methods for diagnosis, therapy and education (Bouchard, Payeur, Rivard, Allard, Paguin, Renand & Goyer, 2000; Gega, Marks & Mataix-Cols, 2004; Müller-Holthusen & Meermann, 2004; Pior & Tiedemann, 2000). This is producing an emerging field, Internet therapy, whose focus is any type of professional therapeutic interaction that makes use of the Internet to connect mental health professionals and their clients (Riva, Botella, Castelnuovo, Gaggiolo, Mantovani & Molonari, 2004; Rochlen, Zack & Speyer, 2004). Various online psychological service sites are offered by public institutions, mental health professionals, individual clinics, and even patients with mental disorders such as social phobia, panic disorder, depression, addiction and eating disorder and so on (Laszig & Eichenberg, 2003). Currently, there are thousands of online discussion boards and chat rooms being used for the purpose of psycho-educational help.

Internet-mediated mental health services may be especially invaluable in providing professional psychological help about social phobia to individuals who can not participate in traditional treatment with too high level of anxiety. Individuals with social phobia avoid in vivo treatment because of fear, shame or stigma. Beck and Emery (1985) proposed that the core of social phobia is the fear of having one's inadequacies exposed in front of others. Therefore, individuals with social phobia are hypersensitive to the possibility of evaluation and form a vigilant cognitive set for rejection (Salkovskis,

1996). Their fear of social interaction even with helping professionals is one of the primary reasons for low treatment rate (Fehm, Pelissolo, Furmark & Wittchen, 2005). As a result, the disorder tends to be neglected and individuals with social phobia suffer increasing severity of the condition without appropriate treatment, leading to the predictable complications of secondary comorbidity (Keller, 2003). Social phobia demonstrates an increased risk for major depression (Ameringen, Mancini, Styan, & Donison, 1991; Jefferson, 2001) and comorbidity frequently complicates the clinical picture in social phobia. In the absence of treatment, social phobia can persist for years or even decades (Wittchen & Fehm, 2003). Thus, it is of importance to recognize and treat social phobia early in life to be able to minimize the chronic impairment. Internet-mediated treatment could be one choice for the anxious people who would otherwise be bereft. In case like social phobia, being able to seek treatment while still being able to remain anonymous can be a great asset. Although it is important for psychologists and therapists to take an accurate appraisal of the treatment possibility, a handful studies have been completed on the effectiveness of Internet-mediated intervention of social phobia.

In the present study, the effect of Internet-mediated cognitive behavioral group treatment (I-CBGT) for social phobia is examined. This study includes both social phobics with and without comorbid depression and compares the effects of I-CBGT between groups. The following issues will be covered in the subsequent five chapters. First, the concept of social phobia, cognitive model of social phobia and current treatment approaches are introduced. The following chapter examines the types of Internet therapy along with the advantages and potential risks of Internet therapy. In addition, therapeutic possibilities are presented with a focus on Internet-mediated

treatment approaches for social phobia. Chapter 4 and 5 contain two empirical studies and data concerning the efficacy of the Internet-mediated treatment approach for social phobia. The final chapter of this thesis summarizes and discusses the main findings of the present study. Limitations of the present study, future issues and direction of clinical care, service delivery, and research in the area of Internet-mediated treatments are discussed.

## 2. SOCIAL PHOBIA

### 2.1. Diagnosis

Social phobia first appeared in the DSM-Ⅲ (American Psychiatric Association, 1980). It was described as "a neglected anxiety disorder" (Liebowitz, Gorman, Fyer & Klein, 1985) and has been studied less than the other anxiety disorders. However, it has been become better recognized as one of the common psychiatric disorder. According to the DSM-Ⅳ (American Psychiatric Association, 1994), social phobia is the unreasonable or excessive fear of social situation and the interaction with other people that can automatically bring on feeling of self-consciousness, evaluation, and inferiority. The core fear of social phobia is that of negative evaluation by another person (Beck & Emery, 1985) and individuals with social phobia are hypersensitive to the evaluations of others. The perception of negative feedback from others (e.g., rolling eyes or yawning) triggers increased anxiety in these individuals, which in turn causes physiological anxiety symptoms such as blushing, tremor, muscle tension and sweating (Rapee & Heimberg, 1997). A vicious cycle consisting of perceived negative evaluations and

increased anxiety is common for many of social phobics when engaged in social situations. In severe cases, these symptoms may meet criteria for a panic attack. However, the focus of anxiety in social phobia is the prospect of social interaction, whereas the fear in panic disorder relates to the panic attacks regardless of situations (Ballenger, Davidson, Lecrubier, Nutt, Bobes, Beidel, Ono, Westenberg, 1998).

The number of situations feared by a person with social phobia can vary from one to many. Feared situations may be grouped into two main types: social interaction and social performance. Social interaction often include parties, dating, meeting strangers, informal conversation, maintaining eye contact, talking to authority figures, and assertive situations. Performance situations that are often feared by people with social phobia include public speaking, eating or writing in front of others, using public bathrooms with others, and performing in front of others.

To be diagnosed with social phobia, the individual must recognize that the fear is exaggerated or unreasonable and must avoid the feared situations or endure them with intensive discomfort. In addition, the fear and/or avoidance must lead to significant distress or interference with the individual's normal routine or functioning (American Psychiatric Association, 1994). Social phobia is often associated with moderate to severe functional impairment in the areas of education, employment, family relations, romantic relationships and friendships (Antony, 1997; Brown, Heimberg & Juster, 1995; Hofmann & Bögels, 2006; Turner, Beidel, Wolff, Spaulding & Jacob, 1996). The social anxiety must not be due to the direct effects of a substance or a general medical condition, nor may it be better accounted for by another mental disorder (e.g., trembling in Parkinson's disease, stuttering, or binge eating). If another mental disorder or a general medical condition is present, the social anxiety must be unrelated to it.

**Table 1. Diagnostic criteria for social phobia according to DSM-IV (APA, 1994).**

A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing. **Note***: In children, there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults.

B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed panic attack. **Note**: In children, the anxiety may be expressed by crying, tantrums, freezing, or shrinking from social situations with unfamiliar people.

C. The person recognizes that the fear is excessive or unreasonable. **Note**: In children, this feature may be absent.

D. The feared social or performance situations are avoided or else endured with intense anxiety or distress.

E. The avoidance, anxious anticipation, or distress in the reared social or performance situations interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.

F. In individuals under age 18 years, the duration is at least 6 months.

G. The fear or avoidance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., panic disorder with or without agoraphobia, separation anxiety disorder, body dysmorphic disorder, a pervasive developmental disorder, or schizoid personality disorder).

H. If a general medical condition or another mental disorder is present, the fear in criterion A is unrelated to it, e.g., the fear is not of stuttering, trembling in Parkinson's disease, or exhibiting abnormal eating behavior in anorexia nervosa or bulimia nervosa.
*Specify if: Generalized*: if the fears include most social situations (e.g., initiating or maintaining conversations, participating in small groups, dating, speaking to authority figures, attending parties). **Note:** Also consider the additional diagnosis of avoidant personality disorder.

To delineate temporary developmental social phobic symptoms from clinically significant social phobia, the diagnosis of social phobia is not given for individuals less than 18 years of age unless the duration of the disturbance has been at least 6 months. The diagnostic criteria of social phobia according to the official diagnostic classification of DSM-IV (American Psychiatric Association, 1994) are presented in Table 1.

DSM-Ⅳ recognizes two subtypes: *specific* social phobia (e.g., fear of speaking in font of groups), and *generalized* social phobia where people are anxious, nervous, and uncomfortable in almost all social situations. Although some overlap exists between the two subtypes, they differ in the pervasiveness of the problem. Generalized social phobics appear to experience more anxiety and disruption of function, and to have an earlier age of onset (Brown et al., 1995). Numerous researches indicate that individuals with generalized social phobia are more likely to be depressed, more comorbid, more persistent, and have a poorer treatment outcome than individuals with specific social phobia (Brown et al., 1995; Chambless, Glass & Tran, 1993; Heimberg, Hope, Dodge & Becker, 1990; Kessler, Stein & Berglund, 1998; Turner, Beidel & Towunsley, 1992; Wittchen & Fehm, 2003).

People with severe, generalized social phobia often meet diagnostic criteria for avoidant personality disorder as well. In fact, the overlap between generalized social phobia and avoidant personality is so great (Chambless & Hope, 1996). Currently, investigators believe that these two disorders differ more quantitatively than qualitatively (Hofmann, Newman, Becker, Taylor & Roth, 1995; Widiger, 1992).

### 2.1.1. Cultural issue

DSM-Ⅳ acknowledges that culture affects symptom presentation and points out that DSM social phobia has similarities to *Taijin Kyofusho* (TKS). TKS is a Japanese form of social anxiety centered on concerns for offending others with inappropriate behavior or offensive appearance (Kleinknecht, Dinne, Kleinknecht, Hiruma & Harada, 1997). There are similarities and differences between TKS and DSM social phobia. The major defining features of both are fear and avoidance associated with inappropriate social interactions and performances. And, as with social phobia in Western cultures, the typical age of TKS onset in Japan is in adolescence and early adulthood (Takahashi, 1989). However, a major differentiating feature of these two forms of social anxiety is the culturally-defined meaning and behavioral consequence attached to appearing different or inappropriate. That is, individuals who have a TKS suffer from fear that they will offend or embarrass others, while individuals with social phobia suffer from fear that they will embarrass themselves (Kleinknecht et al, 1997). In extreme cases, the construct of TSK extends to the level of delusional disorder – somatic type, depending on the tenacity and bizarreness of one's belief that his or her actions or characteristics are offending or damaging others (Nagata, Vliet, Yamada, Kataoka, Iketani & Kiriike, 2006).

Interestingly, TKS is not unique to Japan. Lee, Oh and Lee (1991) also reported similar conditions in Korea. They examined the clinical manifestations of 246 patients who had been diagnosed with social phobia and received group therapy at Koryo General Hospital, Seoul. Among them, eighty one patients had ideas of harming others caused by their physical defects. They firmly believed that they harm others, thus feel

guilty. It is for this reason that they have to avoid interpersonal relationship. The ways that cause harm on others were: by their gaze (63.0%), emitting odor (14.8%), muscle tension (8.6%), facial expression (8.6%), blushing (2.5%), swallowing (1.2%), and breathing sound (1.2%). Surprisingly, twenty one patients (25.9%) believed their symptom is infecting the others. DSM criteria can hardly explain this special type of social phobia. Lee et al., (1991) presented it as one of the subtype of social phobia, which has been frequently reported in Japan and Korea.

Confusion culture may play an important role to make this interesting subtype, "Regard for others." East Asian countries such as South Korea, Japan, and China are heavily influenced by the Confucian culture which emphasized respect to elders and seniors in the social hierarchy (Lee & Gong, 2004). Such a psycho-cultural orientation can breed interpersonal anxiety especially when hierarchical relationships or unfamiliar circumstances are involved. As such, it endorses a degree of shyness. Korean's mentality on Groupism, Hwa (peace in harmony), Chaemyun (face saving) and Noonchi (eye-reading) are also considered in producing this type of social phobia (Lee et al., 1991).

In conclusion, applying modern operational diagnostic criteria, social phobia seems to occur universally. Variables such as age of onset, sex ratio and psychiatric sequelae of social phobia are similar in different countries and the same psychopharmacological and psychotherapeutic interventions have shown effectiveness in the treatment of social phobia in different populations (Nagata et al., 2006; Sakurai, Nagata, Harai, Yamada, Mohri, Nakano, Noda, Ogawa, Lee & Furukawa, 2005). At the same time, Social phobia is a culture-bound syndrome. Therefore, it is important to examine whether patients fulfilling the same diagnostic criteria of social phobia manifest similar

symptomatology across cultures. More information is needed on this issue.

### 2.1.2.   Comorbidity with depression

Social phobia is often complicated by comorbid Axis I disorders, most frequently depression, other anxiety disorder, and alcoholism. Especially, individuals with social phobia demonstrate an increased risk for major depression. Given the high degree of impairment associated with interpersonal relationships, it is not surprising that many patients with social phobia develop secondary depressive symptoms. In one study (Ameringen et al., 1991), fifty-seven social phobic patients were examined to identify the comorbidity with other psychiatric illnesses and their temporal relationships. The result revealed that mood disorders, particularly major depression, was the most common other lifetime diagnosis. Social phobia is strongly associated with depression in youth as well (Chavira, Stein, Bailey & Stein, 2004; Stein, Fuetsch, Müller, Höfler, Lieb & Wittchen, 2001).

Comorbid depression tends to be more prevalent in individuals with an early onset of social phobia and is associated with exacerbated disability and lower quality of life (Lecrubier, 1997). Furthermore, compared with individuals who have social phobia without depression, those with social phobia and comorbid major depression have an increased rate of suicidal attempt (Lecrubier & Weiller, 1997).

However, individuals with comorbid depression are usually excluded from clinical studies and there appears to be few studies that conducted on the effect of comorbid depression on the outcome of treatment for social phobia. In a previous study (Turner et al., 1996), individuals with social phobia and comorbid mood disorder were more

troubled by their problems, but responded to treatment similarly to those with uncomplicated social phobia. This study suggested that comorbid depression may not affect the rate at which patients improve, whereas Chambless, Tran and Glass (1997), examining predictors of improvement following cognitive behavioral group treatment, reported higher self-reported depression to be associated with poorer treatment response. They found that Ps with higher pretreatment scores on the Back Depression Inventory were less likely to improve. In another study (Erwin, Heimberg, Juster & Mindlin, 2002), those with comorbid mood disorders were judged, before and after 12 weeks of CBGT and at follow-up, to be more severely impaired than those with no comorbid diagnosis. They also reported greater duration of social anxiety than those with uncomplicated social anxiety disorder. These findings are inconsistent with those of Turner and colleagues. Thus, the effect of comorbid depression on the treatment outcome for social phobia was unresolved and further investigation would be helpful.

## 2.2.  Prevalence

The prevalence of social phobia has been studied in different cultural communities throughout the world. According to the US national comorbidity survey of more than 8,000 subjects (NCS; Kessler, McGonagle, Zhoa, Nelson, Hughes, Eshleman, Wittchen & Kendler, 1994), social phobia is the third most common psychiatric disorder in the United States. A lifetime prevalence rate of social phobia is 13.3% in the community and a 12-month prevalence rate is 7.9%. In more recent survey from Germany of 3,021 individuals, lifetime prevalence of social phobia is 9.5% in females and 4.9% in males (Wittchen, Stein & Kessler, 1999). In a Korean epidemiological study on the basis of

DSM-III (Lee, Kyak, Lee, Kim, Han, Choi & Lee, 1986), the lifetime prevalence rate is 0.53 % in Seoul, 0.65 % on rural areas. The data show low rate of social phobia in Korea.

One of the possible explanation of low rate is that social phobia were recognized as frequent disorder by mental health professionals after the middle of 1980 in Korea. Therefore, as of today life time prevalence would be higher than the past in Korea. The difference in prevalence estimates is also probably due to the diagnostic criteria applied. As diagnostic criteria develops and are applied (for example, with changes between DSM-Ⅲ, DSM-Ⅲ-R and DSM-Ⅳ), so the rates of prevalence may change (Keller, 2003). Cross-cultural differences in the willingness to reveal information to interviewers may plausibly account for some of this lower rate. But, it remains unclear whether this difference is affected by the culture of sample populations and by different constructs and mental representation of social phobia in Asia. Further epidemiological research using culturally sensitized instruments is needed to clarify this issue.

Social phobia is less prevalent in old age than it is within younger people. The psychopathological profile of those who reach clinical levels of social phobia is however similar, irrespective of age (Gretarsdottir, Borden, Meeks & Depp, 2004).

In community samples, rates of social phobia are usually twice as high among women as men, while in clinical settings the gender distribution is often more even (Fehm et al., 2005; Jefferson, 2001).

## 2.3.   Onset and course


Social phobia develops early in life and generally tends to begin in childhood or adolescence (Klinger, Legeron, Roy, Chemin, Lauer & Nugues, 2004). Individuals from the very early onset group describe the disorder as having been present for as long as they can remember (Jefferson, 2001).

Social phobia is sometimes preceded by a history of social inhibition or shyness. According to study of Heiser, Turner and Beidel (2003), there is a significant and positive correlation between the severity of shyness and the presence of social phobia. The prevalence of social phobia is significantly higher among shy persons (18%) compared with non-shy persons (3%). But the data suggest that social phobia is not merely severe shyness.

Persons who have social phobia either endure or avoid social situations altogether because the fear of embarrassment causes such intense anxiety; such avoidance may ultimately interfere with occupational and/or social functioning and lead to significant disability (Fehm et al., 2005; Kessler, 2003). Wittchen and Beloch (1996) reported that the unemployment rate in individuals with social phobia was three times higher and mean work hours missed were increased substantially. Individuals with social phobia commonly remain in "safer" lower level jobs rather than accepting more socially demanding promotions (Jefferson, 2001).

Following an onset in adolescence, the course of social phobia is usually chronic and the duration of social phobia is frequently lifelong. In the absence of treatment, social phobia can persist for years or even decades (Fehm et al., 2005; Wittchen & Fehm, 2003). But, the fear of scrutiny makes it difficult for them to come forward for treatment.

As a result, the disorder tends to be neglected and untreated social phobics suffer increasing severity of the condition, leading to comorbid psychiatric disorders and maladaptive coping behavior (Keller, 2003; Wittchen & Fehm, 2003). Thus, it is important to recognize and treat social phobia early in life to minimize the chronic impairment.

## 2.4. Etiology

The etiology of social phobia has not yet been fully explained. But, various possible factors have been suggested. One of the most consistent vulnerability factors for the development of social phobia is a positive family history of anxiety. Several family studies have explored genetic factors in social phobia and found higher rates of social phobia in relatives of social phobia probands (approximately a two- to threefold increased risk) in comparison to relatives of control probands (Merikangas, Lieb, Wittchen & Avenevoli, 2003; Stemberger, Turner, Beidel & Calhoun, 1995). Another study (Stein, Chartier, Hazen, Kozak, Tancer, Lander, Furer, Chubatry & Walker, 1998) showed that the relatives of probands with generalized social phobia were even almost 10 times more likely to report generalized social phobia than those of controls. Although family studies of social phobia support the role of genetic parameters in development of social phobia, these alone do not entirely explain its etiology.

Another potential factor in the development of social phobia is a temperament. Some children are born with a biological predisposition of increased vulnerability to developing shyness. Behavior inhibition – a child's initial withdrawal to unfamiliar or challenging events – is viewed as a temperamental construct reflecting primarily

biologically based, relatively stable individual differences in behavioral style (Kagan, Reznick, Clarke, Snidman & Garcia-Coll, 1984). Kagan and Snidman (1991) found that infants who had initial difficulty engaging with new stimuli tended to be more shy later in life and more likely to meet criteria for a diagnosis of social phobia. In another study (Kagan, Reznick, Snidman, Gibbons & Johnson, 1988), behavioral and physiological assessments of children who had been selected to be inhibited or uninhibited at 21 months were observed again at 4 and 5 years. A majority of the formerly shy and timid children became quiet and socially avoidant in unfamiliar social situations, while a majority of the formerly sociable children became talkative and interactive with peers and adults. On the bases of these previous studies, it is likely that temperamental factor can shape a person's overall tendencies to engage with or disengage from social situations.

Aside from genetic and biological factors, psychosocial risk factors have been implicated in the development of social phobia. Children might learn about social relations by watching their parents' behavior in the social situations. Children of parents with social anxiety have not had the opportunity to learn the necessary behaviors from the parents or although the behaviors are learned the children are unable to put them into practice. Caster, Inderbitzen and Hope (1999) found that socially anxious adolescents were more likely than non-anxious adolescents to perceive their parents as socially isolated.

The "emotional climate" in families with an anxious parent differed significantly from families without an anxious parent. Turner, Beidel, Nay and Tervo (2003) suggested the role of parenting behavior as a possible factor in the transmission of anxiety from parent to child. In this study, behaviors of parents with an anxiety disorder were

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compared to those of parents without an anxiety disorder on a number of dimensions, but particularly with respect to whether anxious parents actively inhibited their children from engaging in normal age appropriate activities. These behaviors were assessed during routine activities and in a structured non-conflictual play task. Although anxious parents did not overtly restrict their child's behavior in either type of activity, they reported higher levels of distress when their children were engaged in these activities.

The other important variable to consider is traumatic conditioning. Social phobia may also develop in the same way as do many specific phobias that are, as a consequence of traumatic conditioning experiences (Stemberger et al., 1995). Many of social phobics report traumatic experience, related to onset of social anxiety. In addition, early or critical experiences can inform a person's image of him or herself, distorting the person's impression of his or her performance in the current situations. The relative likelihood in a social situation can have an impact on the person's willingness to engage with those situations (Hambrick, Weeks, Harb & Heimberg, 2003).

In summary, social phobia is a complex disorder with unclear etiological origins. However, it is likely that social phobia results from combined effects of genetic factors, individual vulnerability factors, particularly temperament, social environmental factors and experience-dependent learning. Multiful risk factors are involved in the etiology of social phobia and further research will be required to clarify these ambiguities.

A number of different pattern of faulty thinking or cognitive styles that have been implicated in the generation and maintenance of social phobia are described in detail in the section "Cognitive model of social phobia" below.

## 2.5.  Cognitive model of social phobia

A number of cognitive models of social phobia have been proposed (e.g. Clark & Wells, 1995; Rapee & Heimberg, 1997), focusing on different aspects of how individuals with social phobia process social-evaluative information and how biases in information processing may affect their emotional and behavioral responses in social situations. Cognitive models of social anxiety implicate various factors in the initiation and maintenance of socially anxious states.

According to the model by Rapee and Heimberg (1997), individual with social anxiety in social situation forms a mental representation of his/her external appearance and behavior as presumably seen by the audience. This mental representation reflects a combination of memories or images of past experiences in similar situations, appraisal of his or her current physical state, and appraisal of negative or ambiguous audience cues. Individual with social phobia compares this mental representation of self as seen by the audience to the person's prediction of audience expectations in the given situation. The discrepancy between the person's perception of the audience's appraisal of his/her performance (appearance and /or behavior) and the person's perception of the audience's standard for the evaluation of his/her appearance and /or behavior, determines the perceived likelihood of negative evaluation from the audience and consideration of the social consequences of the expected negative evaluation. The predicted negative evaluation further gives rise to the negative thoughts about how the person is performing, physical symptoms (e.g., sweating, blushing), and anxious behaviors (e.g., social withdrawal or reduction of eye contact). A diagram of the model by Rapee and Heimberg is presented in the Figure 1. Important to the Rapee and

Heimberg model is the person's belief that other people are likely to be critical and negative in social situation. Individuals with social phobia hold automatic thinking, beliefs, interpretations, and predictions that probably contribute to their social anxiety. Information-processing biases in relation to attention, interpretation and judgment might play a role in the onset and maintenance of the social phobia.

### 2.5.1. Attentional biases

People with social phobia selectively attend to social threat in their environments. A study by Musa, Lépine, Clark, Mansell and Ehlers (2003) offers support for this hypothesis. In their study, patients with social phobia, patients with social phobia and concurrent depressive disorder, and non-patients were presented with word pairs each consisting of a neutral word and a threat word. The results indicated that patients with social phobia show an attentional bias towards social-threat words while non-patients tend to avoid social-threat words. The channeling of the person's attentional resources toward signs of threat instead of sources of positive feedback further exacerbates anxiety.

Social anxiety is associated with increased self-focused attention. When social phobics are in socially fearful situations, their attention is focused inward on themselves instead of situation at hand (Roth, Fresco & Heimberg, 2005). Instead of observing other people more closely, social phobics appear to turn attention inwards, notice how they feel, and then automatically assume that this information is relevant to other's evaluation. A probe detection task that aimed to measure the balance of attention between internal and external stimuli was developed by Mansell, Clark and
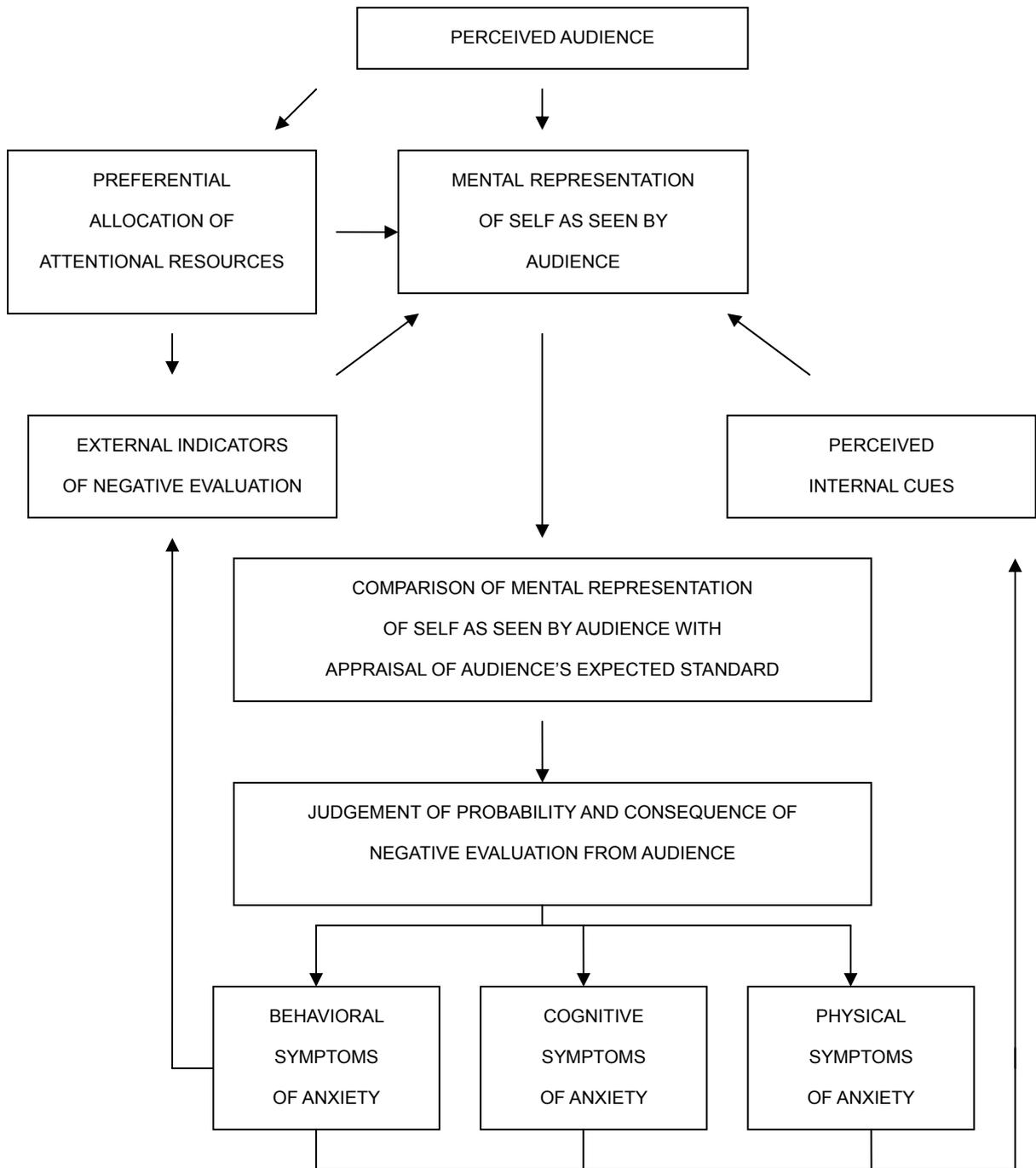
Figure 1. A model of the generation and maintenance of anxiety in social/evaluative situations as described by Rapee and Heimberg (1997, p. 743).

