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The process of anxiety reduction during the treatment of social phobia with an interpersonal approach: Alone or combined with paroxetine

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Résumé

Bien que l'efficacité des traitements pour réduire l'anxiété est bien documentée dans le cas de la phobie sociale, la recherche considère peu le *processus* de réduction d'anxiété comme tel pendant le traitement. De plus, peu d'études comparent la combinaison d'une approche psychologique et pharmacologique pour le traitement de la phobie sociale. C'est que la présente recherche se propose de faire. L'étude compare l'efficacité d'une thérapie d'approche interpersonnelle seule à une thérapie d'approche interpersonnelle combinée à la paroxetine chez les phobiques sociaux durant 12 séances de traitement. Les participants de cette étude se composent de 30 hommes et 18 femmes adultes recrutées au Centre de Recherche Fernand-Seguin (CRFS) de l'Hôpital Louis-H.-Lafontaine de Montréal. Les mesures principales d'anxiété sont l'Échelle d'anxiété et d'évitement social (Social Anxiety and Distress Scale-SAD) et l'Échelle de peur (Fear Questionnaire-FQ). Les résultats de cette étude confirment l'hypothèse selon laquelle le traitement combiné est plus efficace et stable pour réduire l'anxiété durant les 12 sessions. Les conclusions de cet mémoire permettent de mieux comprendre la valeur ajoutée d'une approche pharmacologique dans le traitement de la phobie sociale ainsi que de définir le cadre théorique d'un traitement combiné.

Most clés: réduction anxiété, phobie sociale, anxiété sociale, paroxétine, thérapie interpersonnelle, traitements combinés.

Abstract

Although a substantial amount of evidence exists for the reduction of anxiety levels in the various treatments for social phobia, there has been less interest in the actual process of anxiety reduction during the treatment phase itself. Moreover, few studies on social phobia have combined psychological and pharmacological treatments to investigate the process of therapeutic change. The present study aims to bridge these gaps by comparing an interpersonal approach to therapy and an interpersonal approach to therapy combined with paroxetine in a 12 week treatment and outline which treatment best reduces anxiety in that time span. Participants were 30 adult males and 18 females recruited through the Centre de Recherche Fernand-Seguin (CRFS) at the L.H. Lafontaine Hospital in Montreal. Anxiety was measured by means of the Social Anxiety and Distress scale as well as the Fear Questionnaire. It is hypothesized that the combined approach will be a superior treatment both during the process of therapy as well as at post-treatment. Results indicate that the combined approach reduce anxiety in a more efficient and stable manner during the 12 sessions. These results add valuable knowledge into the contribution of medication to the treatment of social phobia and the conceptual framework behind the combined treatment approach.

Key words: anxiety reduction, social phobia, social anxiety, paroxetine, interpersonal approach to therapy, combined treatment.

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ADIS-R: Anxiety disorders interview schedule

CBGT: Cognitive behaviour group therapy

CBT: Cognitive behaviour therapy

CR : Cognitive restructuring

CRFS: Centre de Recherche Fernand-Seguin

DSMV-IV: Diagnostic and Statistical Manual of Mental Disorders

FQ: Fear questionnaire

GABA: Gamma-aminobutyric acid

MAOI: Monoamine oxidase inhibitors

M.G.: Milligram

N.S.: Not significant

OCD: Obsessive-compulsive disorder

SAD: Social anxiety and distress scale

S.D.: Standard deviation

SNRI: Serotinin-norepinephrine reuptake inhibitors

SP: Social phobia

SSRI: Selective reuptake inhibitors

SST: Social skills training

RIMA: Reversible inhibitors of monoamine oxidase

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Introduction

Social phobia

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) identifies social phobia (SP) or social anxiety as the experience of fear and anxiety in social situations and of being evaluated by others while impairing the social functioning of the individual (American Psychiatric Association, 1994). As defined, SP can be limited to a particular social situation (non-generalized), such as meetings with coworkers, or encompass broader social contexts, known as generalized social phobia. However, the manual offers *criteria* for identifying SP rather than defining it. SP is a diffuse amalgamation of behaviours not easy to pin down in a definition.