Ehlers (2003). High and low socially anxious individuals were instructed to detect two probes. The external probe was superimposed on pictures of faces (happy, neutral, and angry) or household objects that were presented. The internal probe was a pulse to the finger which participants were led to believe represented significant changes in their physiology. Compared to low speech anxious individuals, high speech anxious individuals showed an internal attentional bias, which was specific to conditions of social-evaluative threat.

Another attentional bias is from "observer" perspective in which social phobics can see themselves as if from an external point of view (Spurr & Stopa, 2003; Wells & Papageorgiou, 1999). Cognitive model of social phobia proposes that individuals with social phobia generate a negative impression of how they appear to others (Rapee & Heimberg, 1997). This impression often occurs in the form of a visual image from an "observer" perspective. Wells and Papageorgiou (1999) examined the specificity of the observer perspective among individuals with social phobia, agoraphobia, and blood/injury phobia. All participants were asked to recall and imagine a recent anxiety-provoking social situation and a non-social/non-anxiety-provoking situation, and rate their perspective for each. As a result, only individuals with social–evaluative concerns (social phobics and agoraphobics) reported observer perspectives for anxiety-provoking social situations. Similarly, Spurr and Stopa (2003) investigated the effects of taking the observer perspective on thinking, anxiety, behavior and social performance in high and low socially anxious participants. Use of the observer perspective produced more frequent negative thoughts, more safety behaviors, and worse self-evaluation of performance. There were clear trends demonstrating increases in anxiety and in thought belief ratings in the observer perspective.

## 2.5.2. Interpretation and judgmental biases

Beck and Emery (1985) suggested that at least two interpretation biases play a role in the maintenance of social phobia. First, individuals with social phobia may have a tendency to interpret ambiguous social events in a negative fashion. Second, they may interpret unambiguous but mildly negative social events (e.g., mild criticism from an acquaintance) in a catastrophic fashion. To assess this possibility, Stopa and Clark (2000) collected patients with generalized social phobia, equally anxious patients with another anxiety disorder, and non-patient controls. They were presented with ambiguous scenarios depicting social and non-social events. As a result, patients with generalized social phobia were more likely to interpret ambiguous social events in a negative fashion and to catastrophize in response to unambiguous, mildly negative social events.

Catastrophic interpretations of negative social events are considered to be an important factor underlying social phobia. The study by Wilson and Rapee (2005) showed that social phobics are more likely than controls to believe that other people perceive them in a negative manner following negative social events, and to believe that such events are an indication of negative characteristics of the self, and lead to adverse consequences in the long term in life domains such as interpersonal relationships and achievement opportunities. They investigated the extent to which these interpretative biases change during cognitive-behavioral treatment for social phobia, and examined whether within-treatment changes in different types of interpretations predict longer-term treatment outcome. Results showed that treatment was associated with decreases in various types of maladaptive interpretations of

negative social events.

Other studies relevant to judgmental bias are those which have investigated the attribution style. Social phobics have the tendency to attribute negative outcomes of social events to internal, stable, and global (Wilson & Rapee, 2005). Social phobics might avoid social situations because they see negative outcomes as inevitable regardless of their efforts to have an impact on the situation. And, they never learn that they have more control over outcomes in their life than they think they do (Roth et al., 2005).

These attributions are related to the self perception. Many social phobics have negative beliefs about their worth and value (Clark & Wells, 1995). They tend to judge themselves quite harshly in social situations, underestimate their own abilities and then expect negative outcomes in social situations (Rapee & Lin, 1992). In turn, social phobics interpret negative social outcomes to mean that they posses unfavorable, enduring personal characteristics (Wilson & Rapee, 2005). Interestingly, this bias only seems to occur for ratings of social phobics own performance, but not of others.

In conclusion, it is clear that information-processing biases exist in social phobia and these biases may increase or maintain social anxiety. Given that information-processing biases have been systematically observed, this provides a theoretical foundation for cognitive behavioral treatments of social phobia that attempts to correct these biases.

## 2.6. Treatment of social phobia

### 2.6.1. Pharmacotherapy

The monoamine oxidase inhibitors (MAOIs), benzodiazepines and, more recently, the selective serotonin reuptake inhibitors (SSRIs) have all shown promise as treatments for social phobia (Brunello, Boer, Judd, Kasper, Kelsey, Lader, Lecrubier, Lespine, Lydiard, Mendlewicz, Montgomery, Rcagni, Stein & Wittchen, 2000).

One of the earlier medications shown to be effective for treating social phobia was MAOIs antidepressant (Antony, 1997). Phenelzines, a nonselective MAOI is effective in 60-70% of patients with social phobia and always superior to placebo. However, the need for dietary restrictions and the risk of hypertensive and hyperthermic crises have relegated it.

The patients with performance phobia may get help from a beta-blockers or benzodiazepines (Sutherland & Davidson 1995). They are thought to work by reducing autonomic arousal and interrupting an otherwise vicious cycle of somatic symptoms and increased anxiety. Positive aspects of benzodiazepines include rapid onset, good tolerability, overdose safety, and flexibility of dosing (Jefferson, 2001). But, the relapse rates may be high after treatment is discontinued. In addition, treatment with benzodiazepines can be associated with the development of dependence.

Selective serotonin reuptake inhibitors (SSRIs) are now regarded as a first-line choice of treatment because of their effectiveness and because they avoid the problems of treatment with benzodiazepines or classical MAOIs (Brunello et al., 2000; Davidson, 2003). In general, SSRIs manifest their benefits gradually over several

weeks. Montgomery (1998) found that the SSRI paroxetine is more effective compared with placebo in both moderate and severe social phobia. This finding provides encouragement to the clinician to treat with paroxetine not only moderate but also severe social phobia. In view of the chronicity of social phobia and the slow onset of action of SSRIs, treatment should be continued for at least a year.

### 2.6.2. Cognitive behavioral therapy

One of the well-researched treatments for social phobia is cognitive behavioral therapy (CBT). CBT helps patients to change negative automatic thoughts by considering alternative interpretations and examining the evidence that supports and contradicts their beliefs. This is accomplished during treatment sessions through discussions with the therapist and between sessions by means of homework assignments like cognitive monitoring diaries. Patients are provided with a variety of strategies designed to help them challenge their anxious thoughts. The first step is the identification of negative thoughts that occur prior to, during, or after a confrontation with feared situations. Next, the patient and therapist evaluate the accuracy of these thoughts using evidence obtained from socratic dialogues and from planed "behavioral experiments." Behavioral experiments are designed to provide patients with opportunities to treat their thoughts as hypotheses and test whether their beliefs are realistic appraisals.

Sometimes, social skills training is combined with cognitive restructuring or exposure. Social skills training is based on the premise that social phobics who exhibit behavioral deficiencies for social interaction provoke negative reaction from others, which in turn,

makes social interactions unpleasant and anxiety-provoking (Hambrick et al., 2003).

The issue of social performance in social phobia is, however, complex. Turner and colleagues (1992) found that social phobics are perceived as being less skilled than those who are not socially anxious. In contrast, another study found no differences between social phobics and non-social phobics in terms of behaviors displayed (Newton, Kindness & Mcfudyen, 1983). It is not clear whether this reflects a lack of skills or a skills inhibition.

The efficacy of CBT in social phobia has been demonstrated in a number of controlled studies (Chambless & Hope, 1996; Gill, Carrilo & Meca, 2001; Heimberg, Dodge, Hope, Kennedy, Zollo & Becker, 1990; Heimberg, Salzman, Holt & Blendall, 1993; Taylor, 1996) and CBT is currently considered to be the "gold standard" psychological treatment approach for social phobia (Hofmann & Bögels, 2006). Various outcome studies have been conducted to compare CBT to alternative treatment conditions such as medication, supportive psychotherapy, or waiting list control conditions as well as to compare the various CBT strategies to one another, alone and in combination. And, the results of many studies on this CBT for social phobia support that individual who receives CBT show significantly greater improvement. Taylor (1996) meta analyzed 42 studies and found that all the treatments considered in his work - placebo pills, exposure, cognitive restructuring (without exposure exercises), integrated combination of cognitive restructuring and exposure, social skills training - gave effect sizes superior to those of the waiting list condition. Additionally, the combination of exposure and cognitive restructuring produced significantly greater improvement than those of the group treated with placebo pills.

The treatments described above are mainly delivered in a group format. There are

several advantages of group treatments for social phobia. First, the group format offers a less costly alternative than individual treatment. Second, group treatment often offers emotional support for the patients since they find that they are not alone with their problem (Butler, 1989). Third, the group participants can learn from each other in the sessions. Furthermore, the group itself is a social situation, thus offering fear-evoking situations and consequently a chance for in vivo exposure.

Cognitive behavioral group treatment (CBGT), developed by Heimberg (1991), is the specific treatment protocol for social phobia that has received the most empirical attention. The first two sessions are devoted to providing patients with a cognitive-behavioral model of social phobia and to introducing the concepts of cognitive restructuring, exposure and homework. During the remaining sessions, graduated exposure role plays are planned to examine and modify patient's negative thoughts before, during, and after exposure to feared situations. Heimberg and colleagues (1990) examined the effects of CBGT for social phobia. In their study, CBGT participants (Ps) were compared to individuals who had received credible alternative treatment (Educational supportive treatment) on self-report measures, independent assessor ratings, and measures derived from an individualized behavioral test. At both posttest and 6-month follow-up, independent evaluators rated CBGT Ps as more improved than the control group Ps. At follow-up CBGT Ps also reported less anxiety on the behavioral test. CBGT has not been found effective in the short term but also in the long-term follow-up investigations. Even after more than five years, CBGT Ps continued to improve and independent assessors rated CBGT Ps' social fear as less severe and their symptoms as interfering less with work, social activities and family life (Heimberg et al., 1993).

In sum, both CBT and medication have been shown to be effective treatment for social phobia. However, it should not be automatically assumed that a combination of two effective treatments is better than one intervention alone. Pharmacotherapy may show somewhat greater acute efficacy and may be associated with quicker response. CBT may confer greater protection against relapse (Hambrick et al., 2003). Further investigation is necessary to find the best way to combine these two treatment modalities.

## 2. PSYCHOTHERAPY IN INTERNET

The use of computers and the Internet is becoming more commonly widespread in the world. Almost every household owns a computer and has access to a wealth of information available on the World Wide Web. As of March 2007, there were approximately 6,574,666,417 people globally with Internet access (Internet World Stats, 2007). Koreans are among the most active Internet users in the world and the number of Korean Internet user is growing dramatically. In 2000, the number of Internet user in Korea was estimated about 19,040,000, and in March 2007 this number has risen to 51,300,988, showing 66.5% of the penetration rate (Internet World Stats, 2007).

The rapid development of Internet technology has given rise to new opportunities in treatment and prevention research and is a potentially powerful delivery method for psychological intervention. More and more individuals carry on daily life activities in the Web including the search of online psychological help. In one study (Hage, Riba & Huang, 2001), 59% of 247 outpatients used the Internet to inquire about health information and 49% wanted their clinician to advice them on health related specific

internet sites. While Internet is not one hundred percent positive, due to the lack of confidentiality and confirmation that all of the information on the net is accurate, it has proven to be effective in some very useful ways.

The major aim of this chapter is to provide a framework of Internet-mediated treatment. To begin with, the advantages and limitations of Internet therapy are discussed in the following section.

### 3.1. Benefits of Internet therapy

(1) Internet therapy can offer new options to people who are not available to face-to-face treatment. There are several reasons for having no access to standard psychotherapy, for example, living isolated, no financial means, private obstacles, shyness or the fear of face-to-face interaction, time restrictions or no experienced therapist available (Lang, 2001; Rochlen et al., 2004; Wolf & Hautzinger, 2003). Internet can provide psychological services across geographical distance for underserved population (Gackenbach, 1998). People who are physically disabled are difficult to directly visit a psychotherapist and may be more likely to seek help via Internet. Especially, many of those suffering from social anxiety do not feel that they can approach their feared situation in real life including interaction with mental health professionals. Those who are too afraid to confront a situation in real life are able to practice first in a virtual environment and Internet therapy can offer an intermediary step (King & Poulos, 1998).

(2) Internet therapy offers anonymity. In cases like having disorders that are

embarrassing, people prefer support while still being able to remain anonymous (Laksmana, 2002). Finn and Lavitt (1994) conducted self-help intervention for women who had experienced sexual abuse. They showed how a psychological distress that is characterized by feelings of shame and interpersonal anxiety may be aided by an anonymous Internet service. The Internet-mediated intervention might actually facilitate disclosure of difficult or shameful experiences, as anonymity supports the overcoming of inhibition and people could be more open and honest with less risk of humiliation or rejection (Tate & Zabinski, 2004). Because anonymity also allows elimination of socio-demographic factors like age and socioeconomic status, issues of physical attractiveness and social skills are neutralized (King & Paulos, 1998). Due to these advantages, Internet therapy could be favorable for socially anxious people (Müller-Holthusen & Meermann, 2004).

(3) Another important benefit of Internet therapy is that they are not time dependent; in other words, communications can occur asynchronously at any time (Eichenberg, 2004; Lang, 2001). For example, electronic bulletin boards are available 24 hour a day, making support accessible whenever the user needs. Winzelberg (1997) found that 37% of the messages in online eating disorders support group were sent between 7 a.m. and 7 p.m., 32 % from 7 p.m. to 11 p.m., and 31 % between 11 p.m. and 7 a.m. That is, two third of the messages were posted between 7 p.m. and 7 a.m., a time when traditional treatment groups would have been least accessible. This constant availability allows one to "speak" in a thoughtful manner because people can edit and revise messages before posting (King, 1994; Tate & Zabinski, 2004).

(4) Internet therapy is relatively easy to use. The advent of the Internet has given people the ability to access all kinds of information from the comfort and privacy of their homes (Laksmana, 2002). Psychological web information bases which are convenient, inexpensive, frequently updated, and efficient are increasingly used by Internet users. With easy-to-use search engines, people can access relevant sources quickly (Barak, 1999) and this information can be easily copied, retrieved, or printed.

(5) A rapidity of exchange of information is accepted advantage of Internet therapy. As high-speed Internet connections become more prevalent, links to mental health related web sites, video clips, documents, and assessment tools are readily supplied via Internet (Rochlen et al, 2004).

(6) Internet-based interaction between a therapist and a client could save economical, social and individual costs. Internet therapy can help to shorten waiting lists and reduce travel expense for people who often live far from the treatment center. The study by Ström, Pettersson and Andersson (2000), who conducted Internet therapy for headache, presented a reduction of 12 times compared to normal therapist time for headache treatment but with comparable result.

(7) Internet-based interaction creates written records that can be examined and used as treatment progresses (Miller & Gergen, 1998). Full treatment dialogue are easily archived and readily accessed for use by either therapist or client. Textual records can be discussed with supervisor and the supervisor is able to follow the entire therapeutic process (Knaevelsrud, 2005).

## 3.2.  Limitations of Internet therapy

(1) Text based communications such as e-mail and chatting have the potential to be misleading and misunderstood (Vitouch, 2001). Characteristic for text based communication is the near complete absence of sensory contact, i.e. the absence of a physical presence, the lack of nonverbal signals like eye contact, body language, and vocal intonation. The difficulty in expressing nonverbal cues can in turn cause a failure to perceive urgent communications from troubled clients (Childress, 1998). For example, clients with poor ego strength or paranoid tendency may suffer from the loss of reassuring visual and auditory cues (Rochlen et al., 2004). Indeed, the treatment of complex psychopathological disorders over the Internet is very difficult. Therapists should be aware of the limitations of the medium to assess accurately a client's emotional and mental state.

Although this factor may present obstacles to conducting effective psychological intervention via Internet, it seems that its actual impact can be rather small. It is possible to compensate the lack of nonverbal communication by employing Internet-specific techniques like varying the font, putting important emotional information into brackets, or adding various emoticons. Furthermore, videoconferencing can offer visual and audio features. It is also a live connection between people in distant locations to communicate each other. Regarding the requirements that are needed for videoconferencing, the software is usually free or not very expensive. Regarding hardware, a common PC with Internet connection and a web camera are enough to allow the user to have a cheap connection with distant people. But, the effectiveness and therapeutic value of this technique for the delivery of psychological services must

be systematically studied.

(2) Another disadvantage to Internet therapy may be high attrition rates. It may be easier not to keep an appointment with an Internet-mediated intervention than a face-to-face psychotherapist (Lang, 2001). Indeed, people in an online group find great opportunity to be present as passive observer of the online group's intercommunication (Barak, 1999). Two recent studies of an Internet-based self-help treatment found that dropout in those programs were substantial with over 50% of the sample withdrawing (Ström et al., 2000, Uldrian, 2004). These findings limited the significant effectiveness of Internet therapy.

(3) There can be problems that stem from the technology itself. For example, servers can be overloaded during high-traffic times, which may cause delays in how information is typed and presented on screen. The typing speed of participants and the amount of participants also can affect the flow of the conversation. And, differences in computer software can interfere with communication and determined hackers may be able to infiltrate even secure servers (Carlbring, 2004). Technical difficulties and the need for special skills make Internet therapy quite different from traditional psychological services.

(4) There are considerable legal, ethical and professional issues in the application of Internet therapy. One of the most prevalent ethical problems has to do with examining the licensing and certification of Internet-based psychological service providers (Barak, 1999). Because the users have very little chance to be able to examine true and full

information about a service provider, the potential for fraud and exploitation is great. Ensuring confidentiality is also problematic on the Internet. The Internet relies on electronic copying of information for transmission, creating the possibility of interception at many points. While encryption offers security, it should not be assumed that encryption codes cannot be broken by knowledgeable computer hackers (Childress, 1998). There is no governing body that can monitor the quality of services provided on Internet, or the competency of the therapists providing treatment (Gackenbach, 1998). Also, there are no clearly agreed upon rules on the use of these technologies. Those problems need to be taken into account in the future.

(5) Although the use of Internet as a therapeutic tool in the psychological field has made a big impact in the last decades, a great part of the work remains to be done. More controlled research is still needed to be concluded before more firm conclusions can be drawn.

### 3.3. Types of psychological services in Internet

Internet contains a variety of psychological means and services. In this section, Internet therapy is divided into four categories: self-help program, asynchronous Internet-mediated intervention, synchronous Internet-mediated intervention and virtual reality (VR). As Internet is rapidly developing and undergoing technical upgrades, however, this distinction is not conclusive. The purpose of this section is to present a framework of the Internet therapy and these four forms of Internet-mediated therapy will be described in detail. A special focus will be on approaches using these different

modalities in the treatment of social phobia.

### 3.3.1.  Self-help program

Self-help programs usually require no or minimal therapist contact. These programs are typically based on cognitive behavioral therapy (CBT). Specifically, computerized interventions offer a stimulating and engaging interface, integrating video, graphics and animations, voice, and many interactive episodes including multiple choice responding, on-screen problem solving and an diary completion (Cavanagh & Shapiro, 2004). Homework is often assigned after each session on the computer, and feedback is given to reinforce learning.

A number of controlled studies demonstrated that a computerized or Internet-based self-help programs are effective in the treatment for psychological problems such as depression (Marks, Mataix-Cols, Kenwright, Cameron, Hirsch & Gega, 2003; Selmi, Klein, Greist, Sorrell & Erdman, 1990; Wright, Wright, Salmon, Kuykendall, Goldsmith & Zickel, 2002), panic disorder (Carlbring, Westling, Ljungstrand, Ekselius & Andersson, 2001), social phobia (Wolf & Hautzinger, 2003), Obsessive-compulsive disorder (Ebel, 2004; Uldrian, 2004), eating disorder (Winzelberg, Eppstein, Eldredge, Wilfey, Dasmahapatra, Dev & Taylor, 2000), stress management (Zetterqvist, Maanmies, Ström & Andersson, 2003) as well as alcohol and drug abuse (Moncher, Parms, Orlandi, Schnicke, Miller, Palleja & Schnicke, 1985).

Wright and colleagues (2002) designed a multimedia program to provide psycho-education, teach self-help methods, and give information to depressive people in using the software. A preliminary study with 96 Ps who used this software found that 75

(78.1%) completed the entire program. Users indicated a high rate of acceptance of this form of computer-assisted therapy, and mean scores on a measure of cognitive therapy knowledge were significantly improved.

More recently, the effectiveness of a self-help treatment program for panic disorder was examined (Carlbring et al., 2001). The main treatment component in this study was a self-help manual that was adapted for use via the Internet and the material was divided into six modules. Each module included information and exercises, and ended with several essay questions. Ps were asked to explain the most important points of the module they had just completed. Ps improved significantly on the self-report scales used, whereas the waiting list group did not. Even though there were no face-to-face contacts, most Ps considered the self-help program to be personal.

Focusing on social phobia, Wolf and Hautzinger (2003) designed a computer-assisted self-treatment program for social phobia. The main treatment components of this program were psycho-education, treatment rational, exposure training, and relapse prevention. The treatment group showed significant improvements on almost all outcome measures. They concluded that a computerized self treatment could be one way to reach more social phobics. Social phobics may consider this treatment form to be a "risk-free" treatment alternative.

As mentioned by Gega and colleagues (2004) computerized self-help programs have many advantages. First, the demand for CBT for anxiety and depressive disorders exceeds the supply of suitable trained therapists, so waiting list is often long. Second, many sufferers prefer to avoid the stigma commonly incurred by seeing a therapist. Third, many people prefer to confide sensitive information to a computer rather than to a human. Also, these programs can be accessed at almost any place with highly

reduced costs. Because clients decide how often, when, and how long to use the computerized self-help program, they are largely responsible for their own treatment. This responsibility encourages a greater sense of mastery and control (Newman, Consoli & Taylor, 1997). However, fully automated computer programs are based on a limited number of circumstances and responses; therefore, they are not likely to address the specific concerns of all clients, which also may lead to disengagement or limited use of the program (Tate & Zabinski. 2004).

There are also applications of a computer-assisted CBGT in which the computer plays an assistant role. In these studies, computer is used not as fully computerized self help program, but as a therapeutic adjunct to CBGT for social phobia. This treatment modality can extend therapy beyond the therapy hour, which is especially helpful to CBT approaches since most therapy is assumed to take place between sessions (Newman et al., 1997).

Przeworski and Newman (2004) developed the treatment program in which the palmtop computer helps Ps with social phobia in exposure, cognitive restructuring, in the implementation of relaxation exercises and self-monitoring of anxiety cues. After the baseline period, Ps attended their psychotherapy sessions. They were given a self-help manual describing the therapeutic technique and their implementation using the computer. Outcome data suggested that the treatment was highly effective.

Although there are potential advantages to adjunctive computer use, there are also obstacles of this treatment modality. Phobic clients may be fearful of carrying a device that may call attention to them. Moreover, clients may forget carry the computer or might not use it (Newman et al., 1997). Future researches should compare computer-assisted, computer-only, and standard interventions in the same trial.

### 3.3.2. Asynchronous Internet-mediated intervention

Asynchronous communication is characterized by messages between people that do not take place simultaneously. That is, Ps post messages that are stored online for some period of time for others to read, with readers logging in and responding at different times. Ps need not be joined at the same time. This kind of Internet communications has been to facilitate communication among those with the same disorder (Internet support group) and for communications between patients and therapists (Internet therapy) (Tate & Zabinski, 2004).

In Internet support group, most dedicated electronic support spaces work on an e-bulletin board. The bulletin board facilitates social support exchanges: expressions of companionship (talking about problems and sharing experiences), information, positive feedback, support, and belongingness (Eichenberg, 2004; Muncer, Loader, Burrows, Pleace & Nettleton, 2000). Ps often find support from those who can sympathize with their experiences, and they can share information about the best treatment and how they can best cope with it. Today, many hospitals and community clinics offer support groups, yet face-to-face support groups are often difficult to schedule because of limited times and locations. Therefore, many individuals turn to Internet support groups and share their experiences through e-mail and e-bulletin board. Internet support groups have been studied in various mental disorder areas including depression (Houston, Cooper & Ford, 2002), social phobia (King & Poulos, 1998), eating disorder (Winzelberg, 1997), drug addiction (King, 1994), autism (Huws, Jones, Ingledew, 2001) and suicidal ideation (King, 1995; Eichenberg, Otto & Fischer, 2006).

King and Poulos (1998) reported a case formulation of e-mail discussion group for social phobia. Participation in this group allowed a client, a 24 year old single male with social phobia, to interact with others in conversations involving subject matter that, of itself, was non-threatening. His expertise and knowledge in this subject afforded him some additional confidence in initiating and engaging in e-mail conversation with others. Once he could have a series of successful encounters with members of e-mail discussion group, he experienced a pleasure at being able to converse with other people in this group and a lesser degree of distress over social performance.

In general, many of those studies have reported positive effects of Internet support groups. But, there are also potential problems. As participation in most Internet support group is open to anyone with access to the computer server, there is little control over who may participate in the group, the regularity and length of a member's participation, and the accuracy of information and feedback provided to group members (Winzelberg, 1997). Therefore, Internet therapy delivered mental heath professionals is needed.

In most asynchronous Internet therapy guided by professionals, e-mail and e-bulletin board are used. A number of studies examined the effectiveness of programs using asynchronous communications to deliver a treatment for various problems such as eating disorder (Grunwald & Busse, 2003; Yager, 2000), obesity (Tate, Jackvony & Wing, 2003; Tate, Wing & Winett, 2001), posttraumatic stress (Lange, Schrieken, van den Ven, Bredeweg, Emmelkamp, van der Kolk, Lydsdottir, Massaro & Reuvers, 2000), marital problem (Beer & Breuer, 2003) and breast cancer (Winzelberg, Classen, Alpers, Roberts, Koopman, Adams, Ernst, Dev & Taylor, 2003).

Tate and colleagues (2001, 2003) developed an Internet behavioral treatment program for obesity and evaluated this program in two different randomized trials.

Internet behavior therapy included structured behavioral lessons posted on the Web site each week, tips and links to other sites, reporting of self-monitoring information via Web-based diaries, opportunities for group support via e-bulletin boards, and participant-therapist interactions via e-mail. Results of this study suggested that weekly e-mail communication with a weight loss counselor significantly improved weight losses over a one-year program compared to a Web-based self-help program which included all behavioral components except e-mail from the professional.

Lange et al., (2000) examined the effectiveness of treatment of posttraumatic stress through Internet. During a period of 5 weeks Ps engaged in ten 45–min writing sessions via e-bulletin board. Therapist provided the Ps with feedback about their writings and instructions on how to proceed. The writing protocol consisted of self-confrontation, cognitive reappraisal, and social sharing. Ps improved strongly from pre– to posttreatment on posttraumatic stress and in psychological functioning.

In German, Grunwald and Busse (2003) found that e-mail consulting service for eating disorder on "Information and Consulting Server for Eating Disorder" (http://www.ab-server.de) was well accepted as a tool for advice and information.

### 3.3.3. Synchronous Internet-mediated intervention

In addition to such asynchronous systems, synchronous "chat" spaces allow people to type messages to one another simultaneously and read them in "real time." In real-time chatting environment, what is typed by one participant is seen by the others almost immediately. Advantages of synchronous programs revolve around the interactive nature of the communication and the impact of immediate support and

feedback. It allows for discussion and practice of particular skills, such as cognitive restructuring or role playing. This form of practice can be very helpful in achieving therapeutic goals. People who engage in online groups tend to feel uninhibited, a feeling that facilitates fast, intimate disclosure and honest response (Huang & Alessi, 1996).

Barak and Wander-Schwartz (1999) conducted the Internet based chat-room group therapy and compared its usefulness to a standard therapy group as well as to a no-treatment control group. Ps in the Internet-based group therapy met in a Java application, password-protected chat room for seven sessions of 90 minutes each. The results showed a trend toward positive change in terms of Ps' self-esteem, interpersonal relations, and well-being in comparison to the standard therapy and the no-treatment control groups. They concluded that an Internet chat room could be used for group therapy purpose.

Another synchronous communication group led by a treatment professional has been investigated for the prevention of eating disorders among college-aged women with high body-image concerns (Zabinski, Wilfley, Fernandez, Calfas, Winzelberg & Talor, 2001). Ps were required to participate in an online discussion for one hour per week for eight weeks. Each week they received psycho-educational readings and group summaries of the discussion. They also corresponded via e-mail to complete homework assignments. Results indicated significant decreases in body-image concerns over time for intervention participants as compared to wait list controls.

In more recent study (Wangemann & Golkaramnay, 2004), the center of Psychotherapy Research Stuttgart together with the Panorama-Clinic and the Techniker Krankenkasse, a major German health insure, initiated an anonymous,

password-protected Internet chat group for patients after an inpatient treatment. This project aimed on improving the maintenance of gains achieved during inpatient treatment. Patients with psychosomatic or psychoneurotic disorders were invited for participation. 8-10 patients met weekly for 90 minutes for 12-15 weeks. The groups were guided by experienced group psychotherapists. The available data indicated that the chat groups were well accepted and positively evaluated by the Ps.

More current synchronous form of computer contact is videoconferencing, which allows real time interaction by video equipment installed in each Ps' computer station. It is a live connection between people in distant locations with communication purposes. In its simplest version, it only transmits static images and text, being similar then to an instant messaging application. However, sophisticated versions allow the transmission of video images and audio. The possibility of visualizing the face of the person at the other part of the connection adds nonverbal features to the communication. To date, there have been few empirical researches, but a number of hints can be drawn from related researches.

One study by Bouchard, Payeur, Rivard, Allard, Paquin, Renaud and Goyer (2000) presented the preliminary results on the effectiveness of videoconferencing for panic disorder with agoraphobia. Ps received 12 sessions of cognitive-behavior therapy, which is an empirically validated treatment for panic disorder with agoraphobia. The treatment was delivered via videoconferencing by trained therapists according to a standardized treatment manual. The results demonstrated statistically and clinically significant improvements on measures of target symptoms. An interesting finding was the fact that a very good therapeutic alliance was built after only the first session.

In another study, Morland, Pierce and Wong (2004) assigned 17 Vietnam veteran

patients to an eight-week videoconferencing PTSD coping skills group or a conventional face-to-face PTSD coping skills group. At post-treatment 11% dropped out from the videoconferencing whereas 50% dropped out from the traditional treatment approach. Although no data concerning the efficacy of this intervention was provided, the authors concluded that videoconferencing could be used to provide coping skills for group of patients who live in remote areas.

### 3.3.4. Virtual reality

Virtual reality (VR) offers a new human-computer interaction paradigm in which users are no longer simply external observers of images on a computer screen but are active participants within a computer-generated three-dimensional virtual world (Riva et al., 2004). The most common approach to the creation of a virtual environment is to outfit the user in a head-mounted display. Head-mounted displays consist of separate display screens for each eye, along with some type of display optics, stereo earphones, and a head-tracking device (Rothbaum, Hodges, Smith, Lee & Price, 2000).

One of the main advantages of a virtual reality for clinical psychologists is that virtual reality can be a tool to provide exposure and desensitization (Riva, Bacchetta, Baruffi, Rinaldi & Molinari, 1998). Virtual reality has its roots in more traditional attempts of simulating reality for various reasons in therapy and psychotherapy training (Caspar, 2004). Especially, the use of VR in treatment of anxiety includes greater control of the exposure situation (Huber, 2006). Exposure to a sufficiently vivid virtual environment can evoke therapeutic levels of anxiety in a manner that is controllable, predictable, and reliable. For example, therapists can control the weather in treating a fearful flier or

the reactions of audience to a talk by someone who fears public speaking. Greater ability to repeat exposures is also very helpful. That is, patient who fears public speaking may give multiple speeches during one treatment session. And, confidentiality is improved in VR treatment because it is conducted in therapist's office (Anderson, Jacobs & Rothbaum, 2004).

Various applications of VR are already conducted in the treatment of fear of flying (Rothbaum et al., 2000), acrophobia (Emmelkamp, Krijn, Hulsbosch, Vries, Schuemie & Mast, 2002), posttraumatic stress disorder (Rothbaum, Hodges, Ready, Graap & Alarcon, 2001), eating disorder (Riva et al., 1998), and attention deficit disorder (North, North & Coble, 1997).

Positive results were found for social phobia as well. Lee, Ku, Jang, Kim, Choi, Kim and Kim (2002) at the University of Hanyang in Korea have designed a virtual environment for the treatment of fear of public speaking. They suggested the public speaking simulator based on a personal computer. The public speaking simulator was composed of a position sensor, head mount display and audio system. And a virtual environment for the treatment was presented to be a seminar room where 8 avatars are sitting. The virtual environment included a tracking system that traces a participant's head-movement using a head mounted display (HMD) with position sensor. And 3D sound was added to the virtual environment so that the participant might feel it realistic. In their study, virtual environment was effective for the treatment of fear of public speaking.

In another study in French clinical group (Klinger, Legeron, Roy, Chemin, Lancer & Nuguss, 2004), the efficacy of the virtual reality treatment for social phobia was compared to well validated group cognitive behavioral treatment and the result was

positive.

Despite such therapeutic possibilities, there are obstacles and disadvantages to VR as well. The therapist needs the technological capability and there could be side effects in some participants. This cluster of symptoms is called cybersickness and symptoms can include motion sickness, oculomotor problems, and migraine (Wiederhold & Wiederhold, 2004). Regarding costs, purpose-built therapeutic VR hardware and software can be still expensive and limited to adapt to individual client' needs at the current time, even though costs are continuing to decline.

### 3.4. New therapeutic possibility for social phobia

Internationally, common mental health problems such as anxiety and depression place very strong demands on health care (Cavanagh & Shapiro, 2004). But, the geographic distribution of trained psychotherapeutic practitioners is inequitable. Furthermore, the individuals with social phobia tend not to present their disorder directly or to seek help, unless it is complicated by another disorder. The avoidance of social interaction that is characteristic of the disorder often prevents consultation with a therapist. Despite the fact that individuals with social phobia report that it significantly interferes with their lives, less than 20% seek professional help (Magee, Eaton, Wittchen, McGonagle & Kessler, 1996; Wittchen et al., 1999). According to epidemiological studies from around the world (Magee, Eaton, Wittchen, McGonagle & Kessler, 1996; Wittchen & Fehm, 2003), only 13–28 % of individuals with social phobia reported ever having seen a health care professional because of this disorder. Therefore, their disorder is often poorly recognized, which results in low treatment rates.

The study of Erwin, Turk, Heimberg, Fresco and Hantula (2004) supported the fact that social phobics do not result in high utilization rates of psychiatric or primary care treatment. They designed the Internet survey to examine the psychological characteristics of socially anxious individuals who seek information on the Internet about social anxiety disorder and its treatment. Only about one-third of 434 Internet respondents who met criteria for social phobia reported having received psychotherapy, and a similar percentage reported having received pharmacotherapy.

Delays seeking treatment may stem from several concerns: shame/embarrassment, lack of time, and lack of nearby services. They may have been too anxious to seek information about social phobia and its treatment in ways that require social interaction. One more reason why social phobics do not seek any kind of treatment is many individuals with social phobia cannot afford to pay for therapy. One study (Turner, Beidel, Spaulding & Brown, 1995) estimated that for each client a typical course of therapy for social phobia costs $ 2695. All results taken together, it is imperative to develop non-threatening and cost-effective means of therapy for social phobia.

Internet-mediated treatment can offer a novel solution for social phobia. Internet-mediated treatment is cost-effective and the possibility of treating people who would not otherwise seek treatment. Bringing treatment for social phobia into cyberspace may increase the chances that some of these individuals will pursue face-to-face interaction.

There is obvious potential in using the Internet to assist the treatment of people with social phobia. For socially anxious people, communicating with others on the Internet in a text-based manner may allow them to avoid others' reactions to perceived physical or social shortcomings that they may view as making negative evaluation by others while at the same time to partially meet their needs for interpersonal contact and

relationships (Erwin et al., 2004). Campbell, Cumming, and Hughes (2006) reported that "chat" users who are socially fearful may be using the Internet as a form of low-risk social approach and an opportunity to rehearse social behavior and communication skills, which may help them improve interaction with off-line, face-to-face, social environments.

Since CBGT is an empirically validated treatment for social phobia (Gill et al., 2001; Heimberg et al., 1990; Heimberg et al., 1993; Taylor, 1996), it seems appropriate to test it in Internet-mediated therapy. In addition, CBT is particularly well suited for delivery by computer because it relies on the learning principles and systematic applications to specific anxiety symptoms (Bouchard et al., 2000). It is structured, well described, and focused on specific behaviors. In the cognitive behavioral approach to the treatment of social phobia, therapist focuses on using cognitive restructuring to modify distorted beliefs. It is supposed that in Internet community for therapeutic purpose, social phobics can participate more easily in therapy through e-mail, e-bulletin board or chatting with a closed group members and therapist. Internet-mediated CBGT (I-CBGT) has its therapeutic decisions made not by a computer but by a therapist in real time just as in face-to-face.

To my knowledge, only one published study (Chang & Ahn, 2003) was conducted to prove the efficiency of Internet-mediated CBGT for social phobia so far. In this study, ten 90 minute sessions were delivered through chatting over a 5-week period. The results demonstrated that Internet-mediated CBGT was effective to reduce social phobic symptoms. But this study did not include a follow-up data and there was no comparison with control group. Thus, more controlled investigation should be taken.

# 4. STUDY Ⅰ: A PRELIMINARY STUDY

## 4.1. Aims

The purpose of this preliminary study was to test the feasibility of Internet-mediated CBGT (I-CBGT) for social phobia and collect pilot data regarding therapeutic outcomes of Internet-mediated treatment. Prior to initiating controlled research on a larger sample, it was necessary to determine whether I-CBGT would be accepted by Ps.

The first aim of the preliminary study was to examine the effectiveness of I-CBGT in reducing social anxiety. I-CBGT was intended to compare to a placebo control - Internet-mediated educational-supportive group treatment (I-ES). A placebo treatment group (I-ES) was used to control for the effects of regular discussion and support in a closed Internet group.

The second aim of this preliminary study was to examine the possibility of I-CBGT for social phobia with concurrent severe depression as well. People who have severe depression and suicidal conditions may not be appropriate for Internet therapy (Suler, 2001). But, the association between social phobia and depression is very high and therapeutic need is great. It is necessary to examine whether the I-CBGT package would be efficacious for social phobia with comorbid depression.

An additional important aim was to identify the suggestions based on Ps' evaluations for further study. The specific aims of the preliminary study investigated the following questions:

1. Is I-CBGT effective for the treatment of social phobia?

   (a) Is I-CBGT more effective than I-ES?

2. Is I-CBGT effective for the treatment of social phobia with concurrent severe depression?

3. What is the feedback from Ps after finishing the Internet-mediated treatment?

   (a) How satisfied are Ps with Internet-mediated treatment?

   (b) To what degree would Ps recommend participation in this group to other people?

## 4.2. Samples

The Ps of this study were recruited through advertising on the websites of organizations that support individuals with social phobia as well as mental health related web sites. Due to the worldwide accessibility of the Internet, it was possible to gather Ps who lived in Korea, despite the fact that the therapist resided in Germany. Twenty women and eight men were interested in Internet–mediated treatment in the study. They entered a screening procedure and were asked to fill ADIS-R (Anxiety Disorders Interviews Schedule-Revised) for social phobia and several self-report measurements of social anxiety and depression per e-mail.

The ADIS-R is a revision of the Anxiety Disorders Interview Schedule, adapted for DSM-Ⅲ-R criteria (Di Nardo et al., 1983). In addition to providing diagnosis of DSM social phobia, it provides detailed information on clinically relevant aspects of the disorder, such as situational and cognitive cues for anxiety, intensity of anxiety and

extent of avoidance. It contains also questions about onset and duration of social phobia, experiences that might have lead to the onset, thoughts, bodily reactions and behavior in social situations, degree of impairments that the person experienced as a result from the social phobia, other psychiatric, social or physiological problems, social support, previous treatment experience, ongoing treatments, as well as a question regarding use of alcohol, medication and drugs. ADIS-R is originally a semi-structured interview method, but was assessed via e-mail in the present study.

Seventeen filled all questionnaires and the other eleven did not respond to the e-mailed questionnaires. Seventeen potential Ps who returned all questionnaires were individually interviewed through real time chatting for a more definite diagnosis. In interview, they were encouraged to describe their condition and their current living situation in their own words. They were also informed of the research project and therapist's identity including real name and certification. This interview was originally intended to be conducted through videoconferencing in order to add nonverbal features for diagnosis; however, videoconferencing couldn't be utilized because most of Ps had no web camera. Final Ps were formed of persons having a primary diagnosis of social phobia according to the diagnostic criteria of the DSM-Ⅳ and complying with inclusion and exclusion criteria, such as those defined here:

*Inclusion criteria*: the P's technical background and availability of an Internet connection were important conditions to evaluate. Since the ability to benefit from Internet therapy is partly determined by the P's computer skills and knowledge, and familiarity with online communication, potential Ps were also asked additional questions such as "What kind of Internet access do you have?", "Where do you access the

Internet?" and "Do you feel comfortable with typing in Internet based communication?"

*Exclusion criteria*: potential Ps were excluded if they received a diagnosis of organic brain disorder, psychosis and substance abuse. Ps were also excluded if they were taking an active medicinal treatment against social phobia or depression. However, Ps were allowed to participate if they had been stabilized on the medication for at least four weeks and continued to have social anxiety and/or depressive symptoms. Ps took part in no other kind of psychotherapy.

Two women were excluded due to an auditory hallucination and technical problem, respectively. One man was excluded because he refused to have an individual interview before the beginning of treatment. After the screening process, the final fourteen Ps were selected. Demographic variables are shown in Table 2 and all original samples who participated in Internet-mediated treatment were included in the analyses. The mean age of the total sample was 25 years (SD=4.91), ranging from 20 to 36. On average, 64% of the total Ps were female and 86% were unmarried. 67% were university students and 27% were full-time workers. One woman was housewife and one man was in military service. It was possible for him to participate in the Internet-mediated therapy session since he worked not in an isolated form of service in the army but in a public office as a special form of his military service. Nine reported having received pharmacotherapy or psychotherapy for social anxiety and/or depression. Two Ps reported ever having tried speech training to reduce social anxiety. Especially all Ps of Condition 3 received previous pharmacotherapy.

**Table 2. Demographic Variables**

|  |  | Condition1 (n=5) | Condition2 (n=5) | Condition3 (n=4) | Total (n=14) |
|---|---|---|---|---|---|
| **Sex** | Male | 2(40%) | 2(40%) | 1(25%) | 5(36%) |
|  | Female | 3(60%) | 3(60%) | 3(75%) | 9(64%) |
| **Age** | Twenties | 5(100%) | 3(60%) | 3(75%) | 11(79%) |
|  | Thirties | - | 2(40%) | 1(25%) | 3(21%) |
| **Marital status** | Married | - | 1(20%) | 1(25%) | 2(14%) |
|  | Unmarried | 5(100%) | 4(80%) | 3(75%) | 12(86%) |
| **Mean duration of social fears** | ≤ 5 years | - | 1(20%) | 1(25%) | 2(14%) |
|  | 6-15 years | 5(100%) | 4(80%) | 3(75%) | 12(86%) |
|  | ≥ 15 years | - | - | - | - |
| **Past medical treatment** | Yes | 3(60%) | 2(40%) | 4(100%) | 9(64%) |
|  | No | 2(40%) | 3(60%) | - | 5(36%) |

## 4.3.  Assessment

In order to measure social anxiety, the Korean version of Social Avoidance and Distress Scale (SADS), the Korean version of Brief -Fear of Negative Evaluation Scale (FNEB) and the Korean version of Liebowitz Social Anxiety Scale (LSAS) were utilized. Depression was measured using the Korean version of Beck Depression Inventory (BDI). These measurements were administered at pre-and post treatment. After having worked with the Internet treatment, a closing questionnaire was conducted. The open-

ended questions focused on the necessary improvements, suggestions and reflections of the program.

(1) The Social Avoidance and Distress Scale (SADS; Watson & Friend, 1969)

This questionnaire is one of the most popular instruments to measure social anxiety. It was designed to measure the experience of distress in and resultant avoidance of social situations. The SADS scale is a series of 28 true-false questions and divided into two subscales, social avoidance and social distress. Social avoidance is defined as avoiding being with, talking to, or escaping from others for any reason. Both actual avoidance and the desire for avoidance are included. Social distress is defined as the reported experiences of a negative emotion, such as being upset, tense, or anxious in social interactions.

In the present study, the Social Avoidance and Distress Scale (SADS) in a Korean version (Lee & Choi, 1997) was used and the true-false format is changed into a 1-5 Likert-type rating format ranging from 28 to 140 on score. The higher the score is, the more socially anxious the individual is. In a study by Kim and Choi (1997), the Korean version of the SADS obtained excellent inter-item reliability (alpha =. 92) and 4-week test-retest reliability (r = .88). The cutoff score for SADS, differentiating social phobia from general Korean population, was suggested by Lee and Choi (1997) to be 93.

(2) The Brief -Fear of Negative Evaluation Scale (FNE; Watson & Friend, 1969)

It is the measure most commonly used to determine the degree to which people

experience apprehension at the prospect of being negatively evaluated. Although the development of the FNE preceded the inclusion of social phobia in the diagnostic classification system, it is widely used as a measure of cognitive symptoms because the feature tapped by this measure is at the core of recent cognitive models of social anxiety (Musa, Kostoqianni & Lepine, 2004).

A brief version of FNE (Leary, 1983) contains 12 items from the original 30 item-scale and demonstrates psychometric properties that are nearly identical to those of the full-length scale. Brief-FNE correlates highly with the original scale (r = .96) and a test-retest reliability coefficient of .75 was found over a 4-week interval (Leary, 1983). In Brief-FNE, the true-false format is changed into a 5 point Likert-type scale (1 = not at all characteristic of me; 5 = extremely characteristic of me) which may be more sensitive to change. Total scores range from 12 to 60 and four items are reversed.

The Korean version of Brief-FNE (Lee & Choi, 1997) was used in the present study. It demonstrated high internal consistency (alpha = .90) and 4 week test-retest reliability (r = .80). It was validated both in a student and patient population in Korean. A cutoff score differentiating social phobics from the general Korean population is 42 (Lee & Choi, 1997).

(3) The Liebowitz Social Anxiety Scale (LSAS; Liebowits, 1987)

It is a self-report questionnaire consisting of 24 items that has been used in many different studies on social phobia. Each item is rated separately for fear (0 = none, 1 = mild, 2 = moderate, 3 = severe) and for avoidance behavior (0 = never, 1 = occasionally, 2 = often, 3 = usually). 11 of these situations correspond to social fear or anxiety and

13 to performance fear or anxiety. Performance fear, interaction fear and avoidance ratings are calculated and resulted in total fear and total avoidance scores. LSAS was originally intended for use as a clinician-administered instrument, but showed overall good psychometric properties as a self-reporting measure as well (Baker, Heinrichs & Hofmannn, 2002). The Korean version of LSAS (Park, 2002) was used in the current study. It showed that excellent internal consistency (alpha =. 95) and 2 week test-retest reliability (r= .87).

(4) The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1961)

This self-report questionnaire estimates the depressive symptoms with 21 items. Each item is constituted by four statements corresponding to four degrees of increasing intensity of a symptom. The global score is obtained by adding each item's score and allows to establish four degrees of gravity of the depression (none, mild, moderate, severe).

In this study, the Korean version of BDI (Lee & Song, 1981) was used to differentiate between social phobia with mild to moderate depression (Condition 1 and Condition 2) and social phobia with severe depression (Condition 3). The 2-week interval test-retest reliability coefficient of the Korean version of BDI was reasonably high (r= .75) and Cronbach's alpha was .78 ～.85. The cut-off score for BDI, differentiating severely depressed people from mildly and moderately depressed people, has been suggested by Shin, Kim and Park (1993) to be 24 for Koreans. Thus, Ps with a higher score than 24 on BDI were considered to be clinically severely depressed.

(5) Closing Questionnaire

After completing treatment, a closing questionnaire was conducted to gain additional suggestions for further study from Ps. It contained 2 items, each of which Ps had to rate on a 10-point scale (e.g., "To what degree would you recommend participation in such a group to other people?") and several open-ended questions (e.g., "What is the most beneficial point of Internet-mediated treatment?). Open-ended questions were included so that Ps can describe freely their own experiences with Internet-mediated treatment.

## 4.4.    Procedure

After the screening process the final fourteen Ps were selected and divided into two groups according to their BDI scores. Ten among them who were diagnosed as social phobia with mild to moderate depression were assigned randomly to the I-CBGT (Condition 1) or to the I-ES (Condition 2). The other four Ps who were showing a social phobia with concurrent severe depression were assigned to the Condition 3. A cutoff score of severe depressive group was 24. Since this study included socially anxious individuals with severe depression, Ps were required to give their personal identification to therapist in case of crisis intervention with the following information: real name, address, and phone number. They also promised that they wouldn't commit suicide during this treatment.

Following completion of the eight weekly 120 minute therapy sessions, all Ps were reassessed on the same measures as pretreatment. Of the fourteen Ps who began the

original trial, ten completed post treatment assessments. Three of the original Ps dropped out of the Condition 1. One woman didn't show up at the first session because she forgot an appointment. She participated in the second session, but after the second session she was absent without any mention and gave no answer to therapist's e-mail. Another woman dropped out after the fifth session due to her depressive mood. One man dropped out also after the fifth session because of time restrictions. From Condition 2, no one dropped out during the sessions. But one man didn't respond to the posttreatment assessments. No one dropped out of Condition 3.

## 4.5. Treatment

Each group therapy was carried by a trained therapist who is a licensed psychologist (the first author) in a closed Internet community on www.cafe.daum.net/cybertherapy1, www.cafe.daum.net/cybertherapy2, and www.cafe.daum.net/cybertherapy3, respectively. The sites were provided in Korean and all contact between Ps and therapist were via Internet. Ps were allowed to access a closed Internet community with electronic permission of therapist and given a secret number for entrance to chat room.

Eight weekly 120 minute therapy sessions were carried out. The Ps of every group were given e-mailed reading material before each session and assigned homework after each session. At the end of each session, the therapist prescribed the task to carry out in order to apply what was learned during the session. A 24 hour accessible e-bulletin board was prepared for the Ps to post their assignment results and free writing. Individual feedback was given within 24 hours of the Ps' posting on the bulletin board. The therapist saved electronically the transcript of the therapeutic communication

upon completion of each session and used the transcript for preparation of the next session.

## 4.5.1. Internet-mediated cognitive-behavioral group treatment (I-CBGT)

The origin of the present treatment format stemmed from a cognitive behavioral group treatment (CBGT) for social phobia developed by Richard G. Heimberg (1991). Most part of I-CBGT was designed as an abbreviated version of the CBGT manual for social phobia with 8 weekly sessions of 2 hours. The I-CBGT mainly consisted of cognitive restructuring and in vivo exposure as homework.

In session 1, Ps were introduced a cognitive-behavioral model of social phobia. The nature of social anxiety and the reciprocal influence of cognitive, behavioral, and physiological components of social anxiety were demonstrated. Sessions 2-4 were devoted to identify, analyze, and dispute irrational cognitions. Ps exercised to find their problematic automatic thoughts related to socially anxious situations. Finally, underlying assumptions were identified and corrected. Exposures were emphasized during session 5-7. Since simulated exposures were impossible due to physical absence in the sessions, exposures were assigned as homework and reviewed in the sessions. Each participant selected a target situation with instructions and was asked to use cognitive skills during exposure. In the beginning part of the last session, the importance of self-love was stressed and the remainder of the session was devoted to a discussion of what the Ps had learned and what they needed to exercise more in the future.

### 4.5.2. Internet-mediated educational supportive group treatment (I-ES)

I-ES was prepared as a control placebo group because repeated social encounters themselves may be one of the determining factors in alleviating the anxiety and thus help to treat the condition. The addition of an I-ES comparison group helps to rule out explanations of change based on external factors. I-ES combined educational presentations and supportive group psychotherapy. Ps had both an opportunity to give and receive information about common experiences they shared in Internet therapy group. A treatment manual was adopted from the study of Heimberg and colleagues (Heimberg et al., 1990). This manual was originally intended for 12 sessions, but reconstructed to the 8 sessions of treatment in the present study.

The first component of treatment was education and discussions on such as how the various topics relate to each participant personally and how experiences are similar or different from each other. The topics described in the reading material were the definitions of fear, anxiety, and phobia, theoretical formulations of social phobia, anticipatory anxiety, and physiological factors in anxiety and so on.

The second component deals with the support Ps can offer each other. They had time to talk about free subjects related to social phobia. Unlike I-CBGT, Ps discussed topics of their choosing and used the group as a forum in which to prepare themselves for upcoming possible phobic events. In the sessions, Ps shared their activities of the past week and concerns about anxiety-provoking events. Ps were encouraged to post any topics they wanted to discuss. These topics could then potentially be discussed in the next session.

Therapeutic setting of the Internet homepage was the same as the I-CBGT. The most

important difference between I-CBGT and I-ES is that the therapist refrained from providing specific encouragement or instruction for the Ps to seek out and confront phobic situations or problematic cognitions in the sessions.

Unfortunately, the original plan was changed and this group followed the CBGT manual after the third session due to strong request from Ps to CBGT. Why this experimental procedure fails will be a topic in the Discussion.

## 4.6. Results

The answers to questions mentioned in the beginning are set accordingly.

*1. Is I-CBGT effective for the treatment of social phobia? Is I-CBGT more effective than I-ES?*

As already mentioned above, the I-ES group followed cognitive-behavioral treatment approach after the third session. Thus, it was impossible to compare the treatment outcomes between two conditions. In order to investigate the effectiveness of Internet-mediated treatment, two Ps from Condition 1 and four Ps from Condition 2 who completed the posttreatment assessments were included in the analysis. Pretreatment comparison revealed that there were no significant differences between the two conditions [SADS, $t = -.585. p > .05$; FNE, $t = .853, p > .05$; LSAS-subscale fear, $t = -1.574, p > .05$; LSAS-subscale avoidance, $t = -1.284, p > .05$; BDI, $t = .047, p > .05$]. Within group changes were examined with paired sample $t$ test, including both completers from Condition 1 and Condition 2. The results showed a slight tendency to

improve on LSAS-subscale fear, $t$ = 2.034, $p$ < .10, and BDI, $t$ = 2.134, $p$ < .09. The results are presented in Table 3.

**Table 3. Means, Standard Deviations, and Significance of Within-Group Changes for Self-Report Measures of Anxiety and Depression in Condition 1 and Condition 2.**

| Measures | Pretreatment(N=6) | Posttreatment(N=6) | $t$(pre-post) |
|---|---|---|---|
| | Mean(SD) | Mean(SD) | |
| SADS | 102.00(25.67) | 90.50(27.88) | 1.758 |
| FNE | 55.83(2.99) | 51.17(11.03) | 1.383 |
| LSAS-fear | 47.50(10.39) | 43.50(13.75) | 2.034[tend.] |
| LSAS-avoidance | 43.17(14.74) | 37.67(14.53) | 1.593 |
| BDI | 16.33(7.34) | 11.00(8.41) | 2.134[tend.] |

[tend] p < .10

*2. Is I-CBGT effective for the treatment of social phobia with concurrent severe depression?*

Four Ps (Condition 3) completed the posttreatment assessments. Analysis revealed significant reduction on BDI, $t$ = 4.274, $p$ < .05, and a tendency to improve on SADS, $t$ = 3.008, $p$ < .06, and LSAS-subscale avoidance, $t$ = 2.530, $p$ < .09. Results are given in Table 4.