According to Stravynski (2007, p. 13):

> "[...] social phobia is simultaneously an inordinate fear of humiliation resulting from public degradation that one is powerless to prevent [...] as well as a comprehensive defensive interpersonal pattern [...] protective against the threat of being treated hurtfully by others."

While Stravynski views SP as both a fearful or anxious state as well as a complex interpersonal pattern, other sources (e.g.: pharmacological, cognitive) view it as a purely anxiety state, which has implications for treatment. For example, the pharmacological treatment of SP implies that it is an anxious disorder in which medication would eliminate the anxiety and thus 'cure' SP. However, the results of such treatments are not without shortcomings (i.e.: serious undesirable effects). As such, SP is a much more complicated and elusive pattern of behaviours.

SP is a serious and long-lasting pattern. A longitudinal study by Yonkers, Dyck and Keller (2001) revealed that after a combined treatment of various psychotherapies and medication, 68% of social phobics continued to display problematic patterns of social functioning and 28% continued to fulfill the criteria of social phobia. This study shows that SP is a chronic problem and few seek out treatment. As for the prevalence of SP, depending on which source

used, 7% to 13% of the North-American population meet the defining criterion (Sarason, 2007). SP is associated with significant problems, which can include limited social network, alcohol abuse, little or no advancement at work or even abandoning a career to choose a less socially involved occupation (Stein & Kean, 2000).

This chronic and debilitating pattern has spurted a wave of studies for its treatment in the last decades. Although new developments in drug therapies and psychological treatments took place as of the 1980's, the combined effect of psychotherapy and medication has been little investigated. Furthermore, most studies on SP treatment have focused on the outcome of different treatments but few have investigated the process of therapeutic change of anxiety.

Hence, the present study aims to monitor participants' psychosocial state during a treatment plan in order to clarify this process. However, before engaging in such an endeavor, it is imperative to review the main treatments used for SP. The next section will outline these treatments.

Treatments for social phobia

Treatments of social phobia have pursued two major strategies: the reduction of anxiety and the improvement of social functioning (Stravynski, 2007, pp. 291). For the scope of this study, I shall focus the process of anxiety reduction in social phobics.

For reducing anxiety in social phobia, the main psychological treatments used are exposure and cognitive restructuring. Exposure as a treatment is based on the principle that repeated and prolonged exposure to the feared stimuli will reduce the anxiety and fear related to being faced with such a threat (Marks, 1987. pp. 457-494). The person is induced to face the feared stimuli during the sessions until the level of distress is reduced to a tolerable level.

Cognitive restructuring (CR) rests on the theory that maladaptive beliefs or thoughts lead to erroneous thinking which generate anxiety (Beck, 1976). Using this assumption, this treatment attempts to identify and question distorted thinking (e.g.: exaggerations, ignoring counter-evidence) of the participant during their discussion with the clinician until he or she adopts more logical thoughts. This type of treatment combined with exposure is commonly referred as cognitive behaviour therapy (CBT).

Social skills training (SST) is an alternative treatment that focuses on improving the social skills of the individual rather than focusing on reducing anxiety. Participants are taught generic social skills such as conversation techniques, assertive body language, eye contact through role rehearsal and modeling. They then apply the new skills to real-life situations between sessions. This latter part of the treatment is exposure-based. This *structural* approach, in its theoretical framework, is rooted in the recognition of the social inadequacy of social phobic individuals in their functioning in social situations (Stravynski, 2007, pp. 299-300).

The types of treatments considered thus far regard social phobia as an *intrapersonal* difficulty, resulting in some inner quality of the person. A differing view of social phobia considers its nature *interpersonally*, as a way of dealing with the social environment. An interpersonal approach to therapy focuses on the functional aspect of social behaviour (Stravynski, Arbel, Chenier, Lachance, Borgeat, Lamontagne, Sidoun & Todorov, 2006). Instead of viewing social anxiety as stemming from the individual, the interpersonal approach assumes that social phobia is a collection of self-protective patterns used defensively during interactions. The social phobic, as opposed to a normal individual, will overextend these otherwise normal fearful tactics in social settings. Thus, the interpersonal approach "...construes social anxiety relationally, [...] evoked by social transactions..." (Stravynski, 2007, pp. 300). Rather than

correcting deficits skills or erroneous thoughts, the interpersonal approach provides social phobics with non-defensive, participatory, individualized methods to use in such situations.