**Table 4. Means, Standard Deviations, and Significance of Within-Group Changes for Self-Report Measures of Anxiety and Depression in Condition 3.**

| Measures | Pretreatment(N=4) | Posttreatment(N=4) | $t$(pre-post) |
|---|---|---|---|
| | Mean(SD) | Mean(SD) | |
| SADS | 114.75(22.37) | 100.75(18.50) | 3.008[tend.] |
| FNE | 52.25(8.42) | 46.25(8.34) | 1.576 |
| LSAS-fear | 57.25(9.29) | 49.50(10.85) | 1.986 |
| LSAS-avoidance | 53.75(5.68) | 33.50(15.63) | 2.530[tend.] |
| BDI | 31.25(3.50) | 16.00(5.89) | 4.274* |

* $p<.05$, [tend.] $p<.10$

3. *What is the feedback from Ps after finishing the Internet-mediated therapy?*

After 8 weeks of treatment, Ps were asked to rate the 2 items on the basis of their satisfaction from 1 to 10 scales. In addition, open-ended questions were asked to encourage spontaneous comments and suggestions for further treatment program. There were two main reasons given by Ps as to what the valuable aspects of Internet-mediated treatment are. All Ps reported that "the opportunity to share experiences with others in an honest and nonanxious manner" was very beneficial. Another beneficial value was "the convenience of service." Ps experienced great comfort in that they could access psychological help at their own private residence. There were also several suggestions and feedback made for further development of a treatment program.

- Ps mentioned that it was sometimes difficult to concentrate on the online discussion because of interruption of television, radio, telephone, and other people.

- Some Ps reported that it took longer to form impressions of each other at the beginning of the treatment than face-to-face communication.

- Information about relaxation training was requested.

- The schedule of treatment sessions was a bit inconvenient. Ps would like to have had enough time to prepare for the therapy session apart from their working, studies and private appointments.

*(a) How satisfied are the Ps with Internet-mediated treatment?*

Result from a question that addressed the therapeutic satisfaction of Internet-mediated treatment, on a Likert Scale with one being the lowest and ten the highest, yield an average score of 7.60 (SD=1.52). On average, all Ps reported that they were satisfied with Internet-mediated treatment.

*(b) To what degree would Ps recommend participation in this group to other people?*

The results showed that all Ps would recommend this program to other people suffering from social phobia (M=8.10, SD=1.59).

## 4.7.   Discussion

The first goal of the pilot study was to test the possibility of I-CBGT for social phobia and get a preliminary result of the effectiveness of I-CBGT for social phobia. Though the results were limited due to a small sample size and no exact comparison with the placebo treatment group (I-ES), scores on several variables were reduced after finishing the I-CBGT. In the I-CBGT, information about social phobia and the cognitive

model was easily imparted through e-mailed reading material. Further processes like challenging and restructuring maladaptive cognitions and confronting avoided situations could also be effectively communicated in a written format through chatting.

It is important to mention the reason why the placebo treatment group (I-ES) failed to follow the original treatment process. In the present study, I-ES group was originally developed to control for the effects of regular discussion and support in a closed Internet group. As mentioned above, however, I-ES followed the cognitive-behavioral treatment manual after the third session. Most of all, it was very hard to refrain from providing instruction to problematic cognitions on ethical grounds. Ps in I-ES group expected specific and definite strategies for the treatment of social phobia and often asked about how to change their anxiety provoking thoughts. Most of Ps had already some knowledge about dysfunctional thoughts and exposure training through web sites related to social phobia. Since Ps of the present study were recruited by means of announcements on Internet websites for social phobics, Ps may have already been actively looking for help and expecting the well-known cognitive behavioral treatment for social phobia. One participant in I-ES group even had a previous experience on CBT.

The results of the previous study (Erwin et al., 2004) are consistent with this explanation. In this study, Internet survey respondents who met criteria for social phobia reported that it was "moderately" to "very" true that they acquired new information about social anxiety through Internet use and learned about psychotherapy and medication for social anxiety disorder through Internet use. If the Ps were previously informed of treatment, this could create some impressions and expectations of what therapy is like. And, these impressions and expectations might have influence

of the Ps' attitudes about Internet-mediated therapy.

It might be also explained in another aspect. In contrast to I-CBGT, the flow of information between therapist and Ps in I-ES depends more on the extent to which the Ps are prepared and able to express their concerns spontaneously. I-ES requires from the Ps more active participation in the therapeutic process since they are able to determine topics discussed in the session and share about free subjects with group members without strict guidance by a therapist. A high degree of freedom concerning the choice of topic and decision on the speed and the intensity with which they would like work might have been a burden to individuals who are socially anxious. In fact, group discussion in I-ES did not work fluently and spontaneously.

Even though comparisons between I-CBGT and I-ES couldn't be made, the results are important in that highlights that social phobics who seek help via Internet would prefer more direct and specified treatment approach such as cognitive-behavioral treatment. Furthermore, the Ps reported they were highly satisfied with I-CBGT in that they could find the problems in their way of thinking and suggestions on how to correct them. This finding is in accordance with a previous study (Kummervold, Gammon, Bergvik, Johnsen, Hasvold & Rosenvinge, 2002), which presented evidence that 68% of the survey Ps preferred that professionals should take an active part in Internet forums, while 16% said professionals should merely observe the forums without taking an active part in the discussions.

In conclusion, these preliminary results gave support for a further development of I-CBGT on a larger sample and indicated that CBGT could be a suitable treatment approach via the Internet.

The second goal of this study was to examine if I-CBGT is effective for social phobics

with concurrent severe depression as well. Despite the fact that statistical analysis failed to reveal significant differences at postmeasurements related to social anxiety, a tendency to improve on SADS and LSAS-subscale avoidance was found and a comparison of the mean score showed there were reductions on all measures. And, the statistical analysis revealed a significant improvement on BDI. These findings suggested that I-CBGT for social phobia can be effective not only in treating social anxiety but also in reducing depressive symptoms. This result is in line with face-to-face therapy studies of CBGT (Heimberg et al., 1990; Heimberg et al., 1993), which showed additionally a reduction of depressive mood after finishing CBGT. Furthermore, no attrition was found in group 3 and all Ps were satisfied with the treatment. It seems to be the case that the social phobics with severe depression benefit from I-CBGT for social phobia as well.

The third aim of the preliminary study was to gather feedback and suggestions for further study. Ps found it easier to participate in Internet-mediated communication because they could be less concerned about the fear for potential embarrassment, rejection or negative feedback in Internet-mediated therapy than they would be when discussing their problems with off-line friends. These results are in accordance with a study by Kummervold and colleagues (2002), who found that 75% of Internet users in the survey feel it easier to discuss personal problems in Internet forums than face-to-face communication. In their research, almost half reported that they discuss problems online that they would not discuss off-line. This result is also found in a study by Ström (2003), which presented that Ps were satisfied with anonymity of Internet therapy. Another beneficial value reported by Ps were the convenience of service. As already mentioned in many previous studies (Eichenberg, 2004; King, 1994; Laksmana, 2002;

Tate & Zabinski, 2004; Winzelberg, 1997), Internet therapy can be delivered regardless of geographical and time restriction. In the preliminary study, all Ps participated in I-CBGT at their own places and therapy session was from 8 p.m. to 10 p.m., a time when traditional treatment groups would have been the least accessible. Feedback from Ps confirmed that I-CBGT can be a well accepted treatment approach for individuals with social anxiety.

There were five suggestions for therapeutic improvements from Ps. The most problematic disadvantage was difficulty to form impressions of each other without direct personal interactions at the beginning of the treatment. Even though this difficulty diminished with time, and, surprisingly, two Ps even suggested an additional off-meeting with group members after termination of the treatment, it took longer to form impressions of each other than face-to-face communications. It may be helpful to post introductions of group members on e-bulletin board to remember each other during the treatment. Another alternative is to include visual chatting sessions. However, many of the Ps in this study did not have web cameras and visual chatting was not available. It may be valuable to investigate the effect of visual chatting sessions in the future evaluation of Internet-mediated treatment. The second suggestion deals with the distraction of television, telephone and other family members. There was a lack of control over the interruptions in each Ps' circumstance during the session. In further study, the rearranging of the therapeutic setting needs to be more emphasized. Third, the treatment program of main study is supposed to contain relaxation training according to the feedback from Ps. When relaxation strategies are combined with exposure techniques, Ps can reduce anxiety more effectively since muscle tension accompanies anxiety. Fourth, some Ps mentioned that the slow typing speed can

interrupt the flow of the conversation. One who types slowly was, not able to respond quickly to a question or comment. As a result, responses were printed on the screen after the group had moved on to another topic. The remark then appeared out of context and caused confusion among the other members in some cases. The typing speed needs to be a fundamental requirement for Ps taking part in Internet-mediated treatment. The final suggestion for further study was the change of the therapy time. Ps would like to have more enough time to prepare therapy session from their working, studies and private appointments. In further study, it would be recommended that beginning time of treatment session changes from 8 p.m. to 9 p.m. for the convenience of participation.

Taken all results together, the present study found a new treatment possibility for social phobia via the Internet. In addition, all Ps showed high satisfaction with I-CBGT. In light of the results above, this may support that those who are socially anxious and have fears about face-to-face psychiatric services can find a non-threatening environment to express their concerns in Internet therapy. But, these results have limited validity due to a small sample size. Nonsignificance of some measurements may be attributed mainly to this factor. Also, there are possibilities that improvement in the clinical groups could have been due to psychological "placebo" or a time effect. No waiting list control was included and I-ES as a placebo treatment group was not available in the statistical analysis. The further study needs to include larger sample size, follow-up measures and waiting list control.

# 5. STUDY Ⅱ: A CONTROLLED STUDY

## 5.1. Aims

The first goal of this study was to assess the efficiency of I-CBGT of social phobia. Results of the preliminary study showed the possibility that I-CBGT can be an effective and well accepted therapeutic medium. But, statistical analysis was limited mainly owing to the small sample size. The current study examined the effectiveness of I-CBGT with a more improved treatment manual according to feedback of Ps from the preliminary study and included waiting list control group and systematic follow-up data.

The second goal of the present study was to examine if I-CBGT is effective for social phobia with comorbid depression as well. The result of the preliminary study presented that I-CBGT effectively alleviated depressive symptom at posttreatment. But, other anxiety symptoms were not significantly reduced on all postassessments.

The third purpose of this study was to investigate the differential effects of subgroups of social phobia on treatment outcome. Internet-mediated treatment may not suit all patients, making it important to screen Ps carefully and work with those likely to benefit from it. However, there has been little effort to determine if various clinical features are related to treatment response among social phobics. In the present study, it was examined if comorbidity with depression and subtypes of social phobia affect the rate at which Ps improve and expectancy of the treatment outcome.

This study will find answers to the following questions:

1. Are there differences in background and baseline date between groups at pretreatment assessment?

    (a) Demographic data

    (b) Anxiety and depression

2. Is I-CBGT effective for the treatment of social phobia?

3. Do these treatment effects maintain on most measures at a 3-month follow-up?

4. Is I-CBGT effective for the treatment of social phobia with concurrent depression?

5. Do these treatment effects maintain on most measures at a 3-month follow-up?

6. Are there differences between pretreatment and postwaitlist scores for waiting controls?

7. Are there differences between social phobia with and without comorbid depression with regard to treatment outcome and treatment expectation?

8. Are there differences between generalized type and specific type with regard to baseline data and treatment outcome?

9. Are there differences between completers and dropouts with regard to baseline data and treatment expectation?

10. How satisfied are Ps with I-CBGT?


## 5.2. Samples


The Ps of this study were recruited by means of advertisements posted on websites for mental health services. Before the beginning of treatment, 125 prospective Ps who showed an interest in I-CBGT were sent screening questionnaires by e-mail. They filled

Anxiety Disorders Interviews Schedule-Revised (ADIS-R) for the Social Phobia and several self-report measurements of social anxiety and depression. Ps who filled out and returned all self-report questionnaires were scheduled for an individual online interview to confirm the initial diagnosis and were given information of I-CBGT. Similar to the preliminary study, real time chatting was utilized as a substitute for videoconferencing because most potential Ps had no web cameras. In this interview, Ps were asked more detailed information about their symptoms, past illness history, family, and personal identification and so on. Ps were formed of persons showing a social phobia according to the diagnostic criteria of the DSM-IV. The same inclusion /exclusion criteria were used as in the preliminary study. Of the 125 individuals who showed an interest in this study, seventy eight returned self report measures.

Eighteen were excluded because of the following reasons: nine persons had other disorders (e.g., panic disorder, obsessive-compulsive disorder) or other main problems (e.g., marital conflict, physical illness), three persons decided to seek face-to-face treatment, two persons showed too mild social anxiety, two persons were in other ongoing medicinal treatment, one person refused online interview and one person decided to use a self-help book.

The final sixty who met the DSM-IV criteria for social phobia and complied with inclusion and exclusion criteria were selected and randomly allocated to the treatment condition or the control condition. Then, Ps in treatment conditions were divided into two groups according to their BDI scores. The cutoff score for BDI differentiating depressed people from general Korean population was suggested by Shin, Kim and Park (1993) to be 16. Thus, Ps with a lower score than 16 on BDI were not considered to be clinically significantly depressed. Ps with, versus without, a comorbid depression

formed two separate treatment conditions. The distinction between primary and secondary disorder was made by judging which disorder began first and were associated with the greatest distress.

## 5.3.  Assessment

Ps completed several self-report scales for the assessment of social anxiety and depression per e-mail during a sample selection process (pre-treatment assessment), after the last session (post-treatment assessment) and after a 3-month of the last session (follow-up assessment). The same dependant measures as in the preliminary study were used (See 4.3). The Social Avoidance and Distress Scale (SADS) was administered to measure social avoidance and social anxiety; the brief-Fear of Negative Evaluation Scale (FNE) was used to assess concerns about the disapproval of others; the Liebowitz Social Anxiety Scale (LSAS) measured social anxiety and avoidance behavior; and the Beck Depression Inventory (BDI) was used to measure depression.

To assess whether or not both groups (social phobia with comorbid depression vs. social phobia without depression) had similar expectation regarding treatment outcome, the Reaction to Treatment Questionnaire (RTQ; Holt & Heimberg, 1990) was administered after the first session, after Ps had been introduced to the rationale for I-CBGT for social phobia. This instrument was readministered after the fourth session to examine if there were changes in expectation for treatment. The RTQ is an 18-item measure that asks Ps to rate their expectation for improvement on a 10-point scale. The RTQ is formed of three sections: (a) four questions to assess the credibility of

treatment rationales (e.g., "How logical does this type of treatment seem to you?"), (b) nine questions to rate the confidence that the treatment would effectively reduce anxiety in various social situations (e.g., being introduced), and (c) four items to rate the severity of the anxiety now, after treatment, after treatment 1 year later and after treatment 5 years later.

After finishing the treatment Ps were asked to report their experiences in the Internet-mediated treatment with a closing questionnaire. It contained 2 items, each of which Ps rate on a 10-point scale.

Figure 2. A screenshot of the home page of the Internet therapy web site.

## 5.4. Procedure

Following the sample selection, Ps were randomly allocated to the treatment or a waiting list control group. The Ps in treatment group were divided into two conditions (condition 1: social phobia without comorbid depression, condition 2: social phobia with comorbid depression) according to their BDI scores. Eight weekly 2-hour therapy sessions were carried out with groups of approximately 5-6 Ps in a closed Internet community on www.cafe.daum.net /cyberclinic. Figure 2 shows the home page of the Internet therapy site. There were a total of ten clinical groups. Each group had a separate message board to prevent contamination. Similar to the preliminary study, Ps were given secret numbers for entrance to the chat room before the first session. Therapist posted a list of potential risks of Internet therapy and several specific rules in regard to communication and behavior for Internet-mediated treatment on bulletin board of the treatment community. Ps were required to read the ground rules and guidelines of the group and introduce themselves (e.g., who they are, how they got here, what they'd like to get out of the group and anything else they think is important) on the bulletin boards. All Ps in the chat room used nicknames, whether real or fabricated, and were asked to keep same nicknames during all sessions. The Ps were given reading material via e-mail before each session. After each session, homework assignments were prescribed and a 24 hour accessible e-bulletin boards were prepared for the Ps to post their assignment results and free writing. Individual feedback was given within 24 hours of the Ps' posting their assignments on the bulletin board. The therapeutic setting of closed Internet community and therapeutic conditions of every group were same.

Self-administered assessments were conducted before and after treatment and at 3-

month follow-up. Ps on the waiting list control were told that they would have to wait 8 weeks for their treatment to begin. They completed the same four dependent measures as clinical groups and after 8 weeks completed the posttreatment dependent measures. The assessment at 8 weeks was used as a new baseline measure and further assessments were conducted after the treatment and at 3-month follow-up. Procedure from screening of Ps to follow up assessment is presented in Figure 3.

**Table 5. The ground rules applied in the Internet-mediated therapy.**

| **The ground rules of the Internet-mediated therapy** |
| --- |
| *First, confidentiality must be maintained.* This treatment group is a small and intimate community. For this reason, maintaining the confidentiality of this group is highly important. Please respect the confidentiality of your fellow group members, not only during the course of the group, but afterwards as well. <br><br> *Second, attend every session.* A requirement for participation is very important because each session is systematically related to another. If you have any inevitable excuse, let the therapist know at least 24 hours before the next session <br><br> *Third, don't be late to sessions.* <br><br> *Fourth, reading material and homework are important.* It is ineffective and difficult to explain all educational information in the limited session in a text based communication. Reading materials help you to prepare and understand what the next session deals with. In addition, doing homework is one of the most important factors to improve. Intellectual understanding in the session is not enough to reduce your social anxiety. |
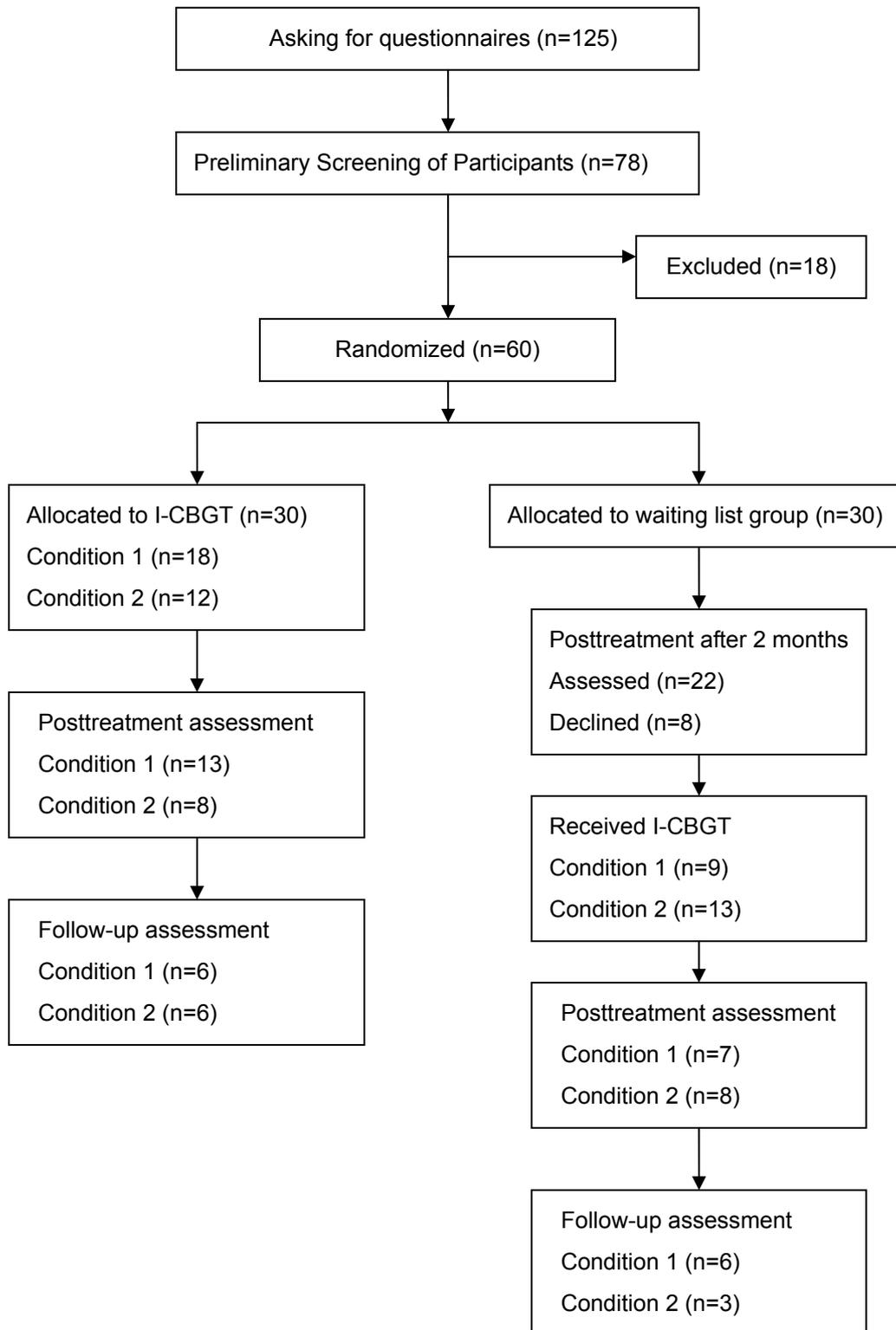
Figure 3. Procedure from screening of participants to follow up assessment.

**Table 6. The guidelines applied in the Internet-mediated therapy.**

| The guidelines of the Internet-mediated therapy |
| --- |
| 1. You have to create a therapeutic atmosphere in order to avoid interruption during online sessions. For instance, you need rearrange your schedule to avoid phones, radio, and television and family responsibilities. |
| 2. There could be technological problems during sessions. For instances, servers can be overloaded, which may cause delays in how communication is typed and presented on screen. You don't need to log out. Instead, wait a little moment and continue to participate. |
| 3. In Internet therapy, it is difficult to interpret silence. In an online group, you are perceived as absent unless you type something. When you finish speaking, make a period. This mark means that your remark is finished and other participants have a chance to talk. |
| 4. There is no 100% guarantee for protection against intrusion. Especially, if you share the computer with others (family members or fellow-workers), be cautious. |
| 5. It is easy to not keep an Internet-mediated therapy session. Please let the therapist know if you have any problems or difficulties in the session. You should discuss these problems with the therapist before quitting the treatment. |

## 5.5. Treatment

The treatment was conducted by a licensed clinical psychologist with clinical experience for social phobia (the first author). To insure consistency across groups, sessions were conducted according to a standardized treatment manual. An improved version of the I-CBGT was used in the main study, based on the results from the preliminary study. Basically, the main treatment components were the same as in the

preliminary study, that is, every group followed the treatment manual mostly written by Richard G. Heimberg (1991). Heimberg's cognitive behavioral group treatment (CBGT) is a specific set of cognitive behavioral techniques often employed in the treatments for social phobia. The effectiveness of CBGT in face-to-face treatments has been examined with positive results (Heimberg et al., 1993; Heimberg et al., 1990; Hope, Heimberg & Bruch, 1995). The original program was designed as a 12-week treatment with 12 weekly, 2.5-hour sessions, and comprised of several components : (1) developments of a cognitive-behavioral explanation of social phobia, (2) structured exercises to train Ps in the identification, analysis, and disputation of irrational cognitions, (3) exposure of Ps to simulations of anxiety-provoking situations during group sessions, (4) use of cognitive restructuring procedures to teach Ps to control their maladaptive thinking before, during, and after simulated exposures, (5) homework assignments for in vivo exposure to situations already confronted during exposure simulations, and (6) self-administered cognitive restructuring activities for use before and after completion of behavioral homework assignments (Heimberg & Juster, 1995).

In the present study, the treatment manual was abbreviated to eight 2-hour weekly sessions and several factors such as relaxation training, safety behavior and self-love were added. Similar to the original treatment manual, Ps were at first educated on the nature of social phobia and a cognitive model of social phobia. The next step was to recognize distorted automatic thoughts. And through next sessions, Ps were taught to consider their belief as hypotheses, dispute cognitive errors inherent in the automatic thoughts, and find a more balanced alternative view. "The Daily Record of Dysfunctional Thoughts" was used to help Ps analyze anxiety-provoking thoughts. Then, the Ps identified and modified their underlying dysfunctional assumptions - those

basic beliefs that predispose the Ps to social phobia. Underlying dysfunctional assumptions may be derived from childhood experiences, or from attitudes and opinions of peers and parents.

They were also taught to conduct empirical experiments to test their hypotheses. Because simulated exposure was not available without physical presence in the sessions, exposure was done in vivo as homework assignments and reviewed in the sessions. The homework assignments were individualized and combined in vivo exposure with cognitive restructuring. Before entering feared situations, Ps went through a series of questions in the session to help them identify and change irrational negative thoughts and prepare for the situation. Finally, Ps were asked to place themselves in situations that were previously avoided or tolerated with excessive anxiety as a homework assignment. They were encouraged to remain in this situation until their anxiety decreased or at least more than 10 minutes. In the next session, the result of exposure training was reviewed; if Ps confronted the feared situation, they examined whether or not they had achieved their goals; if Ps failed to confront the feared situation, the reasons and any problems were discussed. Ps were instructed to drop safety behaviors such as "Talk less," "Avoid asking questions," "Make-up to prevent blushing" for exploring alternative behavior and to shift from self- to out-focused attention during exposure training. In addition, Ps were taught the skills of progressive muscle relaxation that involves the alternating tension and relaxing of specific muscle groups. Effective relaxation strategies provide Ps with a mean of coping with excessive physiological arousal when they are confronted with, or in anticipation of, feared social situations (Hambrick et al., 2003). Progressive muscle relaxation practices involve focusing on particular muscle groups, tensing for 5-10

seconds, releasing the tension, and noticing the difference between sensations accompanying tension and relaxation. Ps were sent an e-mail with an mp3 file attached and could practice the progressive muscle relaxation training with the voice file at their convenience at home as a homework assignment. And, they were asked to utilize relaxation skills during exposure in vivo.

At the last session, self-love was emphasized. This self-love program was adapted from the study by Kim (1991) and comprised of three parts: (1) Accepting self, (2) Appreciating self, (3) Acting loving toward self. At the first phase, Ps learned that the meaning of self-acceptance, that is, self-acceptance doesn't mean that Ps do not want improvements, but rather that they accept the realities at any particular moment in time. The second step was to find what is positive about oneself. In order to help this process, Ps were asked to write their uniqueness and positive aspects on the bulletin board as a homework assignment. The final phase involved acting in ways that reflect self-love. An important way to love oneself is to treat and care for oneself. For example, one can go out for a nice dinner, go dancing, attend a concert, or take a bubble bath and so on. Another way to enhance self-love is to be aware of one's own inner dialogue. Many social phobics have very harsh inner critics. Ps were asked to replace irrational negative messages with more positive and valid ones. Finally, the rest of the last session was spent reviewing what the Ps had learned and how they could apply their learning to future situations to maintain treatment gains.

**Table 7.   Content of the Internet-mediated cognitive behavioral group treatment.**

| | |
|---|---|
| *Session 1* | Basic information and education. |
| | Presenting a general overview of the social phobia syndrome (What is social phobia?) |
| | Introduction of cognitive behavioral model of social phobia and the reciprocal influence of cognitive, behavioral, and physiological components of social anxiety. |
| | *Assignment*: Observing cognitive, behavioral, and physiological symptoms at feared situation during a week to elicit the relationship between thinking, behavior and physiological reaction. |
| *Session 2* | Cognitive restructuring 1. |
| | Identifying maladaptive automatic thoughts (What are automatic thoughts and cognitive error?) |
| | *Assignment*: Record automatic thoughts and relevant cognitive errors on Daily Record of Dysfunctional Thoughts. |
| *Session 3* | Cognitive restructuring 2. |
| | Disputing cognitive errors in automatic thoughts (How can correct cognitive errors?) |
| | *Assignment*: Continue to record automatic thoughts, cognitive error and fill in more rational alternatives on Daily Record of Dysfunctional Thoughts. |
| *Session 4* | Cognitive restructuring 3. |
| | Developing rational responses and finding underlying belief |
| | Behavioral training (progressive muscle relaxation training) |
| | *Assignment*: Fill in all columns of Daily Record of Dysfunctional Thoughts. Identify and correct dysfunctional assumptions. Practice relaxation training using mps file. |
| *Session 5* | Exposure 1. |
| | Selecting a target situation. Identifying, analyzing, and disputing the automatic thoughts associated with the exposure situation |
| | *Assignment*: Exposure in vivo. Continue to practice relaxation training |
| *Session 6* | Exposure 2. |
| | Discussion about the results of exposure. Safety behavior |
| | *Assignment*: Exposure in vivo. Continue to practice relaxation training |
| *Session 7* | Exposure 3. |
| | Discussion of the results of exposure. |
| | *Assignment*: Exposure in vivo, Counting one's positives. |
| *Session 8* | Self-love. |
| | Correcting a negative self image. |
| | Discussion of what the Ps learned and how this learning might be applies in the future. |

**Table 8. A description of different types of Internet-mediated communication used in I-CBGT.**

| Medium | Application |
|---|---|
| E-mail | was used for delivery of reading material |
| E-bulletin board | was prepared for the Ps to post their assignment and free writing |
| Chat room | was available for the therapy sessions in a limited access |

## 5.6. Statistical analyses

The statistical analyses were performed by means of the SPSS for windows, version 12. The study design involved a between-groups factor (group without depression vs. group with depression vs. waiting list) and a within-group factor (pretreatment vs. posttreatment vs. follow-up). Comparisons on categorical (i.e. sex, marital status, employment status) and continuous (i.e. age, age of onset, duration of complaint) demographic or clinical variables were made using chi-square analyses and one-way analyses of variance (ANOVAs), respectively. Multivariate analyses of variance (MANOVAs) were conducted to compare pretreatment assessments between groups. Significant results were followed by Post hoc tests (Tukey's HSD). MANOVA was used to test the treatment effect for each condition and paired sample t tests were conducted for pre- to post-treatment, pre- to follow-up, and post- to follow-up assessment to examine effects of time. Effect sizes were calculated to evaluate the magnitude of treatment gains. Once again, pre-to posttreatment results for the I-CBGT for social phobia with and without depression groups were determined using a 2 × 3 way ANOVA (Group × Time). Analyses of covariance (ANCOVA) were used to control for the effect of baseline differences on outcome differences between groups.

**5.7. Results**

**5.7.1. Pretreatment comparison:** *Are there differences in background- and baseline data between groups?*

*5.7.1.1. Demographic variables*

Demographic and clinical characteristics of three groups were compared using chi-square tests and one-way ANOVAs. The results showed that there were no significant differences between groups (group without depression vs. group with depression vs. waiting list) on any demographic and clinical characteristics (gender, age, marital and employment status, age of onset, duration of complaints and previous treatment experience; all Ps > .05). When described separately, mean age of the Condition 1 (nondepressed social phobia) was 27.6 (SD=6.8) (range 19-45 years). Seventeen (63%) were female and ten (37%) were male. Three Ps (11.1%) were high school students; six Ps (22.2%) were university students; twelve Ps (44.4%) were employed at a full-time job; one Participant (3.7%) worked part-time; five Ps (18.5%) were unemployed. In Condition 2 (social phobia with comorbid depression), the mean age was 26.5 (SD=7.4) (between 18 and 45 years). Seventeen (68%) were female and eight (32%) were male. Two Ps (8%) were high school students; seven Ps (28%) were university students; eleven Ps (44%) were employed at a full-time job; five Ps (20%) were unemployed. Whereas 59.2% of Ps in Condition 1 were classified as having had previous face-to-face treatment, 40% of Ps in Condition 2 had previous face-to-face treatment. Accordingly, 40.8% of Ps in Condition 1 and 60% of Ps in Condition 2 hadn't

any help from medication and/or psychotherapy. Nine (33.1%) of Ps in Condition 1 and nine (36%) in Condition 2 reported having nobody with whom to share their private thoughts and problems. For the full samples, the average age at which the social phobia began was 16.3 years (SD = 5.18; range 6-31) and the mean duration of social phobia was 10.2 years (SD = 6.26; range 1-28). Of particular interest was the matter of web camera for videoconferencing. Contrary to expectation, only eight Ps reported that they possess a web camera. All Ps used a high-speed internet connection at their home. Demographic characteristics of the Ps are presented in Table 9.

### 5.7.1.2. *Pretreatment measures of anxiety and depression*

Multivariate analyses of variance (MANOVAs) were conducted for pretreatment scores on self-reported questionnaires. There was a significant group effect in the analysis of pretreatment measures, Wilks' Lamda = .598, $F(2, 79) = 4.398$, $p < .001$. To clarify the results of the MANOVA, significant results were followed by one-way ANOVAs, which were followed by post hoc comparisons (Tukey's HSD). Ps with depression showed more severe social avoidance and distress than Ps without depression on SADS, $F(2, 79) = 3.461$, $p < .05$. As expected, those in Condition 2 were more depressed than Ps in Condition 1 on BDI, $F(2, 79) = 21.663$, $p < .001$. There were no significant differences between three groups on FNE and LSAS. Means and standard deviations on all pretreatment measures for the clinical groups and waiting list control group are presented in Table 10.

**Table 9.   Demographic variables for the three groups.**

| | | C1 (n=27) | C2 (n=25) | C3 (n=30) |
|---|---|---|---|---|
| **Sex** | Male | 10(37%) | 8(32%) | 8(26.7%) |
| | Female | 17(63%) | 17(68%) | 22(73.3%) |
| **Age** | Teens | 2(7.4%) | 4(16%) | 3(10%) |
| | Twenties | 17(63%) | 13(52%) | 20(66.7%) |
| | Thirties | 6(22.2%) | 6(24%) | 5(16.7%) |
| | Forties | 2(7.4%) | 2(8%) | 2(6.7%) |
| | **Mean age** | 27.6 | 26.5 | 26.6 |
| **Marital status** | Married | 3(11.1%) | 3(12%) | 2(6.7%) |
| | Unmarried | 24(88.9%) | 22(88%) | 28(93.3%) |
| **Occupation** | High school Student | 3(11.1%) | 2(8%) | 3(10%) |
| | University Student | 6(22.2%) | 7(28%) | 9(30%) |
| | Part-Time Worker | 1(3.7%) | - | - |
| | Full-Time Worker | 12(44.4%) | 11(44%) | 13(43.3%) |
| | Unemployed | 5(18.5%) | 5(20%) | 5(16.7%) |
| **Age of onset** | | 17.04(4.75) | 15.96(5.81) | 16.03(5.11) |
| **Duration of Complaint** | | 10.04(5.79) | 10.56(6.80) | 10.13(6.39) |
| **Previous** | Medication | 10(37%) | 6(24%) | 9(30%) |
| **treatment experience** | Psychotherapy | 2(7.4%) | 1(4%) | 1(3.3%) |
| | Both | 4(14.8%) | 3(12%) | 1(3.3%) |
| | Never | 11(40.8%) | 15(60%) | 19(63.4%) |

C1: social phobia without depression, C2: social phobia with depression, C3: waiting list control

**Table 10. Comparisons of Pretest between Condition 1, Condition 2 and Waiting List Control group.**

| Measures | C1(N=27) Mean(SD) | C2(N=22) Mean(SD) | WL(N=30) Mean(SD) | F |
|---|---|---|---|---|
| SADS | 98.85(18.45) | 112.36(19.56) | 105.90(17.68) | 3.461* |
| FNE | 49.41(8.12) | 52.64(6.51) | 49.40(8.22) | 1.533 |
| LSAS-fear | 40.85(12.55) | 47.32(12.86) | 44.93(11.77) | 1.834 |
| LSAS-avoidance | 35.07(11.76) | 43.56(13.12) | 40.47(13.33) | 2.967 |
| BDI | 11.37(3.32) | 26.04(9.13) | 22.47(10.79) | 21.663 *** |

*p < .05, *** p< .001.

SADS = Social Avoidance and Distress Scale; FNE = Fear of Negative Evaluation Scale; LSAS-AX = Liebowitz Social Anxiety Scale –subscale fear; LSAS-AV = Liebowitz Social Anxiety Scale –subscale avoidance; BDI = Beck Depression Inventory.

### 5.7.2. Clinical significance

*5.7.2.1. Outcomes of I-CBGT for social phobia: Is I-CBGT effective for the treatment of social phobia? Do these treatment effects maintain on most measures at a 3-month follow-up?*

Twenty Ps from I-CBGT for social phobia completed the posttreatment assessment. And, twelve Ps were available for the 3-month follow-up assessment. The means and standard deviations for each dependent variable at each assessment phase are presented in Table 12. Multivariate analyses of variance (MANOVAs) were conducted to examine improvement for treatment at pre, post, and follow-up and the result showed significant improvements, Wilks' Lamda = .668, $F_{(2,49)}$= 2.011, $p < .05$.

Within-group change was examined with paired samples *t* tests. Results showed a significant reduction on all outcome measures of anxiety and depression at pre-post treatment; SADS, *p* < .001; FNE, *p* < .001; LSAS-subscale fear, *p* < .01; LSAS-subscale avoidance, *p* < .001; BDI, *p* < .01. Especially, the changes on the SADS, FNE and LSAS were very significant. Compared to pretest, Ps continued to improve on all measurements at follow-up; SADS, *p* < .01; FNE, *p* < .01; LSAS-subscale fear, *p* < .01; LSAS-subscale avoidance, *p* < .01; BDI, *p* < .01.

**Table 11. Result of MANOVA at pre-, post- and follow-up for Condition 1.**

| Effect | Value | *F* | Hypothesis df | Error df | Eta squard |
|---|---|---|---|---|---|
| Wilks' Lamda | .668 | 2.011* | 10 | 92 | .183 |

* *p* < .05

**Table 12. I-CBGT for social phobia: Means, Standard Deviations, and Significance of Within-Group Changes for Self-Report Measures of Anxiety and Depression**

| Measures | Pretreatment① (N=20) | Posttreatment② (N=20) | Follow-up③ (N=12) | *t*(①-②) | *t*(①-③) | *t*(②-③) |
|---|---|---|---|---|---|---|
| SADS | 102.10(14.82) | 86.60(16.75) | 83.08(16.95) | 4.88*** | 4.24*** | .676 |
| FNE | 50.20(8.22) | 42.25(9.90) | 40.50(7.48) | 4.22*** | 3.34** | -.341 |
| LSAS-F | 40.90(12.06) | 35.30(12.94) | 27.75(13.54) | 4.01** | 5.03*** | 3.361* |
| LSAS-A | 35.00(12.40) | 26.05(14.40) | 21.67(11.02) | 5.58*** | 4.20*** | .959 |
| BDI | 11.05(3.39) | 7.05(5.98) | 6.58(5.00) | 2.30** | 3.28** | -.113 |

*p< .05, ** p< .01, *** p< .001
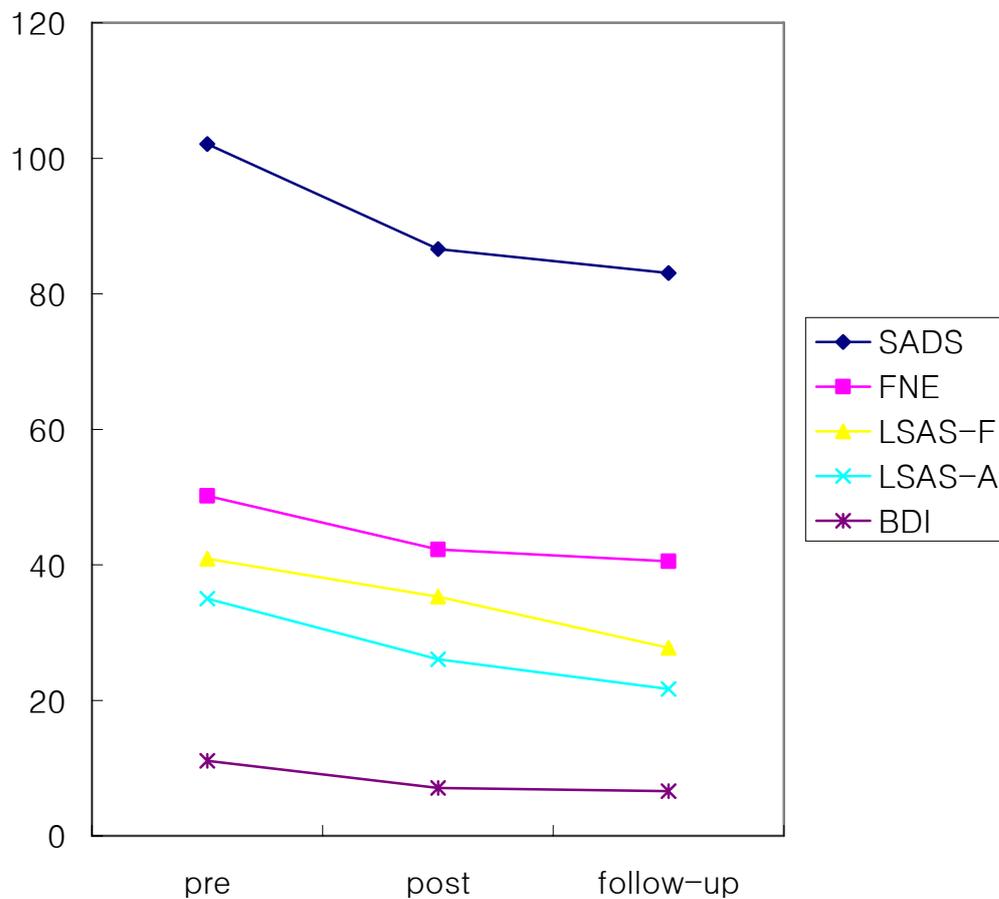
Figure 4. Changes on dependant measures at pre, post, follow-up assessment in
Condition 1

*5.7.2.2. Outcome of I-CBGT for social phobia with concurrent depression: Is I-CBGT effective for the treatment of social phobia with concurrent depression? Do these treatment effects maintain on most measures at a 3-month follow up?*

Sixteen Ps from I-CBGT for social phobia with depression completed the posttreatment assessment. And, nine Ps were available for the 3-month follow-up assessment. Multivariate analyses of variance (MANOVAs) were conducted to examine improvement for treatment at pre, post, and follow-up and the results showed

significant improvements, Wilks' Lamda = .510, *F* (2, 38) = 2.719, *p* < .01. Within-group change was examined with paired samples *t* tests. As can be seen in Table 15, results showed a significant reduction on all measures of anxiety and depression. This significant change remained stable from pretest to follow-up on all measures; SADS, *p* < .05; FNE, *p* < .05; LSAS-subscale fear, *p* < .05; LSAS-subscale avoidance, *p* < .05; BDI, *p* < .05.

**Table 13. Result of MANOVA at pre-, post- and follow-up for Condition 2**

| Effect | Value | *F* | Hypothesis df | Error df | Eta squard |
|--------|-------|-----|---------------|----------|------------|
| Wilks' Lamda | .510 | 2.719** | 10 | 68 | .286 |

** p< .01

**Table 14. I-CBGT for social phobia with concurrent depression: Means, Standard Deviations, and Significance of Within-Group Changes for Self-Report Measures of Anxiety and Depression**

| Measures | Pretreatment① (N=16) | Posttreatment② (N=16) | Follow-up③ (N=9) | *t*(①-②) | *t* (①-③) | *t*(②-③) |
|----------|------|------|------|------|------|------|
| SADS | 117.63(16.60) | 98.75(14.86) | 87.22(24.85) | 4.70*** | 2.679* | 1.399 |
| FNE | 54.94(4.54) | 48.63(6.83) | 45.89(9.00) | 4.04*** | 3.169* | 1.471 |
| LSAS-F | 50.44(9.95) | 40.00(10.15) | 34.89(12.13) | 4.23*** | 2.970* | 1.482 |
| LSAS-A | 45.38(12.82) | 29.38(12.70) | 23.78(15.30) | 4.51*** | 3.174* | .775 |
| BDI | 26.88(10.51) | 14.63(8.07) | 12.89(6.53) | 4.53*** | 2.875* | -.545 |

*p< .05, ** p< .01, *** p< .001
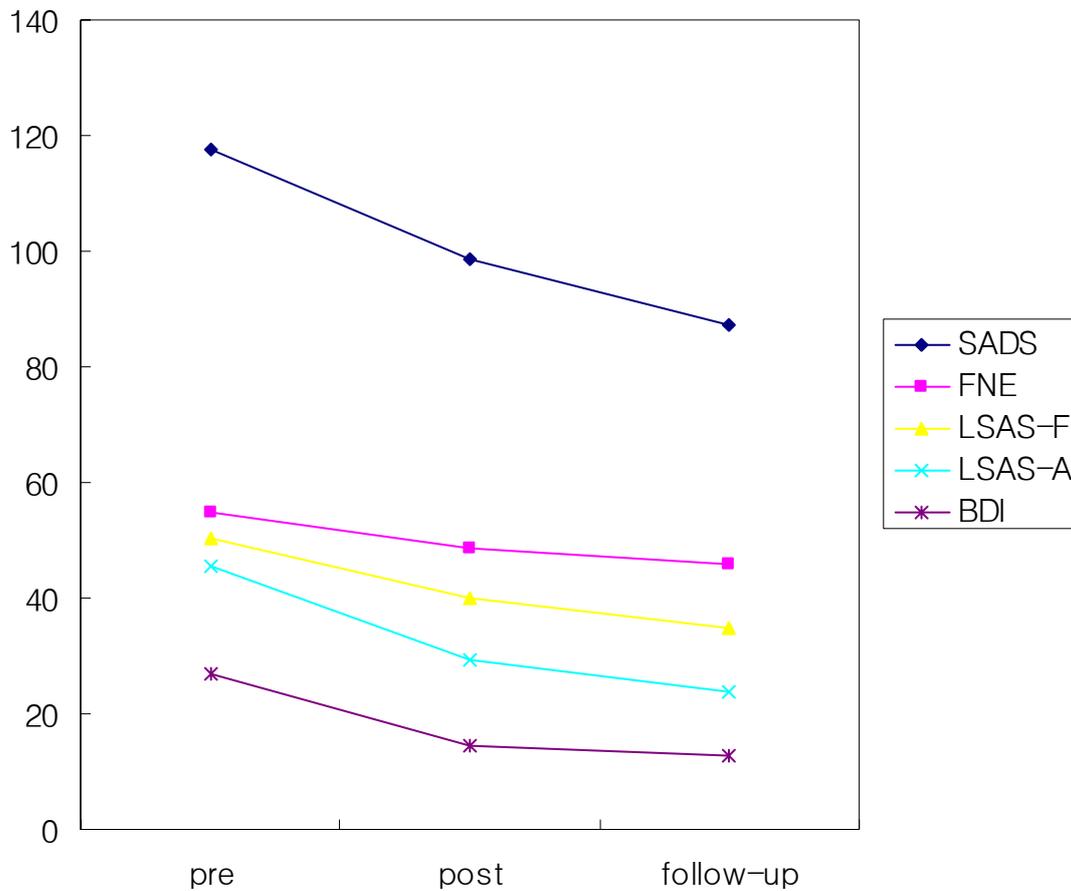
**Figure. 5.** Changes on dependant measures at pre, post, follow-up assessment in Condition 2

*5.7.2.3. Within-group change of waiting list control: Are there differences between pretreatment and postwaitlist scores for waiting controls?*

As shown in Table 15, the waiting list control group showed no significant improvement on most measures except BDI; p < .05. Within-group changes of waiting list control were examined with paired samples *t* tests.

**Table 15. Waiting List: Means, Standard Deviations, and Significance of Within Group Changes for Self-Report Measures of Anxiety and Depression**

| Measures | Pretreatment(N=22) Mean(SD) | Posttreatment(N=22) Mean(SD) | t |
|---|---|---|---|
| SADS | 106.50(19.14) | 109.81(18.58) | -1.41 |
| FNE | 47.64(8.79) | 42.27(8.65) | .299 |
| LSAS-fear | 45.64(13.42) | 45.60(14.12) | .035 |
| LSAS-avoidance | 42.14(14.85) | 41.86(14.67) | .248 |
| BDI | 22.64(11.60) | 20.14(10.55) | 2.089* |

* p<.05
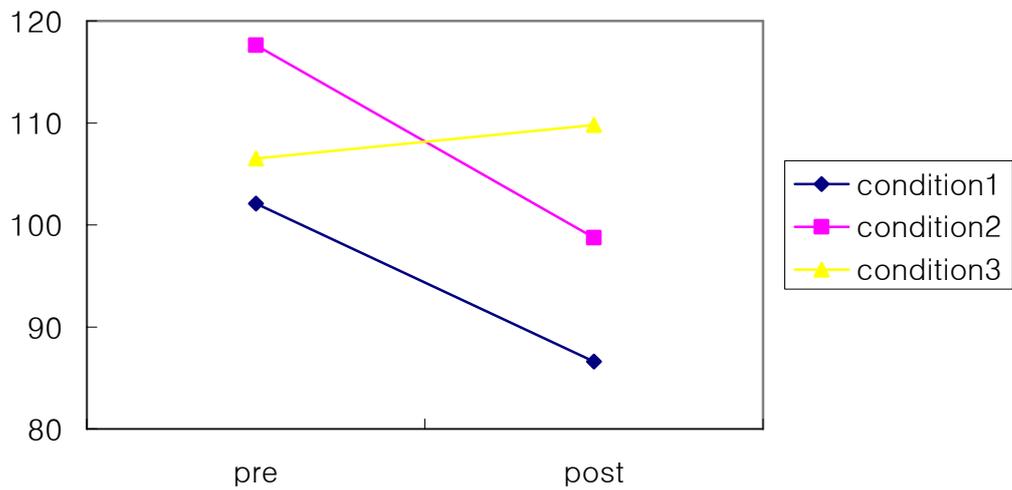


Figure 6. Changes in the SADS scores comparing pre- with post-assessment for three conditions (condition 1: social phobia without depression, condition 2: social phobia with depression, condition 3: waiting list control)
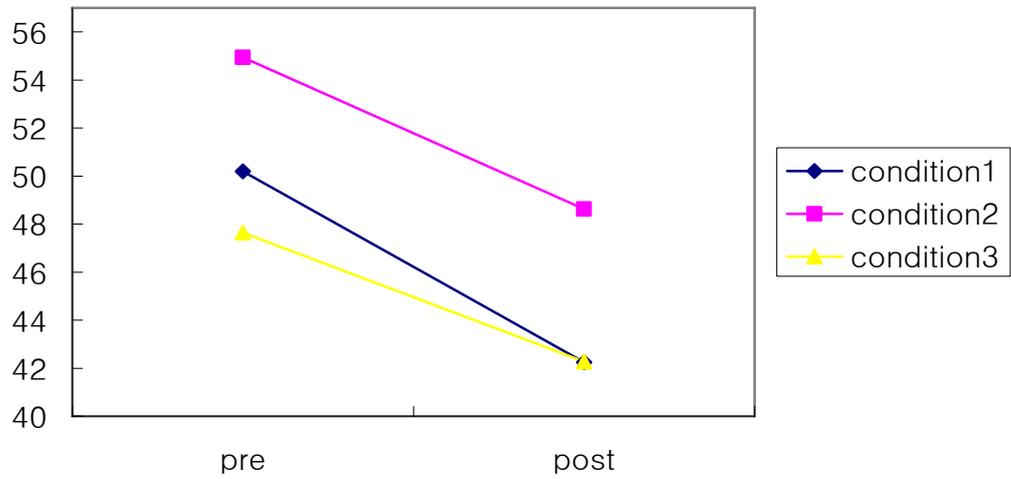
Figure 7. Changes in the FNE scores comparing pre- with postassessment for three conditions
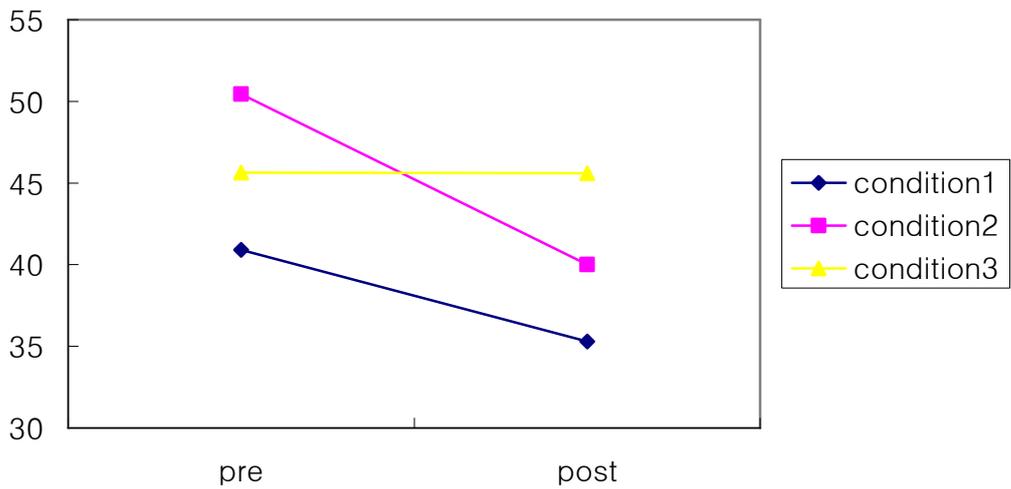


Figure 8. Changes in the LSAS-subscale fear scores comparing pre- with post-assessment for three conditions
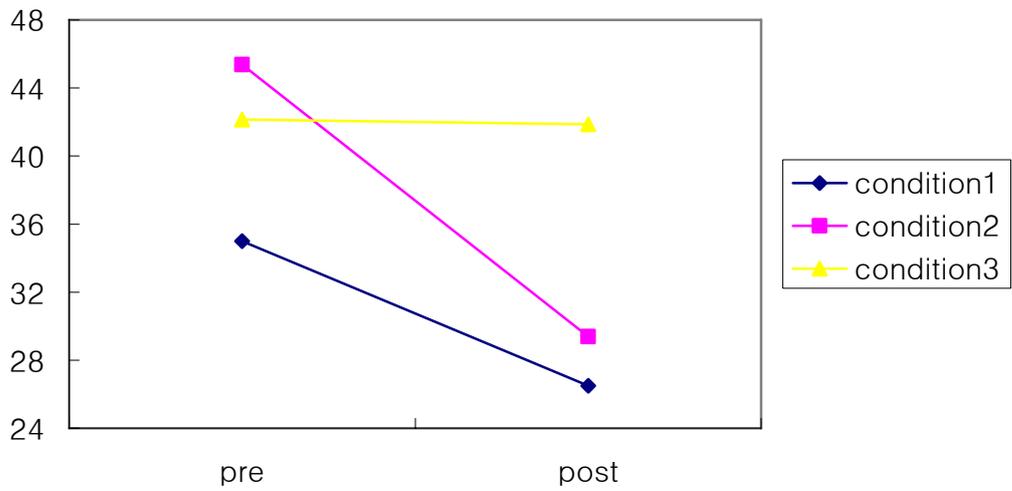
Figure 9. Changes in the LSAS-subscale avoidance scores comparing pre- with post-assessment for three conditions
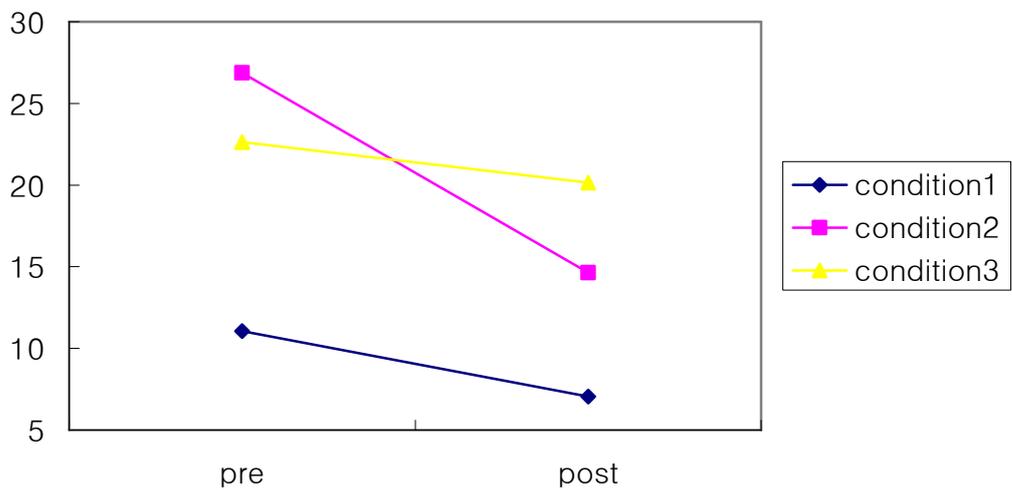


Figure 10. Changes in the BDI scores comparing pre- with post-assessment for three Conditions

**5.7.3. Comparison of subgroup of social phobia**

*5.7.3.1. Comparison of social phobia with vs. without depression*

*5.7.3.1.1. Treatment outcome: Is there a difference with regard to treatment outcome between social phobia with and without concurrent depression?*

2 (condition 1 vs. condition 2) × 3 (pre. vs. post vs. follow-up) repeated measures analysis of variance were conducted on all dependent measures. The results yield significant time effect on all measures (pre-, post- and follow-up assessments), SADS, $F$ (1,19) = 14.831; $p$ < .001; FNE, $F$ (1,19) = 17.593; $p$ < .001; LSAS-subscale fear, $F$ (1,19) = 14.433; $p$ < .001; LSAS-subscale avoidance, $F$ (1,19) = 17.048; $p$ < .001; BDI, $F$ (1,19) = 11.356; $p$ < .001, and significant group differences on FNE, $F$ (1,19) = 5.901; $p$ < .05 and BDI, $F$ (1,19) = 22.331; $p$ < .001. The group by time interaction was not significant on all measurements. In addition, to control for the effect of baseline differences on outcome differences between social phobics with and without depression, analyses of covariance (ANCOVAs) in which the pretreatment score served as the covariate were conducted. The results revealed no significant differences on most measures except on LSAS-subscale fear, $F$ (1, 14) = 9.921; $p$ < .05; LSAS-subscale avoidance, $F$ (1, 14) = 5.874; $p$ < .05, between social phobics with and without depression at follow-up assessments.