The pharmacological approach, like CR and exposure, seeks to treat SP by attempting to reduce anxiety, thus it defines SP as a purely anxiety state. Four different classes of medication have been used thus far in the treatment of SP (for more details see Stravynski, 2007, Chapter 10, pp. 305). Monoamine oxidase inhibitors (MAOI) act by preventing the breakdown of the brain chemical or neurotransmitter, monoamine, thereby increasing the available stores (e.g: phenelzine). A newer and preferred version of this class of medication, reversible inhibitors of monoamine oxidase (RIMAs), does not permanently interrupt the breakdown of monoamine (e.g.: moclobemide).

Selective reuptake inhibitors (SSRIs) increase the level of the neurotransmitter serotonin available (e.g: paroxetine, fluoxamine, sertraline, citalopram). SSRIs are frequently prescribed to treat depression and anxiety disorders because they have less adverse effects and are better tolerated than MAOIs/RIMAs (Scott & Heimberg, 2000). Serotinin-norepinephrine reuptake inhibitors (SNRIs), in contrast to SSRIs, increase the levels of serotinin and norepinephrine as well (e.g.: venlafaxine).

Benzodiazepines are a class of drugs that act on the neurotransmitter gamma-aminobutyric acid (GABA). They are considered minor tranquilizers that have sedative and muscle relaxant propreties (e.g: clonazepram). They are used to treat anxiety, insomnia, seizures and muscle spasms. Finally, anticonvulsants such as gabapentin and pregabalin are related to GABAs as well. They are used as mood stabilizers and to treat seizures.

Knowing what the main SP treatments entail, the aim of the next sections will be to review and compare the existing treatments for SP and determine the process of anxiety reduction during therapy for each one.

Combined/Compared Treatments

Since a combination treatment for SP is of interest to the present investigation, the conclusions from past combination treatments will be reviewed. What can the existing literature tells us about the process of anxiety reduction when psychological and pharmacological treatments are integrated? In this section, studies that have either compared or combined such approaches will be evaluated.

In terms of outcome results of combination treatments, Stravynski's review (2007) provides the following conclusion: "The combination of psychological treatments and medication ...did not exceed the effects of psychological approaches alone."(Chapter 10, pp. 327-328). It seems a combination treatment is not necessarily a more effective treatment for SP. However, during the actual process of treatment, how does a combination treatment fare in reducing anxiety compared to a pure psychological or pharmacological method?

In one study examining the efficacy of phenelzine (a RIMA) and CBT in group form, self-report questionnaires of anxiety and avoidance behaviours were administered at mid-treatment (week 6) and at the end of treatment (week 12). For both experimental conditions, the process of anxiety reduction was equivalent. Anxiety levels decreased quite a bit from pre-treatment to week 6, but less so from week 6 to 12. (Heimberg, Liebowitz, Hope, Schneier, Holt, Welkowitz, Juster, Campeas, Bruch, Cloitre, Fallon & Klein, 1998).

For the comparison of clonazepram (a benzodiazepine) and CBT, Otto, Pollack, Gould, Worthington, McArdle and Rosenbaum (2000) found that from the beginning of treatment to week 12, both experimental conditions reported scores that decreased linearly. Interestingly, between week 4 and 12, the medicated condition reported an increase in scores. Between week 12 and the end of treatment, both experimental conditions reported slightly increased scores. An increase in anxiety during treatment seems counterintuitive; the purpose of receiving treatment

would be to decrease anxiety rather than increasing it. This phenomenon in the management of anxiety would be interesting to investigate further to determine if indeed it is part of the process of anxiety management in SP.

As for the comparison of SSRIs with psychotherapies, one study compared fluoxamine, CBGT (cognitive group behaviour therapy), placebo, a combination of fluoxamine and CBGT, and CBGT with placebo in a 14 week treatment. In this particular study, the process of therapeutic change was featured in more detail. All experimental conditions reported scores that decreased at a steady pace until the end of treatment. From week 4 to 8, this trend tapered off when all the groups, except the placebo group, produced similar results (Davidson, Foa, Huppert, Keefe, Franklin, Compton, Zhao, Connor, Lynch & Gaddle, 2004a).