*5.7.3.1.2. Treatment credibility and outcome expectancy: Is there a difference between social phobia with and without concurrent depression with regard to treatment expectation?*

Twenty-five Ps from condition 1 and twenty Ps from condition 2 completed RTQ after the first session. Sixteen Ps from condition 1 and ten Ps in condition 2 completed RTQ after the fourth session. Total twenty six Ps were included in analyses. Independent sample $t$-tests revealed that overall expectancy scores at session 1, $t$ (15) = -1.084, *ns,* and at session 4, $t$ (9) = -.307, *ns* did not significantly differ between two conditions. A 2 (condition 1 vs. condition 2) × 2 (session 1 vs. session 4) repeated measures analysis of variance on RTQ scores were conducted. The result showed no significant main effects and Condition × Time effects. In general, Ps in both conditions showed similar expectations of treatment outcome from the first session to the fourth session.

*5.7.3.2.  Comparison of generalized subtype vs. specific subtype*

Ps were determined the generalized subtype if they feared most social situations according to DSM- Ⅳ. Those who reported that they feared only one or two specific performance situations (e.g., public speaking) were classified as specific subtype. The breakdown by generalized or specific social phobia was as follows: Condition 1: eighteen social phobia, generalized type; nine social phobia, specific type; Condition 2: nineteen social phobia, generalized type, six social phobia, specific type. Comparison of pretreatment outcome for generalized and specific subtypes using $t$-tests revealed significant differences between the groups on SADS, $t$ (50) = 6.113, $p$ < .001, LSAS-subtype fear, $t$ (50) = 6.700, $p$ < .001, and the LSAS-subtype avoidant, $t$ (50) = 4.863, $p$ < .001. There were no significant differences between the two groups on the FNE and the BDI. A 2 (generalized subtype vs. specific subtype) × 2 (pre vs. post) repeated measures analysis of variance were conducted on all dependent measures. The results

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**Table 16. Means and Standard Deviations for Generalized subtype and Specific subtype.**

| Measures | Generalized | | Specific | |
| --- | --- | --- | --- | --- |
| | Pre | Post | Pre | Post |
| SADS Condition 1 | 106.55(14.46) | 93.14(15.02) | 83.44(16.18) | 71.33(8.96) |
| Condition2 | 120.26(13.38) | 100.40(13.78) | 87.33(14.25) | 74 |
| Total | 113.59(15.38) | 96.90(14.60) | 85.00(15.03) | 71.71(8.24) |
| FNE  Condition 1 | 49.61(7.71) | 44.36(8.36) | 49.00(9.35) | 37.33(12.20) |
| Condition2 | 53.32(7.02) | 48.67(7.07) | 50.50(4.32) | 48 |
| Total | 51.51(7.50) | 46.59(7.89) | 49.60(7.57) | 38.86(11.85) |
| LSAS-fear Condition 1 | 47.11(9.87) | 39.50(12.75) | 28.33(6.34) | 25.50(6.98) |
| Condition2 | 51.95(9.45) | 40.87(9.88) | 32.67(11.52) | 27 |
| Total | 49.59(9.83) | 40.21(11.17) | 30.07(8.67) | 25.71(6.40) |
| LSAS-av Condition 1 | 40.33(9.78) | 30.50(14.11) | 24.56(7.72) | 15.67(9.24) |
| Condition2 | 47.11(12.40) | 29.87(12.99) | 32.33(8.57) | 22 |
| Total | 43.81(11.57) | 30.17(13.30) | 27.67(8.71) | 16.57(8.77) |
| BDI  Condition 1 | 11.67(3.61) | 8.57(6.43) | 10.78(2.73) | 3.50(2.59) |
| Condition2 | 26.89(9.83) | 14.60 | 23.33(6.38) | 15 |
| Total | 19.49(10.68) | 11.69(7.96) | 15.80(7.70) | 5.14(4.95) |

yield significant time effect on all measures, SADS, $F(1,34) = 30.953$; $p < .001$; FNE, $F(1,34) = 30.776$; $p < .001$; LSAS-subscale fear, $F(1,34) = 14.723$; $p < .01$; LSAS-subscale avoidance, $F(1,34) = 20.138$; $p < .001$; BDI, $F(1,34) = 13.698$; $p < .01$, and significant group differences on SADS, $F(1,34) = 22.141$; $p < .001$; LSAS-subscale fear, $F(1,34) = 17.305$; $p < .001$; LSAS-subscale avoidance, $F(1,34) = 12.668$, $p$

< .01 ; BDI, $F$ (1,34) = 4.552; $p$ < .05. The group by time interaction was not significant on all measurements. Means and SDs for all questionnaires are to be found Table 16.

### 5.7.3.3. Comparison of completers vs. dropouts

### 5.7.3.3.1. Pretreatment assessment: Is there a difference with regard to pretreatment assessment between completers and dropouts?

Of the fifty two Ps (twenty seven in Condition 1, twenty five in Condition 2) who began the original trial of I-CBGT, thirty six (twenty in Condition 1, sixteen in Condition 2) completed posttreatment assessments and twenty one (twelve in Condition 1, nine in Condition 2) participated at the 3-month follow up. Seven Ps (25.9%) from Condition 1 and nine (36%) Ps from Condition 2 failed to complete posttreatment assessment. Eight Ps (26.7%) in the waitlist group followed by I-CBGT dropped out. In total, attrition rate was 29.3%. Chi-square test revealed no significant difference on attrition rate between groups, $x^2$ = .791, p > .05. When analyses were conducted separately, no significant differences were found between the completers and the dropouts on measures of anxiety and depression in Condition 1 and waiting list control group. However, analyses of pretest measures revealed that the dropouts in Condition 2 were less anxious of negative evaluation on FNE, $t$ (23) = 2.625, $p$ < .05, indicating that dropouts were less severe than completers on FNE. Means, standard deviation and $t$-test are found in Table 17, 18 and 19.

**Table 17. Pretreatment Comparison of Completers and Dropouts in Condition 1:**
        **Means and Standard Deviations.**

| Measures | Completer (N=20) | Dropout (N=7) | $t$ |
| --- | --- | --- | --- |
| | Mean (SD) | Mean (SD) | |
| SADS | 102.10(14.82) | 89.57(25.37) | 1.591 |
| FNE | 50.20(8.22) | 47.14(7.95) | .853 |
| LSAS-fear | 40.90(12.06) | 40.71(14.89) | .033 |
| LSAS-avoidance | 35.00(12.40) | 35.29(10.61) | -.054 |
| BDI | 11.05(3.40) | 12.29(3.15) | -.843 |

**Table 18. Pretreatment Comparison of Completers and Dropouts in Condition 2:**
        **Means and Standard Deviations.**

| Measures | Completer (N=16) | Dropout(N=9) | $t$ |
| --- | --- | --- | --- |
| | Mean(SD) | Mean(SD) | |
| SADS | 117.63(16.60) | 103.00(21.84) | 1.888 |
| FNE | 54.94(4.54) | 48.56(7.70) | 2.625* |
| LSAS-fear | 50.44(9.95) | 41.78(16.01) | 1.676 |
| LSAS-avoidance | 45.38(12.82) | 40.33(13.78) | .919 |
| BDI | 26.88(10.50) | 24.56(6.27) | .601 |

* $p < .05$

**Table 19. Pretreatment Comparison of Completers and Dropouts in Condition 3: Means and Standard Deviations.**

| Measures | Completer (N=22) | Dropout (N=8) | $t$ |
|---|---|---|---|
| | Mean (SD) | Mean (SD) | |
| SADS | 106.50(19.14) | 104.25(13.84) | .303 |
| FNE | 47.64(8.79) | 54.25(3.41) | -2.053 |
| LSAS-AX | 45.63(13.42) | 43.00(5.29) | .536 |
| LSAS-AV | 42.14(14.85) | 35.88(6.42) | 1.144 |
| BDI | 22.64(11.60) | 22.00(8.83) | .140 |

*5.7.3.3.2. Treatment credibility and outcome expectancy: Is there a difference with regard to expectancy of treatment outcome between completers and dropouts?*

Of the fifty two Ps who were in both treatment conditions, forty five (twenty five in Condition 1, twenty in Condition 2) completed the RTQ after the first session and twenty six (sixteen in Condition 1, ten in Condition 2) administered the RTQ after the fourth session. Ps who did not complete the measurement were not included in analyses. A comparison at session1 between completers and dropouts revealed no significant differences, $t$ (43) = .327, ns. There were, however, significant differences between completers and dropouts at session 4. The credibility of treatment of dropouts decreased compared with those of completers, $t$ (24) = 2.629, $p$ < .05. A 2 (completer vs. dropouts) × 2 (Session 1 vs. Session 4) repeated measures analysis of variance on RTQ was conducted. The result showed no significant main effect, $F$ (1, 24) = .533, *ns.*

*5.7.3.3.3. Distribution of subtype of social phobia*

Seven (19.4%) of total completers (n=36) and eight (50%) of total dropouts (n=16) were classified as having the specific form of social phobia. Twenty nine of thirty six completers (80.6%) were judged as generalized subtype while only eight (50%) of sixteen dropouts were classified as generalized subtype. Chi-square test revealed significant difference ($x^2$=. 018, p <. 05) between completers and dropouts at comparison of the distribution of subtype. Three of seven dropouts in Condition 1 were classified as specific subtype and five of nine dropouts in Condition 2 were judged as specific subtype.

*5.7.4. Satisfaction of the treatment program: How satisfied are Ps with the I-CBGT? To what degree would Ps recommend participation in this treatment to other people?*

Ps rated the 2 items on the basis of satisfaction on 1 to 10 scales – how satisfied are the Ps with this program and to what degree do the Ps recommend this program to others? All Ps rated very high satisfaction with I-CBGT. Comparison of Condition 1 and Condition 2 on satisfaction of their treatment program revealed no significant differences. The results were shown in Table 20.

**Table 20. Mean and standard deviations on satisfaction.**

|  | Condition 1 | Condition 2 | Total | t |
|---|---|---|---|---|
|  | Mean(SD) | Mean(SD) | Mean(SD) |  |
| Satisfaction | 8.15(1.42) | 8.44(1.09) | 8.28(1.28) | .665 |
| Recommendation | 8.40(1.70) | 9.19(0.66) | 8.75(1.38) | 1.749 |

## 5.8. Discussion

*1. Are there differences in demographic- and baseline data between groups (condition 1 vs. condition 2 vs. waiting list control group) at pretreatment assessment?*

The results from demographic and clinical characteristics showed that there were no significant differences between the three groups at pretreatment assessment. However, Ps with depression were more anxious and depressed on self-report questionnaires as expected than Ps without depression. In line with previous studies (Belzer & Schneier, 2004; Erwin et al., 2002), social phobics with comorbid depression had more severe social anxiety and impairment than those without comorbid depression.

It is important to point out that many of Ps had never been in previous treatment. 40.8% of Ps without depression and 60% of Ps with depression had not received any help from medication and/or psychotherapy, even though mean duration of social anxiety was more than 10 years. Though not reaching significant differences, social phobics with concurrent depression had less previous treatment experiences than those without concurrent depression. It could be explained that for those with more

severe symptoms, seeking professional help in vivo evokes too much social anxiety and they are reluctant to contact a therapist directly. This explanation was confirmed in a study by Erwin, Turk, Heimberg, Fresco and Hantula (2004) who found that the more serious symptoms social phobics have, the less chances for suitable treatment in a traditional setting social phobics have. It seems reasonable to conclude that Internet therapy may be an invaluable alternative on help-seeking process to social phobics who otherwise would be bereft.

Another interesting point to consider is that more than half (66.2%) of Ps were female. There is an ongoing discussion whether the gender difference in social phobia is less pronounced than in other anxiety disorders. In clinical samples, usually no gender differences or even slightly higher rates for men have been reported (Heimberg & Juster, 1995), and it is assumed that gender roles and social expectations play a significant role in explaining the heightened help-seeking behavior found in male patients. Contrary to previous findings, the relatively high proportion of female Ps in the present study may reflect a differential use of the Internet between women and men. Hamburger and Artzi (2000) support this notion, indicating that women might be more aware of their need for help and more sensitive to the ability of the Internet to provide help, resulting in a more self-beneficial use of the various Internet services. Another previous study (Uldrian, 2004) supports this tendency. In Internet-mediated treatment for obsessive-compulsive disorder, more women finished treatment compared to men. However, more research is needed to explore the effects of differential use of the psychological services on the Internet.

*2-5. Is I-CBGT effective for the treatment of social phobia? Do these treatment effects maintain on most measures at a 3-month follow up? Is I-CBGT effective for the treatment of social phobia with concurrent depression? Do these treatment effects maintain on most measures at a 3-month follow up?*

The present study examined the effectiveness of I-CBGT for social phobia with and without comorbid depression. As expected, Ps improved significantly on all self report scales used after finishing treatment. Moreover, these therapeutic gains remained at the 3-month follow-up in both groups. The finding of this study suggests that I-CBGT is an effective new treatment approach for social phobia.

There are probably several explanations for the efficacy of the treatment. One might be the cognitive-behavioral group treatment protocol employed, based on an effective theoretical model. Previous studies (Cho, 1998; Heimberg et al., 1990; Heimberg et al., 1993; Hope et al., 1995; Mattick & Peters, 1988) already examined the effectiveness of CBGT to reduce anxiety for social phobia in face-to-face. In the study of Internet therapy, it could be the first step to try to deliver the same material which was already used and validated in the traditional way. The results of the present study revealed that CBGT can be effectively delivered and well accepted through Internet.

The second reason why this treatment resulted in a positive outcome might be due to the characteristics of the Internet-mediated communication. In other words, anonymity encourages the therapeutic communications with relative lower anxiety than in face-to-face treatment (Cohen & Kerr, 1998; Kummervold et al., 2002; Tate & Zabinski, 2004). As reflected on discussion in the last session by many Ps, Ps could more easily and honestly share their problems, which they might have dared to communicate in a

traditional treatment. They reported anonymity helped them to overcome fear of rejection or shame and encouraged them to share difficult themes. Joinson (2001) described this phenomenon as a specific "Internet behavior" – a tendency for Internet users to be "disinhibited," which can encourage therapeutic expression and self-reflection. People tend to disclose more personal information in Internet-mediated communication than they do with an in-person interaction. This greater depth of self-disclosure may lead to greater depth in the therapeutic work.

Another important point of the present intervention seems to be the use of both synchronous and asynchronous communications. Ps could have a direct interaction with other group members and therapist in the session via real-time chatting, at the same time, asynchronous communications on the e-bulletin board provided Ps a great reflection and clarity in their communications. During the treatment, Ps could share their assignments through e-bulletin board and re-read their assignments posting and the feedback from the therapist at any time. As mentioned by Childress (1998), the asynchronous communications via e-mail and e-bulletin board provide both Ps and therapist with the opportunity to devote greater thoughtfulness to their communication which may encourage greater clarity in their communication and more precisely targeted interventions. Integration between asynchronous and synchronous communication might allow increased scope of opportunity to follow complete therapeutic process in the present study.

It is likely that the positive outcome with I-CBGT is due in part to the strong focus of self-love as the last phase of the treatment. This is supposed to be beneficial because of the extra effort made by the Ps in correcting a negative self-image. Social phobia has been associated with negative beliefs about one's self-worth and performance

ability in the interpersonal domain (Clark and Wells, 1995). This hypothesis is supported by the previous research (Hirsch, Clark, Mathews & Williams, 2003), which investigated whether negative self-images have a causal role in maintaining social phobia. In their study, patients with social phobia participated twice in a conversation with a stranger, once whilst holding their usual negative self-image in mind and once whilst holding a less negative (control) self-image in mind. Compared to the control image condition, when Ps held the negative image in mind they experienced greater anxiety, they rated their anxiety symptoms as being more visible, and rated their performance as poorer. An assessor who did not know which image was being held also rated Ps' anxiety as more evident and their behaviors as less positive when the negative image was being held in mind. Finally, when participant and assessor ratings were compared, Ps underestimated their performance and overestimated the visibility of their anxiety to a significantly greater extent in the negative imagery condition. Another study by Wilson and Rapee (2006) also has shown that individuals with social phobia held less positive beliefs about their personality characteristics in comparison to nonanxious individuals. Taken together, these results supported the hypothesis that negative self-imagery has a causal role in maintaining social phobia. Therefore, correcting negative self-image is an important part of treatment in social phobia.

One interesting finding is that although I-CBGT was not targeted for depressive symptoms, significant improvement from pretreatment was shown in self-reported depression after completing I-CBGT. One explanation of this improvement of depressive symptoms is that CBT was originally developed to treat depression and there are similarities in the cognitive features associated with both conditions (Beck, Rush, Shaw & Emery, 1979; Dozois & Frewen, 2006). Dozois and Frewen (2006)

examined that common and distinguishing cognitive features in major depressive disorder and social phobia compared to other anxiety disorders in general and to no psychiatric disturbance. They found that both social phobia and depression were associated with less interconnected positive self-schemas for both interpersonal and achievement content. Watson, Gamez and Simms (2005) confirmed that depression and social phobia share these characteristics. In addition, negative self-structure for interpersonal content were more densely interconnected in individuals with social phobia and depression compared with both anxiety disorder and nonpsychiatric controls. Although the principal cognitive themes in social phobia primarily concern fear and threat associated with social interaction, many individuals with social phobia, like those with depression, display negative beliefs about their self-worth.

Additional interesting finding in this study was that though reducing on anxiety and depression after finishing treatment, level of anxiety was very high both at pre-and posttreatment. Ps in this study reported relatively higher scores at pretreatment measures than Ps in previous studies (Cho, 1998; Heimberg et al., 1990; Heimberg et al., 1993; Kim, 1991). The current study by Erwin and colleagues (2004) explored the symptom profile of individuals seeking information on the Internet about social phobia and its treatment. The result showed that social phobics in the Internet survey were more anxious, impaired, and isolated than those represented in face-to-face treatment. Internet respondents with social phobia were more likely to have the generalized subtype of social phobia than the individuals who had actually presented for treatment at their clinic. Moreover, 92 % of Internet respondents who were surveyed exceeded the recommended cut-off score for social phobia on a standardized assessment instrument. They also compared their Internet survey respondents with individuals with

social phobia in the community assessed in the National Comorbidity Survey (NCS; Kessler et al., 1994). Internet respondents with social phobia were almost twice as likely to have never married. Furthermore, more than 70% of Internet respondents reported anxiety, impairment, and distress in most situations. In another Internet therapy study, Lange and colleagues (2003) found that Ps with posttraumatic stress disorder (PTSD) in Internet therapy demonstrated more severe symptoms after a traumatic life event than Ps with traumatic victims in other studies. Furthermore, the pretreatment scores of 91 of the 101 Ps on the Impact of Events Scale (IES) were above the cutoff score for PTSD. They concluded that depressed, anxious, and highly traumatized chronic patients benefited from Internet therapy as well as Ps did who displayed mild trauma symptoms.

An alternative explanation of more severe pre-post assessment scores is that medical patients tend to report more symptoms and undesirable behaviors when interviewed by computer rather than face-to-face. Research by Joinson (2001) confirms that people disclose more information about themselves during Internet-mediated communication compared to face-to face interaction.

In summary, the results showed that I-CBGT produced significant reductions on social anxiety and depression in both social phobics with and without depression. I-CBGT was effective not only for nondepressed social phobics but also for individuals suffering from social phobia with severe depression. It seems possible that the effective principles of CBGT can be transmitted over the Internet and I-CBGT gives social phobics an attractive choice for suitable treatment.

6. *Is there a difference between pretreatment and postwaitlist scores for waiting controls?*

There were no significant improvements with one exception on BDI. However, the change of mean score on BDI was small; from 22.64 to 20.14, $p = .049$. This might be due to random fluctuation over time. The change on BDI may be in part explained by the fact that Ps' expectation that help is near may induce improvement (Scholing & Emmelkamp, 1999). Since all Ps in the waiting control list had also an initial interview with therapist and were told they would receive treatment after 8 weeks, they might have been no more hopeless. This expectation might have given rise to improvement in their depressive mood. However, there is no data to support this explanation and this remains unresolved. In general, there were no significant changes on all anxiety related assessments and this finding showed that social phobic symptoms do not improve without treatment.

7. *Comparisons of treatment effects in subgroup of social phobia: Is there a difference with regard to treatment outcome between social phobics with vs. without comorbid depression?*

Lack of significant interactions of group and time of assessment in the presence of significant main effects for group and time of assessment suggests that the rate of change was similar across groups. In addition, ANCOVA revealed no significant differences on most measures between two groups at follow-up, though Ps with depression began treatment more socially anxious, more avoidant and more afraid of a

negative evaluation than Ps without depression and, despiting improving, remained more impaired after treatment. Despite the fact that depression is associated with a greater severity of social phobia, the differential effects of comorbid depression on treatment outcome have not been investigated. This finding is in line with previous studies (Erwin et al., 2002; Turner et al., 1996; Van Velzen, Emmelkamp, & Scholing, 1997) which showed that comorbidity may not affect the rate at which patients improve. In those studies, Ps with and without comobidity improved at the same rate and did not differ with regard to the percentage of Ps demonstrating clinically significant change at posttreatment and follow-up. Lange and colleagues (2003) found also neither symptom severity nor duration of symptoms to be predictive for Internet-mediated treatment outcome.

In addition, Ps in both groups began the treatment with no significant difference on RTQ. This result is inconsistent with Safren, Heimberg and Juster (1997), who suggested that greater severity and depression are associated with more negative predictions about the efficacy of treatment. Thus, this finding is somewhat surprising, indicating severity of symptoms and presence of comorbid depression are not related to the degree which Ps have the credibility of Internet therapy.

Internet-mediated interventions do not suit all patients but, as demonstrated in this study, the presence of comorbid depression is no reason to exclude patients from an Internet-mediated treatment. Although social phobics with comorbid depression start and end treatment more impaired they do not seem to take less advantage of treatment. Comorbidity with depression did not have an overall impact on treatment expectation and treatment results.

*8. Are there differences between generalized type vs. specific type with regard to pretreatment assessment and treatment outcome?*

In the majority of studies (Brown et al., 1995; Turner et al., 1996; Turner et al., 1992), generalized subtype has consistently been found to be more impaired and more severely anxious than specific subtype. The results of this study are similar to those from previous researches, showing that individuals with generalized social phobia began treatment more socially anxious and more avoidant than those with nongeneralized social phobia. However, the lack of significant interactions of group and time of assessment in the presence of significant main effects for group and time of assessment suggests that individuals with generalized and specific subtype improved equivalently with I-CBGT. Although the rate of change in social phobia was not affected by the subtype of social phobia, those diagnosed as having the generalized subtype remained more impaired than those with a specific subtype at posttreatment.

In summary, subtype distinction provides additional information with regard to the severity and pervasiveness of distress in social phobia. However, this fact does not imply a difference in response to Internet-mediated treatment.

*9. Are there differences between completers and dropouts with regard to baseline data and treatment expectation?*

There were no significant differences between the completers and dropouts on pretreatment assessment. This result replicates the findings of previous studies (Turner et al., 1996; Wolf & Hautzinger, 2003), which reported there were no differences

between those who dropped out and those who completed treatment. In addition, both completers and dropouts began treatment with similar expectancy of treatment outcome. This finding showed the difficulty in differentiating between completers and dropouts based on baseline data.

It should be pointed out that attrition rate is relatively high in the present study. Surprisingly, twelve persons dropped out prior to the first session; one from Condition 1, three from Condition 2 dropped out even though they completed both preassessment and the initial online interview, eight from Condition 3 dropped out during the waitlist period. These twelve persons did not come to the first session and withdrew before the treatment had really started. These numbers are half (50%) of the total dropouts. When those who dropped out early are not included in the calculations, the attrition rate decreases from 29.2% to 14.6% (n=12). The study by Ström et al., (2000), who investigated the efficacy of Internet therapy for headaches, found a similar result. The majority of the dropouts in their study occurred before seeing the actual training program. They concluded that Internet therapy seems to be at risk of generating a high attrition rate.

This phenomenon might be specific to the Internet medium or the Internet population. With lack of emotional involvement and cues with an invisible therapist, it could be easier to drop out prior to treatment. A high attrition rate during waitlist period might be related to the characteristics of Internet users. Since Internet users are used to getting an immediate feedback or response at the click of a mouse, the two-month waiting period might have been too long for them.

Another possible explanation of early attrition might be derived from the fact that those who dropped out prior to treatment in clinical groups were all classified as social

phobia with a specific subtype. With respect to the distribution of social phobia subtype, there was a significant difference between completers and dropouts. Whereas only 13.7% of completers (n= 36) were specific subtype of social phobia, more than half (56.3%) from the total dropouts were classified as having specified form of social phobia. Indeed, those who dropped out prior to treatment were all classified as having specific subtype of social phobia. It could be suggested that those who dropped out early were less severely impaired by their symptoms than completers. That is to say, Ps who had relatively lower level of anxiety before the beginning of the treatment were less motivated to reduce their symptoms and failed to remain in the treatment. Unfortunately, Ps who dropped out prior to the first session did not complete RTQ because RTQ was administered after the first session. Accordingly, statistical comparison of credibility for treatment was not being available and it remained unresolved whether low expectation of the treatment outcome affects an early attrition. Further studies are welcome to better understand the potential reason of a high attrition of Internet-mediated treatment.

*10-11. How satisfied are Ps with I-CBGT? To what degree would Ps recommend*
*participation in this treatment to other people?*

I-CBGT was well accepted and all Ps reported high satisfaction of this treatment program. As founded in the study by Kummervold and colleagues (2002), those who have fears about traditional mental health services can find a non-threatening environment to express their concerns and pose their questions through Internet therapy. This finding gives evidence that I-CBGT can be an attractive treatment

alternative for socially anxious individuals.

## 6.  General Discussion

While the Internet is actively used in the daily life of many individuals who are looking for social support and psychological help, systematic research in this area is still lacking. Though several studies investigated the treatment efficacy of Internet-mediated treatment for various mental disorders, there exist no controlled intervention for social phobia, which a CBGT session was delivered via real time chatting.

### 6.1.  Efficacy of Internet-mediated cognitive behavioral group treatment

It was a central aim of this dissertation to assess the effectiveness of I-CBGT for social phobia. Consistent with expectation, the new treatment approach proved to be effective for social phobia, with the treatment group showing more favorable outcomes than the waiting list group. The treatment led to significant reductions in social anxiety and depression. The treatment group maintained symptom improvement at the 3-month follow-up.

The present intervention was also aimed specifically at people suffering from social phobia with comorbid depression, unlike many of the social phobia interventions, most of which were aimed at uncomplicated social phobia without concurrent depression. The results showed that Internet-mediated treatment can help a wide range of social phobics with milder symptoms as well as social phobics with severe and complicated symptoms. Most of the Ps in the present study suffered greatly, as reflected by the

scores of their preassessment and 52 % of Ps have suffered from social phobia without any kind of treatment. Thus, there is much room for improvement if social phobics have opportunity to participate in Internet-mediated treatment.

It is important to understand the characteristics which identify subgroups who are successfully implementing I-CBGT. This study tried to investigate the potential differential effects of comorbid depression and subtypes of social phobia on outcome of I-CBGT. Pretreatment level of depression and subtypes of social phobia did not interact with treatment outcome in the present study. The result in this thesis showed that Internet-mediated treatment could be effective for social phobia regardless of comorbid depression and severity of symptoms. The findings of the current study confirmed that comorbid depression and subtype of social phobia have little to offer for the prediction of Internet-mediated treatment outcome. Although research (Safren et al., 1997) suggests that clients' expectancy of treatment outcome may be an important factor to address in the prediction of who benefits from a CBT, expectancy of treatment outcome was similar regardless of the severity of symptoms in this study.

In summary, results from this study generally support the efficacy of I-CBGT for both social phobia with and without depression. It is obvious that the Internet-mediated treatment offers a very useful tool for mental health professionals to reach social phobics who otherwise are hardly shown in traditional treatment.

## 6.2. Limitations of the study

Although results from this study suggest that I-CBGT is a useful approach for individuals suffering social phobia, there are a number of limitations that should be

considered.

First, a limitation of the present study is its exclusive reliance on self-report. Pre- and post-treatment assessments included only self-report measures. This study also examined self-reported depression rather than presence or absence of mood disorder. Further studies need to consider various assessments including behavioral and physiological measures. Even though it is difficult to provide various possibilities for assessment via Internet, videoconferencing could be a new alternative in the future. Ball, Scott, McLearn and Watson (1993) already showed how an assessment of schizophrenia and depression can reliably be conducted through videoconferencing.

Second, all self-rated questionnaires were administered through the Internet. When assessments rely mainly on self-report questionnaires and Ps are not seen at all, questions regarding validity and reliability are raised (Ström et al., 2000). In contrast to regular test-taking procedures, it is difficult to confirm that test-takers using the web have understood instructions and/or items correctly (Barak, 1999). Some researches (Buchanan & Smith, 1999; Davis, 1999) showed that Internet administration of questionnaires is reliable and valid, however, there is still the need to obtain separate norms for Internet use (Buchanan, 2002).

On the other hand, assessments with self-report questionnaires and modern technologies without intensive face-to-face contact may have certain advantages. Ps may feel less embarrassed about reporting sensitive information over Internet, allowing for more accurate and honest assessment. (Taylor & Luce, 2003).

Third, only a portion of the original study sample could be assessed in the follow up. Future studies need to incorporate larger sample sizes and long-term follow up. In addition, the way to influence the early drop-out rate needs to develop. Although it is

shown that I-CBGT is a well accepted and effective treatment approach, the relatively

high attrition rate prior to the first session should be controlled. It will be important to

consider this specific problem and try to increase compliance before the treatment.

Fourth, this research demonstrates additional limitations in respect to generalizability.

The restriction to generalizability of the results is the fact that Ps of this study may

present a biased sample; that is, a fairly homogeneous group of people who were

already seeking help on the Internet. Previous study by Smith and Leigh (1997) found

that a random sample drawn from their research population resembled a sample of

Internet respondents. Yet, another study (Swoboda, Mühlberger, Weitkunat &

Schneeweiss, 1997) showed that an Internet drawn survey sample may represent a

target population. Even though an increasing number of people in Korea have access

to the Internet, it remains unclear whether this is also the case with social phobics who

do not often use the Internet, since all Ps were recruited via Internet in the present

study.

## 6.3. Future direction

Several suggestions for future research on Internet-mediated interventions for social

phobia can be made. There has never been a direct comparison between an Internet-

mediated CBGT and traditional CBGT for social phobia. One study by Cohen and Kerr

(1998) supports that there are no significant differences in the effectiveness of the

treatment between computer-mediated and face-to-face conditions with a sample of

patients suffering from excessive anxiety. Further research is needed to compare

Internet-mediated interventions for social phobia with comparable face-to-face

treatments.

Another suggestion is to test if I-CBGT through videoconferencing is effective for social phobia and improves results. Further research can also use voice-based chat with and without photo or video images. One previous study by Joinson (2001) presented that visually anonymous people communicating using computers disclose more about themselves than people communicating non-anonymously. The presence of a video picture of one's discussion partner led to significantly lower level of self-disclosure during computer-mediate communication. However, the effect of visual image on treatment outcome for social phobia is not yet known.

Finally, another important issue is the session length and treatment duration. Eight weeks might not be the optimal duration for the people with severe anxiety symptoms and depression. Many Ps in the present study suggested more frequent and/or longer treatment sessions after completing treatment. This time issue remains to be explored in the future study.

## 6.4. Clinical implications

This study indicated that Ps who receive I-CBGT for social phobia are equally likely to improve, regardless of the severity of their symptoms and concurrent depression. This does not mean that severe social phobics will not need more treatment than those who are less impaired, in that the more disabled start out and end up with worse symptoms. Comorbid depression and generalized subtype were associated with greater severity of symptoms both before and after treatment. In fact, the most severe social phobics hardly participate in face-to-face treatment. Most of the traditional

intervention for social phobics has been costly and has rarely reached those most in need of services. The results of this study showed that Internet-mediated treatment has immense potential for applications to the treatment of social phobia. It must be acknowledged that more research is needed to replicate these findings and to test potential moderators of treatment outcome.

## 6.5. Conclusion

This was the controlled study investigating the efficacy of I-CBGT using e-mail, e-bulletin board and real-time chatting in a closed Internet community for social phobia. Two major conclusions can be drawn from this study.

First, findings support that an I-CBGT is an effective treatment approach to reduce social anxiety. The therapeutic gains were also maintained for both socially anxious individuals with and without comorbid depression at the 3-month follow-up.

Second, comorbid depression and subtypes of social phobia were associated with greater severity of symptoms both before and after treatment, however, it did not result in differential rates of improvement of social phobia.

In the light of results above, it seems possible that the effective principles of CBGT can be also transmitted over the Internet and I-CBGT gives social phobics an attractive choice for suitable treatment. I-CBGT can help a wide range of social phobics with milder symptoms as well as social phobics with severe and complicated symptoms.

# 7. Reference

American Psychiatric Association. (1980). *Diagnosis and Statistical Manual of Mental Disorder* (*3rd* Ed.). Washington, D.C.: American Psychiatric Association.

American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th Ed.). Washington, D.C.: American Psychiatric Association.

Ameringen, M. V., Mancini, C., Styan, G., & Donison, D. (1991). Relationship of social phobia with other psychiatric illness. *Journal of Affective Disorders, 21*, 93-99

Anderson, P., Jacobs, C., & Rothbaum, B. O. (2004). Computer-supported cognitive behavioral treatment of anxiety disorder. *Journal of clinical psychology, 60*, 253-267. Anderson, Lundström, & Ström, 2003

Antony, M. M. (1997). Assessment and treatment of social phobia. *Canadian Journal of Psychiatry, 42,* 826–834

Baker, S. L., Heinrichs, N., & Hofmannn, S. G. (2002). The Liebowitz social anxiety scale as a self-report instrument: a preliminary psychometric analysis. *Behavior Research and Therapy, 40*, 701-705.

Ball, C. J., Scott, N., McLearn, P. M., & Watson, J. P. (1993). Preliminary evaluation of a Low-Cost VideoConferencing (LCVC) system for remote cognitive testing of adult psychiatric patients. *British Journal of Clinical Psychology, 32*, 303-307.

Ballenger, J. C., Davidson, J. R. T., Lecrubier, Y., Nutt, D. J., Bobes, J., Beidel, D. C., Ono, Y., Westenberg, H. G. M. (1998). Consensus statement on social anxiety disorder from the International Consensus Group on Depression and Anxiety. *Journal of Clinical Psychiatry, 59(Suppl. 17),* 54-60.

Barak, A. (1999). Psychological applications on the Internet: A discipline on the

threshold of a new millennium. *Applied and Preventive Psychology, 8*, 231-245.

Barak, A., & Wander-Schwartz, M. (1999). Empirical evaluation of brief group therapy through an internet chat room. http://construct.haifa.ac.il/~azy/cherapy.htm

Beck, A. T., & Emery, G. (1985). *Anxiety Disorders and Phobias: A Cognitive Perspective.* New York: Basic Books.

Beck, A. T., Rush, J. A., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guildford Press.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 53-63.

Beer, R., & Breuer, P. (2003). Verhaltentherapeutische Kurzzeit-Paartherapie von Angesicht zu Angesicht und online: Vergleich der Wirksamkeit zweier Settings. *Symposium der Fachgruppe Klinische und Psychotherapie, Freiburg.*

Belzer, K., & Schneier, F. (2004). Comorbidity of anxiety and depressive disorders: issue on conceptualization, assessment, and treatment. *Journal of Psychiatric Practice, 10,* 296-306.

Bouchard, S., Payeur, R., Rivard, V., Allard, M., Paquin, B., Renaud, P., & Goyer, L. (2000). Cognitive behavior therapy for panic disorder with agoraphobia in videoconference: Preliminary results. *CyberPsychology and Behavior, 3,* 999-1007.

Brown, E. J., Heimberg, R. G., & Juster, H. R. (1995). Social phobia subtype and avoidant personality disorder: effect on severity of social phobia, impairment, and outcome of cognitive behavioral treatment. *Behavior Therapy, 26,* 467-486.

Brunello, N., den Boer, J. A., Judd, L. L., Kasper, S., Kelsey, J. E., Lader, M., Lecrubier, Y., Lepine, J. P., Lydiard, R, B., Mendlewicz, J., Montgomery, S. A., Racagni, G., Stein, M. B., & Wittchen, H. –U. (2000). Social phobia: diagnosis and epidemiology,

neurobiology and pharmacology, comorbidity and treatment. *Journal of Affective Disorders, 60.* 61-74.

Buchanan, T. (2002). Online assessment: Desirable or dangerous? *Professional Psychology: Research and Practice, 33,* 148-154.

Buchanan, T., & Smith, J. L. (1999). Research on the Internet: Validation of a World-Wide Web mediated personality scale. *Behavior Research Methods, Instruments, & computers, 31,* 565-571.

Butler, G. (1989). Issues in the application of cognitive and behavioral strategies for the treatment of social phobia. Clinical Psychology Review, 9, 91-106.

Campbell, A. J., Cumming, S. R., & Hughes, I. (2006). Internet Use by the Socially Fearful: Addiction or Therapy? *CyberPsychology & Behavior, 9*, 69-81.

Carlbring, P. (2004). Panic! Its prevalence, diagnosis and treatment via internet. *Acta Universitatis Upsaliensis.*

Carlbring, P., Westling, B. E., Ljungstrand, P., Ekselius, L., & Andersson, G. (2001). Treatment of panic disorder via the Internet: A randomized trial of a self-help program. *Behavior Therapy, 32*, 751-764.

Caspar, F. (2004). Technological developments and applications in clinical psychology and psychotherapy: Introduction. *Journal of clinical psychology, 60,* 221-238.

Caster, J. B., Inderbitzen, H. M., & Hope, D. (1999). Relationship between youth and parent perceptions of family environment and social anxiety. *Journal of Anxiety Disorders, 13*, 237-251.

Cavanagh, K., & Shapiro, D. A. (2004). Computer treatment for common mental health problem. *Journal of clinical psychology, 60,* 239-251.

Chambless, D. L., Glass, C. R., & Tran, G. Q. (1993, November). *Effects of avoidant*

personality and subtype on outcome of cognitive-behavioral treatment of social phobia. In D. Chambless (Chair), Social phobia and avoidant personality disorder. Symposium presented at the annual meeting of the Association for Advancement of Behavior Therapy, Atlanta.

Chambless, D. L., & Hope, D. A. (1996). Cognitive approaches to the psychopathology and treatment of social phobia. In Salkovskis, P. M. (Eds), *Frontiers of cognitive therapy*. Guilford Press: New York

Chambless, D. L., Tran, G. Q., & Glass, C. R. (1997). Predictors of response to cognitive-behavioral group therapy for social phobia. *Journal of Anxiety Disorders, 11,* 221-240.

Chang, H. A., & Ahn, C, I. (2003). The effect of cyber therapy for social phobia. *The Korean Journal of Clinical Psychology, 22(1),* 93-108

Chavira, D. A., Stein, M. B., Bailey, K., & Stein, M. T. (2004). Comorbidity of generalized social anxiety disorder and depression in a pediatric primary care sample. *Journal of Affective Disorders, 80,* 163-171*.*

Childress, C. (1998). Potential risks and benefits of online psychotherapeutic interventions. Retrieved from http://www.ismho.org/issues/9801.htm

Cho, Y. R. (1998). The influence of dysfunctional beliefs and maladaptive automatic thoughts on socially phobic symptoms. *Seoul National University.*

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R.G. Heimberg, M. R., Liebowitz, D. A., Hope & Schneier, F. R. (Eds.), *Social phobia: Diagnosis, assessment, and treatment.* New York: Guilford Press.

Cohen, G. E., & Kerr, B. A. (1998). Computer-mediated counseling: an empirical study of a new mental health treatment. *Computers in Human Service, 15(4),* 13-26.

Davidson, J. R. T. (2003). Pharmacotherapy of social phobia. *Acta Psychiatrica Scandinavica, 108,* 65-71.

Davis, R. N. (1999). Web-based administration of a personality questionnaire: comparison with traditional methods. *Behavior Research Methods, Instruments, & Computers, 31,* 572-577.

Di Nardo, P. A., O'Brien, G. T., Barlow, D. H., Waddell, M. T., & Blanchard, E. B. (1983). Reliability of DSM-Ⅲ anxiety disorder categories using a new structured interview. *Archives of General psychiatry, 40*, 1070-1074.

Dolezal, W. S., Belar, C.D., & Snibbe, J. (1998). A Comparison of Computer-Assisted Psychotherapy and Cognitive-Behavioral Therapy in Groups. *Journal of Clinical Psychology in Medical Settings, 5,* 103 – 115.

Dozois, D. J. A., & Frewen, P. A. (2006). Specificity of cognitive structure in depression and social phobia: A comparison of interpersonal and achievement contents. *Journal of Affective Disorders, 90*, 101-109.

Ebel, B. (2004). Kognitive Verhaltenstherapie in Gruppen bei Zwangspatienten: Vergleichsstudie einer Face-to-Face-Therapie vs. Internet Therapie. Diplomarbeit, Tübingen Universität.

Eichenberg, C. (2004). Das Internet als therapeutisches medium: Selbsthilfe und Intervention. *Deutsches Ärzteblatt, 19*, 14-16.

Eichenberg, C., Otto, T. S., & Fishcer, G. (2006). Suizidselbsthilfe-Foren im Internet: Eine Befragungsstudie. *Zeitschrift für Klinische Psychologie und Psychotherapie, 35 (1),* 30-38.

Emmelkamp, P. M. G., Krijn, M., Hulsbosch, A. M., Vries, s., Schuemie, M. J., & Mast, C. A. P. G (2002). Virtual reality treatment versus exposure in vivo: a comparative

evaluation in acrophobia. *Behaviour Research and Therapy, 40,* 509-516.

Erwin, B. A., Heimberg, R, G., Juster, H., & Mindlin, M. (2002). Comorbid anxiety and mood disorders among persons with social anxiety disorder. *Behaviour Research and Therapy, 40,* 19–35.

Erwin, B. A., Turk, C. L., Heimberg, R. G., Fresco, D. M., & Hantula, D. A. (2004). The Internet: home to a severe population of individual with social anxiety disorder? *Anxiety Disorder, 18,* 629-646.

Fehm, L., Pelissolo, A., Furmark, T., & Wittchen, H. –U. (2005). Size and burden of social phobia in Europe. *European neuropsychopharmacology, 15,* 453-462.

Finn, J., & Lavitt, M. (1994). Computer based self-help groups for sexual abuse survivors. *Social Work with Groups, 18,* 109-117.

Gackenbach, J. (1998). *Psychology and the Internet: Intrapersonal, interpersonal, transpersonal implications.* Academic Press: San Diego

Gega, L., Marks, I., & Mataix-Cols, D. (2004). Computer-aided CBT self-help for anxiety and depressive disorders: experience of a London clinic and future directions. *Journal of clinical psychology, 60,* 147-157.

Gill, P. J. M., Carrillo, F. X. M., & Meca, J. S. (2001). Effectiveness of Cognitive-Behavioral Treatment in Social Phobia: A Mete-Analytic Reviews, *Psychology in Spain, 5,* 17-25.

Gretarsdottir, E., Borden, J. W., Meeks, S., & Depp, C. A. (2004). Social anxiety in older adults: phenomenology, prevalence, and measurement**.** *Behaviour Research and Therapy, 42, 459-475.*

Grunwald, M ., & Busse, J. C. (2002). Online-Beratung bei Essstörungen. Chancen für eine bessere Versorgung. *Deutsch Ärztsblatt,* 6. Juni, 277-279.

Hage, M. K., Riba, M. B., & Huang, M. (2001). Are our patients using the internet? *German Journal of Psychiatry, 4,* 24-28.

Hambrick, J. P., Weeks, J. W., Harb, G. C., & Heimberg, R. G. (2003). Cognitive-behavioral therapy for social anxiety disorder: Supporting evidence and future directions. *CNS Spectrums, 8*, 373-381.

Hamburger, Y. A., & Ben-Artzi, E. (2000). The relationship between extraversion and neuroticism and the different uses of the Internet. *Computers in Human Behavior, 16,* 441-449.

Heimberg, R. G. (1991). A manual for conducting cognitive-behavioral group therapy for social phobia (2nd Ed.). Unpublished manuscript, Center for Stress and Anxiety Disorders, State University of New York at Albany, Albany, NY. Trans. Kwan. J. H (1997).

Heimberg, R. G., Dodge, C. S., Hope, D. A., Kennedy, C. R., Zollo, L. J., & Becker, R. E. (1990). Cognitive behavioral group treatment for social phobia: Comparison with a credible placebo control. *Cognitive Therapy and Research, 14,* 1-2

Heimberg, R, S., Hope, D, A., Dodge, C.S & Becker, R. E. (1990). DSM-Ⅲ-R subtypes of social phobia: Comparison of generalized and public speaking phobics. *Journal of Nervous and Mental Disease, 178*,172-179

Heimberg, R. G., & Juster, H. R. (1995). Cognitive-behavioral treatments: literature review. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: diagnosis, assessment, and treatment*. New York: Guilford Press.

Heimberg, R. G., Salzman, D. G., Holt, C. S., & Blendell, K. A. (1993). Cognitive-Behavioral Group Treatment for Social phobia: Effectiveness at Five-Year Follow-up. *Cognitive Therapy and Research. 17,* 325-339.

Heiser, N. A., Turner, S. M., & Beidel, D. C. (2003). Shyness: relationship to social phobia and other psychiatric disorders. *Behaviour Research and Therapy, 41, 209-221.*

Hirsch, C. R., Clark, D. M., Mathews, A., & Williams, R. (2003). Self-images play a causal role in social phobia. *Behaviour Research and Therapy, 41, 909-921.*

Hofmann, S. G., & Bögels, S. (2006). Recent advances in the treatment of social phobia: Introduction to the special issue. *Journal of Cognitive Psychotherapy, 20.* 3-5.

Hofmann, S. G., Newman, M. G., Becker, E., Taylor, C. B., & Roth, W. T. (1995). Social phobia with and without avoidant personality disorder: preliminary behavior therapy outcome findings. *Journal of Anxiety Disorders, 9.* 427-438.

Holt, C. S., & Heimberh, R. G. (1990). The Reaction to Treatment Questionnaire: Measuring treatment credibility and outcome expectancies. *The Behavior Therapist, 13,* 213-214, 222.

Hope, D. A., Heimberg, R. G., & Bruch, M. A. (1995). Dismantling cognitive-behavioral group therapy for social phobia*, Behavior Research and Therapy, 33,* 636-650.

Houston, T. K., Cooper, L. A., & Ford, D. E. (2002). Internet support groups for depression: a 1-year prospective cohort study. *The American Journal of Psychiatry, 159,* 2062-2068.

Huang, M. P., & Alessi, N. E. (1996). The Internet and the future of psychiatry. *American Journal of Psychiatry, 153,* 861-869.

Huber, H. P. (2006). Klinische Cyberpsychologie: Die Anwendung virtueller Realitaeten in der psychologischen Diagnostik und Behandlung. *Zeitschrift für Klinische Psychologie und Psychotherapie, 35 (1),* 39-48.

Huws, J. C., Jones, R. S. P., & Ingledew, D. K. (2001). Parents of children with autism

using an email group: A grounded theory study. Journal of Health Psychology, 6, 569-584.

Internet World Stats (2007, March). Internet World Stats. Retrieved from http://www.internetworldstats.com

Jefferson, J. W. (2001). Social anxiety disorder: More than just a little shyness. *Primary Care Companion Journal of Psychiatry, 3*, 4-9.

Joinson, A. N. (2001). Self-disclosure in computer-mediated communication: The role of self-awareness and visual anonymity. *European Journal of Social Psychology, 31*, 177-192.

Kagan, J., Reznick, J. S., Clarke, C., Snidman, N., & Garcia-Coll, C. (1984). Behavioral inhibition to the unfamiliar. *Child Development, 55*, 2212-2225.

Kagan, J., Reznick, J. S., Snidman, N., Gibbons, J., & Johnson, M. O. (1998). Childhood derivatives of inhibition and lack of inhibition to the unfamiliar. Child Development, 59, 1580-1589.

Kagan, J., & Snidman, N. (1991). Infant predictors of inhibited and uninhibited profiles. *Psychological Science, 2*, 40-44.

Keller, M. B. (2003). The lifelong course of social anxiety disorder: a clinical perspective. *Acta Psychiatrica Scandinavica, 108 (Suppl. 417),* 85-94.

Kessler, R. C. (2003). The impairments caused by social phobia in the general population: implications for intervention. *Acta Psychiatrica Scandinavica, 108,* 19-27.

Kessler, R. C., McGonagle, K. A., Zhoa, S., Nelson, C. B., Hughes, M., Eshleman, S., Wittchen, H.–U., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-Ⅲ-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. *Archives of General Psychiatry, 51*, 8-19

Kessler, R. C., Stein, M. B., & Berglund, P. (1998). Social phobia subtypes in the National Comorbidity Survey. *American Journal of Psychiatry, 155*, 613–619.

Kim, E. J. (1991). Social self-processing and safety behaviors in social phobics. *Seoul National University.*

King, S. A. (1994). Analysis of electronic support groups for recovering addicts. Interpersonal Computing and Technology: *An Electronic Journal for the 21st Century, 2,* 47-56.

King, S. A. (1995). Suicidal ideation in virtual support groups. Available: http://www.concentric.net/~Astorm/suicide.html.

King, S. A., & Poulos S. T. (1998) Using the Internet to treat generalized social phobia and avoidant personality disorder. *CyberPsychology and Behavior, 1*, 1, 29-36.

Kleinknecht, R. A., Dinnel, D. L., Kleinknecht, E. E., Hiruma, N., & Harada, N. (1997). Cultural Factors in social Anxiety: A Comparison of Social Phobia Symptoms and Taijin Kyofusho. *Journal of Anxiety Disorders, 11.* 157-177.

Klinger, E., Legeron, P., Roy, S., Chemin, I., Lauer, F., & Nugues, P. (2004). Virtual reality exposure in the treatment of social phobia, In Riva, G., Botella, P., Legeron. & Optale, G. (Eds), *Cybertherapy: Internet and virtual reality as assessment and rehabilitation tools for clinical psychology and neuroscience*. IOS Press: Amsterdam

Knaevelsrud, C. (2005). Efficacy of an Internet-driven therapy (INTERAPY) for posttraumatic stress and the online therapeutic alliance. *University of Zurich.*

Kummervold, P. E., Gammon, D., Bergvik, S., Johnsen, J.-A., Hasvold, T. & Rosenvinge, J. H. (2002). Social support in a wired world: Use of online mental health forums in Norway. *Nordic Journal of Psychiatry, 56*, 59-65.

Laksmana, T. (2002). Eating disorders and the Internet: The Therapeutic possibilities.

*Perspectives in Psychology,* 5, 35-41.

Lang, J. (2001). Gut beraten mit Internet? Psychologische Onlineberatung heute. *Psychoscope, 6.* 9-13.

Lange, A., Rietdijk, D., Hudcovicova, M., Van de Ven, J. P., Schrieken, B., & Emmelkamp, M. G. (2003). Interapy: A controlled randomized trial of the standardized treatment of posttraumatic stress through the Internet. *Journal of Consulting and Clinical Psychology, 71*, 901-909.

Lange, A., Schrieken, B., van den Ven, J, -P., Bredeweg, B., Emmelkamp, P. M. G., van der Kolk, J., Lydsdottir, L., Massaro, M., & Reuvers, A. (2000). "INTERAPY": The effects of a short protocolled treatment of posttraumatic stress and pathological grief through the Internet. *Behavioral and Cognitive Psychotherapy, 28,* 175-192.

Laszig, P., & Eichenberg, C. (2003). Onlineberatung und internet-basierte Psychotherapie. *Psychotherapeut. 3(48),* 193-198.

Leary, M. R. (1983). A brief version of the Fear of Negative Evaluation Scale. *Personality and Social Psychology Bulletin, 9*, 371-376.

Lecrubier, Y. (1997). Implications of early onset social phobia on outcome. *European Neuropsychopharmacology (Suppl. 2),* S85.

Lecrubier, Y., & Weiller, E. (1997). Comorbidities in social phobia. *International Clinical Psychopharmacology, 12 (Supple. 6):* S 17-21.

Lee, J. Y., & Choi, C. H. (1997). A study of the reliability and the validity of the Korean version of social phobia scales (K-SAD, K-FNE). *Korean Journal of Clinical Psychology, 16,* 251-264.