Another study evaluated the effectiveness of fluoxamine and CBT for 16 weeks (Clark, Ehlers, McManus, Hackmann, Fennell, Campbell, Flower, Davenport & Louis, 2003). From the beginning to the end of treatment, anxiety levels diminished linearly for all treatment groups. Between week 16 and the end of treatment, the scores of the CBT group did not diminish as drastically, but remained at equivalent levels. This stabilizing of anxiety levels at the end of treatment is another interesting occurrence that calls for additional inquiries to detect if it not just an isolated event.

A long-term study compared a MAOI, moclobemide, with CBGT and CBGT alone in a 6 month treatment process (Prasko, Dockery, Horacek, Houbova, Kosova, Klaschka, Paskova, Praskova, Seifertova, Zalesky & Höschl, 2006). The three treatment groups reported decreasing linear anxiety scores from the beginning of treatment until the 3rd month. After that, the scores did not decreasing as quickly, and for the combined group there was a minor increase in the reported scores at the 4th month. Towards the end of treatment, the 5th and 6th month, the scores were more or less the same for all the treatment groups.

To summarize these findings, the anxiety reduction process of either a purely pharmacological or psychological approach compared to a combined treatment is more or less the same. At the beginning of treatment until about mid-treatment, anxiety decreases steadily. Afterwards, anxiety levels plateau and remain constant. Aside from some exceptions where increases of anxiety were noted, the process follows a straightforward linear pattern with a quadratic trend by end of treatment. It would be interesting to see if a similar pattern arises with a combination treatment of SSRI and psychotherapy.

Evidently, few combined treatments studies exist that detail the process of anxiety reduction for SP. In that case, what can studies on combination treatments for other anxiety disorders tells us? As with SP, there is little existing literature that focuses on the process of anxiety reduction.

Sharp, Power, Simpson & Swanson (1996) conducted a three month investigation of fluoxamine combined with CR, CR and fluoxamine alone for panic disorder with agoraphobia. In general, all treatment groups displayed anxiety levels that decreased in a linear fashion. As for the efficacy of the treatments, at day 42, the combined treatment reported significantly lower anxiety scores than the medication or CR group. By the end of treatment, the CR group reached the similar levels of anxiety with the combined group, significantly lower than the medication group.

An earlier study used a benzodiazepine, alprazolam, and compared it to exposure for 38 weeks (Marks, Swinson, Basoglu, Kuch, Noshirvani, O'Sullivan, Lelliott, Kirby, McNamee, Seguin & Wickwire, 1993). The group taking alprazolam alone began to improve (diminishing anxiety scores) by the second week, plateaud at week 4 and thereafter the scores actually increased slightly. The group that received exposure treatment alone also improved as of week 2. As for the combined treatment group (alprazolam and exposure), therapeutic gains began at week 2. From week 8 to 18, the scores continued to diminish; afterwards they remained more or less at

those levels until the end of treatment (week 38). The researchers concluded that alprazolam with exposure is not significantly better than alprazolam alone.

Another anxiety disorder, obsessive-compulsive disorder (OCD), was examined to find if a combined treatment of clomipramine (a tricylic anti-depressant) and exposure was superior to single treatments in a 12 week period (Foa, Liebowitz, Kozak, Davies, Campeas, Franklin, Huppert, Kjernisted, Rowan, Schmidt, Simpson & Tu, 2005). The measures used in this study were based on OCD indicators of severity rather than anxiety measures. Both the combined group and exposure alone group had significantly lower scores than the clomipramine group from beginning of treatment to week 4. Between that time period, the trend in the reported scores appeared to be linear in nature for the treatment groups. From week 4 to the end of treatment (week 12), the scores remained more or less the same for all groups, with the combined group slightly outperforming the exposure group.

Bellino, Zizza, Rinaldi and Bogetto (2006) combined two treatments for major depression, fluoxamine and interpersonal therapy (for depression), and compared it to fluoxamine treatment alone in a 24 week study. Anxiety levels were assessed at three points during treatment, pre-treatment, at week 12 and at the end of treatment (week 24). During all the assessment points, the reported anxiety scores decreased linearly for both treatment groups. Specifically, anxiety levels for the pharmacotherapy group were lower at mid-point and at the end of treatment, however not significantly so.