Lee, O., & Gong, S. J. (2004). Overcoming the Confucian psychological barrier in government cyberspace, *Cyberpsychology & Behavior, 7*, 25-28

Lee, M., Ku, J. H., Jang, D. P., Kim, D. H., Choi, Y.H., Kim, I.Y., & Kim, S. I. (2002).
Virtual reality system for treatment of the fear of public speaking using image-based
rendering and moving pictures, *CyberPsychology and Behavior, 5,* 191-195*.*

Lee, J. K., Kyak, Y. S., Lee, H., Kim, Y. S., Han, J. H., Choi, J. O., & Lee, Y. H. (1986).
Epidemiological study of Korean mental disorders (1). *Seoul Medical School, 11*, 1.

Lee, S. H., Oh, K, S., & Lee, S. H. (1991). A Clinical Study of Social Phobia (Ⅳ) –
Social phobia accompanied with ideas of harming others. *Journal of Korean
Neuropsychiatric association, 30*, 1004-1013.

Lee, Y., & S. J. (1981). A study of the reliability and the validity of the BDI, SDS, and
MMPI-D scales*. Korean Journal of Clinical Psychology, 10*, 98-113.

Liebowitz, M. R. (1987). Social phobia. *Modern Problems of Pharmacopsychiatry*, 22.
141-173.

Liebowitz, M. R., Gorman, J, M., Fyer, A. J., & Klein, D. F. (1985). Social phobia:
Review of a neglected anxiety disorder. *Archives of General Psychiatry, 43*, 729-736.

Magee, W. J., Eaton, W. W., Wittchen, H. –U., McGonagle, K. A., &  Kessler, R. C.
(1996). Agoraphobia, simple phobia, and social phobia in the National Comorbidity
Survey. *Archives of General Psychiatry*, *53*, 159-168.

Mansell, W., Clark, D. M., & Ehlers, A. (2003). Internal versus external attention in
social anxiety: an investigation using a novel paradigm. *Behaviour Research and
Therapy, 41, 555-572.*

Marks, I. M., Mataix-Cols, D., Kenwright, M., Cameron, R., Hirsch, S., & Gega, L.
(2003). Pragmatic evaluation of computer-aided self-help for anxiety and depression.
*British Journal of Psychiatry*, 183, 57-65.

Mattick, R. P., & Peters, L. (1988). Treatment of severe social phobia: Effects of guided

exposure with and without cognitive restructuring. *Journal of Consulting and Clinical Psychology, 56,* 251-260.

Merikangas, K. R., Lieb, R., Wittchen, H. –U., Avenevoli, S. (2003). Family and high-risk studies of social anxiety disorder. *Acta Psychiatrica Scandinaviaca, 108,* 28-37.

Miller, J. K., & Gergen, K. J. (1998). Life on the line: The Therapeutic potential of computer mediated conversation. *Journal of Marital and Family Therapy, 24,* 189-202.

Moncher, M. S., Parms, C. A., Orlandi, M. A., Schnicke, S. P., Miller, S. O., Palleja, J., & Schnicke, M.B. (1985). Microcomputer-based approaches for preventing drug and alcohol abuse among adolescents from ethnic-racial minority backgrounds. *Computer in Human Behavior*, 5, 79-93

Montgomery, S. A. (1998). Implications of the severity of social phobia. *Journal of Affective disorders, 50,* 17-22

Morland, L.A., Pierce, K., & Wong, M.Y. (2004). Telemedicine and coping skills groups for Pacific Island veterans with post-traumatic stress disorder: a pilot study. *Journal of Telemedicine and Telecare*, 10, 286-289.

Müller-Holthusen., & Meermenn, R. (2004). Neue Medien und Psychotherapie. *Deutsches Ärzteblatt, 101*, B 462, Heft 9.

Muncer, S., Loader, B., Burrows, R., Pleace, N., & Nettleton, S. (2000). Form and structure of newsgroups: A network approach. *CyberPsychology and Behavior, 3(6),* 1017-1029.

Musa, D., Kostoqianni, N., Lépine, J. P. (2004). The fear of negative evaluation scale (FNE): psychometric properties of the French version. *Encephale, 30*, 517-524.

Musa, C., Lépine, J. P., Clark, D. M., Mansell, W., & Ehlers, A. (2003). Selective attention in social phobia and the moderating effect of a concurrent depressive

disorder**.** *Behaviour Research and Therapy, 41, 1043-1054.*

Nagata, T., Vliet, I., Yamada, H., Kataoka, K., Iketani, T., & Kiriike, N. (2006). An open trial of paroxetine for the "offensive subtype" of *TAIJIN KYOFUSHO* and social anxiety disorder. *Depression and Anxiety, 23*, 168-174.

Newman, M. G., Consoli, A., & Taylor, C. B. (1997). Computers in assessment and cognitive behavioral treatment of clinical disorders: Anxiety as a case in point. *Behavior Therapy, 28*, 211-235.

Newton, A., Kindness, K., & Mcfudyen, M. (1983). Patients and social skills groups: do they lack social skills? *Behavioral Psychotherapy, 11,* 116-126.

North, M., North, S. M., & Coble, J. R. (1997). *Virtual reality in neuro-psycho-physiology.* Riva, G. (Ed). Ios Press: Amsterdam, Netherlands

Park, S. Y. (2002). The difference of social anxiety subtypes according to the characteristics of social anxiety-provoking situations. *Seoul National University*.

Pior, R. F., & Tiedeman, P. (2000). *Internet für Psychologen: Eine praxisorientierte Einführung.* Wissenschaftliche Buchgesellschaft.

Przeworski, A., & Newman, M.G. (2004). Palmtop Computer-Assisted Group Therapy for Social Phobia. *Journal of Clinical Psychology, 60*, 179-188.

Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy, 35,* 741-756.

Rapee, R. M., & Lin, L. C. (1992). Discrepancy between self and observer ratings of performance in social phobics. *Journal of abnormal psychology, 101*, 727-731.

Riva, G., Bacchetta, M., Baruffi, M., Rinaldi, S., & Molinari (1998). Experiential Cognitive therapy: A VR based approach for the assessment and treatment of eating disorder. (Eds) Riva, G., Wiederhold, B. K., Molinari, E. *Virtual environments in*

*clinical psychology and neuroscience*. IOS press: Amsterdam, Netherlands.

Riva, G., Botella, C., Castelnuovo, G., Gaggiolo, A., Mantovani, F., & Molonari, E. (2004). Cybertherapy in practice: The VEPSY Updated project. (Eds) Riva, G., Bostella, C., Legeron, P. and Optale, G. *Cybertherapy. Internet and virtual reality as assessment and rehabilitation tools for clinical psychology and neuroscience*. IOS press: Amsterdam, Netherlands

Rochlen, A. B., Zack, J. S., & Speyer, C. (2004). Online therapy: review of relevant definitions, debates, and current empirical support. *Journal of clinical psychology, 60,* 269-283.

Rosser, S., Issakids, C., & Peters, L. (2003). Perfectionism and social phobia: relationships between the constructs and impact on cognitive behavior therapy. *Cognitive Therapy and Research, 27*, 143-151.

Roth, D. A., Fresco, D. M., & Heimberg, R. G. (2005). Cognitive phenomena in social anxiety disorder. (Eds) Alloy, L. B., & Riskind, J. H. *Cognitive vulnerability to emotional disorders. Hillsdale,* NJ: Lawrence Erlbaum Associates.

Rothbaum, B. O., Hodges, L., Ready, D., Graap, K., & Alarcon, R. D. (2001). Virtual reality exposure therapy for Vietnam veterans with posttraumatic stress disorder. *Journal of Clinical Psychiatry, 62*, 617-622.

Rothbaum, B. O., Hodges, L. F., Smith, S., Lee, J. H., & Price, L. (2000). A controlled study of virtual reality exposure therapy for the fear of flying. *Journal of Consulting and Clinical Psychology, 68,* 1020-1026.

Safren, S. A., Heimberg, R. G., & Juster, H. R. (1997). Clients' expectancies and their relationship to pretreatment symptomatology and outcome of cognitive-behavioral group treatment for social phobia, *Journal of Consulting and Clinical Psychology, 65,*

694-698.

Sakurai, A., Nagata, T., Harai, H., Yamada, H., Mohri, I., Nakano, Y., Noda, Y., Ogawa, S., Lee, K., Furukawa, T. A. (2005). Is "relationship fear" unique to Japan? Symptom factors and patient clusters of social anxiety disorder among the Japanese clinical population. *Journal of Affective Disorders. 87*, 131-137.

Salkovskis, P. M. (1996). *Frontiers of Cognitive Therapy*. New York: The Guilford Press.

Scholing, A. & Emmelkamp, P. M. G. (1999). Prediction of treatment outcome in social phobia: a cross validation. *Behaviour Research and Therapy, 37, 659-670.*

Selmi, P. M., Klein, M. H., Greist, J. H., Sorrell, S. P., & Erdman, H. P. (1990). Computer-administered cognitive-behavior therapy for depression. *American Journal of Psychiatry, 147*, 51-56.*

Shin, Kim. & Park. (1993). The cut-off score for the Korean version of beck depression inventory, *Korean Journal of Clinical Psychology, 12 (1),* 71-81.

Smith, M. A., & Leigh, B. (1997). Virtual subjects: Using the Internet as an alternative source of subjects and research environment. *Behavior Research Methods, Instruments & Computers, 29*. 496-505.

Spurr, J. M., & Stopa, L. (2003). The observer perspective: effects on social anxiety and performance**.** *Behaviour Research and Therapy, 41, 1009-1028.*

Stein, M. S., Chartier, M. J., Hazen, A. L., Kozak, M. V., Tancer, M. E., Lander, S., Furer, P., Chubatry, DZ., & Walker, J. R. (1998). A direct-interview family study of generalized social phobia. *The American Journal of Psychiatry, 155*, 90-97.

Stein, M. B., Fuetsch, M., Müller, N., Höfler, M., Lieb, R., & Wittchen, H. U. (2001). Social anxiety disorder and the risk of depression: a prospective community study of adolescents and young adults. *Archives of General Psychiatry, 58*, 251-216.

Stemberger, R. T., Turner, S. M., Beidel, D. C., & Calhoun, K. S. (1995). Social phobia: an analysis of possible developmental factors. *Journal of Abnormal Psychology, 104,* 525-531.

Stopa, L., & Clark, D. M. (2000). Social phobia and interpretation of social events. *Behaviour Reserch and Therapy, 38*, 273-283.

Ström, L. (2003). Self-help via the Internet: A new approach to psychological treatment. *Uppsala University*.

Ström, Pettersson & Andersson, (2000). A controlled trial of self-help treatment of recurrent headache conducted via the Internet. Journal of Consulting and Clinical Psychology, 68, 722-727.

Suler, J. (2001). Assessing a person's suitability for online therapy: the ISMHO clinical case study group. *CyberPsychology & Behavior, 4*, 675-679.

Sutherland, S. M., & Davidson, J. (1995). Beta-blockers and benzodiazepines in pharmacotherapy. In: Stein, M. B. (Eds). *Social phobia, Clinical and Research Perspectives.* American Psychiatric Press, Washington.

Swobada, W. L., Muehlberger, N., Weitkunat, R., & Schneeweiss, S. (1997). Internet surveys by direct mailing: An innovative way of collecting data. *Social Science Computer Review, 15.* 242-255.

Takahashi, T. (1989). Social phobia syndrome in Japan. *Comprehensive Psychiatry, 30*, 45-52.

Tate, D.F., Jackvony, E.J., & Wing, R.R. (2003). Effects of Internet behavioral counseling on weight loss in adults at risk for Type 2 diabetes: A randomized trial. *Journal of the American Medical Association, 289,* 1833-1836.

Tate, D.F., Wing, R.R., & Winett, R.A. (2001). Using Internet technology to deliver a

behavioral weight loss program. *Journal of the American Medical Association, 285,* 1172-1177.

Tate, D. F., & Zabinski, M. F. (2004) Computer and internet applications for psychological treatment: Update for clinicians. *Journal of clinical psychology, 60,* 209-220.

Taylor, S. (1996). Meta-analysis of cognitive-behavioral treatments for social phobia. *Journal of Behavioral Therapy and Experimental Psychiatry, 27,* 1-9.

Taylor, C.B., & Luce, K.H. (2003). Computer- and Internet-based psychotherapy interventions. *Current Directions in Psychological Science, 12*, 18-22.

Turner, S. M., Beidel, D. C., Spaulding, S., & Brown, J. (1995). The practice of behavior therapy: A national survey of cost and methods. *The Behavior Therapists, 18,* 1-4.

Turner, S. M., Beidel, D. C., & Townsley, R. M. (1992). Social phobia: A comparison of specific and generalizes subtype and avoidant personality disorder. *Journal of Abnormal Psychology, 101*, 326-331.

Turner, S. M., Beidel, D. C., Wolff, P. L., Spaulding, S., & Jacob, R. G. (1996). Clinical features affecting treatment outcome in social phobia. *Behaviour Research and Therapy, 34*, 795–804.

Uldrian, M. (2004). Kognitive Verhaltenstherapie für Zwangspatienten via Internet. *Tübingen University*.

Van Velzen, C. J. M., Emmelkamp, P. M. G., & Scholing, A. (1997). The impact of personality disorders on behavioral treatment outcome for social phobia. *Behaviour Research and Therapy*, *35*, 889–900

Vitouch, P. (2001). *Psychologie des Internet*. WUV.

Wangemann, T., & Golkaramnay, V. (2004). Psychotherapie und Internet. Chat-Gruppe

als Brücke in den Alltag. *Deutsches Ärzteblatt,* 27. Februar, 459-460.

Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33,* 448-457.

Watson, D., Gamez, W., & Simms, L. J. (2005). Basic dimensions of temperament and their relation to anxiety and depression: a symptom-based perspective. *Journal of Research in Personality, 39.* 46-66.

Wells, A., & Papageorgiou, C. (1999). The observer perspective: biased imagery in social phobia, agoraphobia, and blood/injury phobia. *Behaviour Research and Therapy, 37,* 653-658.

Widiger, T. A. (1992). Generalized social phobia versus avoidant personality disorder: a commentary on three studies. *Journal of Abnormal Psychology, 101*, 340–343.

Wiederhold, B. K., & Wiederhold, M. D. (2004). The future of cybertherapy: Improved options with advanced technologies, In Riva, G., Botella, P., and Legeron. & Optale, G. (Eds), *Cybertherapy: Internet and virtual reality as assessment and rehabilitation tools for clinical psychology and neuroscience*. IOS Press: Amsterdam.

Wilson, J. K., & Rapee, R. M. (2005). The interpretation of negative social events in social phobia: changes during treatment and relationship to outcome*. Behaviour Research and Therapy, 43,* 373-389.

Wilson, J. K., & Rapee, R. M. (2005). The interpretation of negative social events in social phobia with versus without comorbid mood disorder. *Journal of Anxiety Disorders, 19,* 245-274.

Wilson, J. K., & Rapee, R. M. (2006). Self-concept certainty in social phobia. *Behaviour Research and Therapy, 44*, 113-136.

Winzelberg, A. (1997). The analysis of an electronic support group for individuals with

eating disorders. *Computers in Human Behavior, 13*, 393-407.

Winzelberg, A. J., Classen, C., Alpers, G. M., Roberts, H., Koopman, C., Adams, R. E., Ernst, H., Dev, P., & Taylor, C. B. (2003). Evaluation of an Internet support group for women with primary breast cancer. Cancer, 97, 1164-1173.

Winzelberg, A. J., Eppstein, D., Eldredge, K. L., Wilfey, D., Dasmahapatra, R., Dev, P., & Taylor, C. B. (2000). Effectiveness of an Internet-based program for reducing risk factors for eating disorders. *Journal of Consulting and Clinical Psychology, 68*, 346-350.

Wittchen, H. U., & Beloch, E. (1996). The impact of social phobia on quality of life. *International Clinical Psychopharmacology, 11*, 15-23.

Wittchen, H. U., & Fehm, L. (2003). Epidemiology and natural course of social fears and social phobia. *Acta Psychiatrica Scandinavica, 108,* 4–18.

Wittchen, H. U., Stein, M. B., & Kessler, R. C. (1999). Social fears and social phobia in a community sample of adolescents and young adults: prevalence, risk factors and co-morbidity. *Psychological Medicine*, 29, 309-323.

Wolf, M., & Hautzinger, M. (2003). A computer-assisted self-treatment for social phobia: a randomized trial. *Tübingen University*.

Wright, J. H., Wright, A. S., Salmon, P., Kuykendall, J., Goldsmith, J., & Zickel, M. B. (2002). Development and initial testing of a multimedia program for computer-assisted cognitive therapy, *American Journal of Psychotherapy, 56*, 76-86.

Yager, J. (2000). E-mail as therapeutic adjunct in the outpatient treatment of anorexia nervosa: Illustrative case material and discussion of the issues. *International Journal of Eating Disorders, 29*, 125-138.

Zabinski, M. F., Wilfley, D. E., Fernandez, S., Calfas, K. L., Winzelberg, A. J., &

Taylor, C. B. (2001). A synchronous, computerized intervention to reduce body image and disturbed eating concerns among college-aged women: A pilot study. *Paper presented at the Academy of Eating Disorders International Conference, Vancouver*

Zetterqvist, K., Maanmies, J., Ström, L., & Andersson, G. (2003). Randomized controlled trial of Internet0based stress management. *Cognitive Behavior Therapy, 32*, 151-160.

# APPENDIX

# The Social Distress and Avoidance Scale (SADS)

1. I feel relaxed even in unfamiliar situations.

2. I try to avoid situations which force me to be very sociable.

3. It is easy for me to relax when I am with strangers.

4. I have no particular desire to avoid people.

5. I often find social occasions upsetting.

6. I usually feel calm and comfortable at social occasions.

7. I am usually at ease when talking to someone of the opposite sex.

8. I try to avoid talking to people unless I know them well.

9. If the chance comes to meet new people, I often take it.

10. I often feel nervous or tense in casual get-togethers in which both sexes are present.

11. I am usually nervous with people unless I know them well.

12. I usually feel relaxed when I am with a group of people.

13. I often want to get away from people.

14. I usually feel uncomfortable when I am in a group of people I don't know.

15. I usually feel relaxed when I meet someone for the first time.

16. Being introduced to people makes me tense and nervous.

17. Even though a room is full of strangers, I may enter it anyway.

18. I would avoid walking up and joining a large group of people.

19. When my superiors want to talk to me I talk willingly.

20. I often feel on edge when I am with a group of people.

21. I tend to withdraw from people.

22. I don't mind talking to people at parties or social gatherings.

23. I am seldom at ease in a large group of people.

24. I often think up excuses in order to avoid social engagements.

25. I sometimes take the responsibility for introducing people to each other.

26. I try to avoid formal social occasions.

27. I usually go to whatever social engagement I have.

28. I find it easy to relax with other people.

# Brief Fear of Negative Evaluation Scale (FNE)

1. I worry about what other people will think of me even when I know it doesn't make any difference.
2. I am unconcerned even if I know people are forming an unfavorable impression of me.
3. I am frequently afraid of other people noticing my shortcomings.
4. I rarely worry about what kind of impression I am making on someone.
5. I am afraid others will not approve of me.
6. I am afraid that people will find fault with me.
7. Other people's opinions of me do not bother me.
8. When I am talking to someone, I worry about what they may be thinking about me.
9. I am usually worried about what kind of impression I make.
10. If I know someone is judging me, it has little effect on me.
11. Sometimes I think I am too concerned with what other people think of me.
12. I often worry that I will say or do the wrong things.

# Liebowitz Social Anxiety Scale (LSAS)

1.   Telephone in public

2.   Participating in small groups

3.   Eating in public places

4.   Drinking with others in public places

5.   Talking to people in authority

6.   Acting, performing, or giving a talk in front of an audience

7.   Going to a party

8.   Working while being observed

9.   Writing while being observed

10. Calling someone you don't know very well

11. Talking with people you don't know very well

12. Meeting strangers

13. Urinating in a public bathroom

14. Entering a room when others are already seated

15. Being the center of attention

16. Speaking up at a meeting

17. Taking a test

18. Expressing a disagreement or disapproval to people you don't know very well

19. Looking at people you don't know very well in the eyes

20. Giving a report to a group

21. Trying to pick up someone

22. Returning goods to a store

23. Giving a party

24. Resisting a high-pressure salesperson

# Beck Depression Inventory (BDI)

A.  0. I do not feel sad.

    1. I feel sad.

    2. I am sad all the time and I can't snap out of it.

    3. I am so sad or unhappy that I can't stand it.

B.  0. I am not particularly discouraged about the future.

    1. I feel discouraged about the future.

    2. I feel I have nothing to look forward to.

    3. I feel that the future is hopeless and that things cannot improve

C.  0. I do not feel like a failure.

    1. I feel I have failed more than the average person.

    2. As I look back on my life, all I can see is a lot of failures.

    3. I feel I am a complete failure as a person.

D.  0. I get as much as satisfaction out of things as I used to.

    1. I don't enjoy things the way I used to.

    2. I don't get real satisfaction out of anything anymore.

    3. I am dissatisfied or bored with everything.

E.  0. I don't feel particularly guilty.

    1. I feel guilty a good part of the time.

    2. I feel quite guilty most of the time.

    3. I feel guilty all of the time.

F.  0. I don't feel I am being punished.

    1. I feel I may be punished.

    2. I expect to be punished.

    3. I feel I am being punished.

G.  0. I don't feel disappointed in myself.

    1. I am disappointed in myself.

    2. I am disgusted with myself.

    3. I hate myself.

H.   0. I don't feel I am any worse than anybody else.

    1. I am critical of myself for my weaknesses or mistakes.

    2. I blame myself all the time for my faults.

    3. I blame myself for everything bad that happens.


I.   0. I don't have any thoughts of killing myself.

    1. I have thoughts of killing myself, but I would not carry them out.

    2. I would like to kill myself.

    3. I would kill myself if I had the chance.


J.   0. I don't cry any more than usual.

    1. I cry more now than I used to.

    2. I cry all the time now.

    3. I used to be able to cry, but now I can't cry even though I want to.


K.  0. I am no more irritated now than I ever am.

    1. I get annoyed or irritated more easily than I used to.

    2. I feel irritated all the time now.

    3. I don't get irritated at all by the things that used to irritate me.


L.  0. I have not lost interest in other people.

    1. I am less interested in other people than I used to be.

    2. I have lost most of my interest in other people.

    3. I have lost all of my interest in other people.


M.  0. I make decisions about as well as I ever could.

    1. I put off making decisions more than I used to.

    2. I have greater difficulty in making decisions than before.

    3. I can't make decisions at all any more.


N.  0. I don't feel I look any worse than I used to.

    1. I am worried that I am looking old or unattractive.

    2. I feel that there are permanent changes in my appearance that make me look unattractive.

    3. I believe that I look ugly.

O.  0. I can work about as well before.

1. It takes an extra effort to get started at doing something.

2. I have to push myself very hard to do anything.

3. I can't do any work at all.


P.  0. I can sleep as well as usual.

1. I don't sleep as well as I used to.

2. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.

3. I wake up several hours earlier than I used to and can't get back to sleep.


Q.  0. I don't get more tired than usual.

1. I get tired more easily than I used to.

2. I get tired from doing almost anything.

3. I am too tired to do anything.


R.  0. My appetite is no worse than usual.

1. My appetite is not as good as it used to be.

2. My appetite is much worse now.

3. I have no appetite at all anymore.


S.  0. I haven't lost much weight, if any lately.

1. I have lost more than 5 pounds.          I am purposely trying to lose weight by

 2. I have lost more than 10 pounds.          eating less Yes _____    No _____

3. I have lost more than 15 pounds.


T.  0. I am no more worried about my health than usual.

1. I am worried about physical problems such as aches and pains; or upset stomach; or constipation.

2. I am very worried about physical problems and it's hard to think of much else.

3. I am so worried about my physical problems that I cannot think about anything else.


U.   0. I have not noticed any recent change in my interest in sex.

1. I am less interested in sex than I used to be.

2. I am much less interested in sex now.

3. I have lost interest in sex completely.

## Reactions to Treatment Questionnaire (RTQ)

1. How logical does this type of treatment seem to you?

1----------2-----------3-----------4----------5----------6----------7----------8----------9----------10

not                                                                                   very

logical                                                                               logical

2. How confident would you be that this treatment would be successful in eliminating your fear?

1----------2-----------3-----------4----------5----------6----------7----------8----------9----------10

not at all                                                                            very

confident                                                                             confident

3. How confident would you be in recommending this treatment to a friend who was extremely anxious?

1----------2-----------3-----------4----------5----------6----------7----------8----------9----------10

not at all                                                                            very

confident                                                                             confident

4. How successful do you feel this treatment would be in decreasing different fears?

1----------2-----------3-----------4----------5----------6----------7----------8----------9----------10

not at all                                                                            very

successful                                                                            successful

● If you are fearful in the following situations, how confident would you be that this treatment would eliminate your fear?

1----------2-----------3-----------4----------5----------6----------7----------8----------9----------10

not at all                                                                            very

confident                                                                             confident

5. writing in public (   )

6. a first date (   )

7. giving a speech (   )

8. being introduced (   )

9. eating in a public place (   )

10. meeting people in authority (   )

11. being under observation by others (   )

12. being tested (   )

13. using the telephones (   )

What is your main fear? _____

14. How severe is your main fear now?

1----------2----------3-----------4---------5---------6---------7---------8---------9---------10

not at all                                                                          very

severe                                                                            severe

15. How severe do you expect your main fear to be immediately following treatment?

1----------2----------3-----------4---------5---------6---------7---------8---------9---------10

not at all                                                                          very

severe                                                                            severe

How severe do you expect your main fear to be:

16. One year after treatment?

1----------2----------3-----------4---------5---------6---------7---------8---------9---------10

not at all                                                                          very

severe                                                                            severe

17. Five years after treatment?

1----------2----------3-----------4---------5---------6---------7---------8---------9---------10

not at all                                                                          very

severe                                                                            severe

# Closing Questionnaire

Think about the past 8 weeks and your reactions to the treatment component of our sessions.

1.  What was the main thing you learned from the treatment or what did you like about it?
2.  What suggestions do you have for changing the content or the way of presentation?
3.  How would you rate the satisfaction of this treatment?

1----------2----------3-----------4----------5----------6----------7----------8----------9---------10

not at all                                                                                    very

satisfied                                                                                     satisfied

4.  How would like to recommend this treatment to others who suffers from social phobia?

1----------2----------3-----------4----------5----------6----------7----------8----------9---------10

not at all                                                                                    very

confident

**Content of the Internet-mediated educational supportive group treatment**

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*Session 1*  **Introduction and Orientation / Fear, Anxiety and Phobia**

Ps define and discuss the terms they often use in describing their reactions to fearful situations. Ps' individual similarities and differences are explored.

*Session 2*  **Theories of social phobia**

This session deals with the different theoretical explanations of the origins and maintenance of social phobia.

*Session 3*  **Evaluation**

In this session Ps discuss the role that fear of evaluation plays in contributing to and maintaining social phobia. How does the possibility of scrutiny and evaluation affect their performance? How do Ps evaluate their own performance?

*Session 4*  **Anticipatory Anxiety**

Anticipatory anxiety is the fear of being afraid. During this session, Ps explore the role anticipatory anxiety plays in social phobia.

*Session 5*  **Physiological factors that accompany anxiety**

The physiological experience of panic attacks is the basis of this session. How do people experience anxiety? How are the experiences similar or different? Are there any non-anxious physiological reactions that are similar to anxiety-produced responses? How do we explain these physical responses?

*Session 6*  **Assertiveness and sensitivity**

This session focuses on the distinctions between assertiveness, nonassertiveness, and aggression. Discussions involve the messages that are transmitted by these behaviors.

*Session 7*  **Acceptance and perfection**

Why do some people require the acceptance of others as a measure of their worth as a person? How do these beliefs develop? How does this relate to social phobia

*Session 8*  **Control**

This session focuses on the desire to be "in control" or the fear of losing control. We discuss the ways in which people try to control, the reality of what can be controlled, and the relationship to social phobia.

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