In summary, in terms of whether a combination treatment is more effective than a purely psychological or pharmacological treatment, the results echo Stravynski's conclusions: neither is superior to the other. As for the process of anxiety reduction, it appears to follows a linear pattern, no matter the approach. Also, some studies showed that towards the end of treatment, anxiety scores level off and do not reduce anymore. These conclusions are limited because of the

scarcity of process studies and the lack of detail when they do report the process; most studies only measured anxiety at three assessments during the whole treatment.

Psychological treatments

As demonstrated, there are not many combination treatment studies for anxiety disorders that follow the process of anxiety reduction. Consequently, I turn to studies on purely psychological treatments for SP to determine if there is any evidence on the said process.

Firstly, based on Stravynski's (2007) exhaustive review on outcome studies, when CR and exposure are compared he concludes: "Clinically and practically, exposure, cognitive restructuring, and their combination as CBT [cognitive behaviour therapy] produced equivalent effects." (2007, Chapter 10, pp. 299).

Therefore, even when exposure is compared to a combination of exposure and cognitive restructuring, it is no more effective. Since CBT has elements of exposure, as opposed to just a pure exposure treatment, it would be expected to reduce anxiety to a greater degree. However, it is no more effective than the pure exposure treatment. Even when compared to non-specific psychotherapies, such as applied relaxation (techniques of muscle relaxation) and task concentration (concentration exercises), cognitive restructuring produces similar improvements (Bögels, Sijbers, & Voncken, 2006). This begs the question of the usefulness of cognitive restructuring in reducing anxiety for social phobics.

As for the structural approach of social skills training, Stravynski's review found: [...] this strategy to be as effective as exposure and cognitive restructuring in reducing anxiety and avoidance [...]. (2007, Chapter 10, pp. 304). Both SST and CBT do not seem to add any useful component to reducing social anxiety. As such, exposure can be regarded as a consistently effective treatment for reducing anxiety post-treatment.

A less common method to treating SP is the interpersonal approach to therapy. Although there are few studies that have investigated the interpersonal approach as a treatment for social phobia, the studies that have used it as an experimental group show that it is superior to a waiting list and equivalent to a combination of SST and interpersonal approach to therapy or other non-specific psychotherapies (Stravynski, Arbel, Bounader, Lachance, Borgeat, Lamontagne, Sidoun & Todorov, 2000; Stravynski et al., 2006).

Although improvement in social functioning is the main goal of this treatment, the aspect of anxiety experienced by the participants is indirectly addressed as part of the treatment process. This can be seen in the reduction of avoidance behaviours and subjective distress. However, about 20-25% of participants in that study abandoned therapy because of the difficulty of managing anxiety during role-rehearsals and homework assignments practiced in real-life situations (Stravynski et al., 2000).

From these studies, it is evident that anxiety reduction is an important part of therapeutic change. Although outcome studies on anxiety reduction are extensively documented, little is known on the actual process of anxiety reduction and which psychological treatment is most effective at lessening anxiety during treatment.

For that purpose, I first turn to Stravynski, Grey and Elie (1987) who conducted an 8 week process study of the treatment of SP. In that study, each participant had a particular behavioural task to perform that promoted social participation (i.e.: introducing oneself, asking a question). This study showed that a relationship exists between anxiety and social functioning as measured in between sessions. As social functioning improved, social anxiety lessened. The anxiety reduction process followed a linear trend, meaning a steady decrease of anxiety was noted. However, towards week 3, the decline in anxiety levels slowed down and stabilized, from a linear to a quadratic trend. As with combinations studies, this investigation of a psychological

treatment found similar trends of a linear pattern at the beginning of treatment and a stabilizing effect towards the end. Would the same pattern be found if these psychological and pharmacological treatments are compared and combined?

In another study (Scholing & Emmelkamp, 1993), social avoidance was measured four times during the treatment process for three experimental groups: exposure, CBT and a combination of both. The process of anxiety reduction for all the treatment groups followed a steady linear decrease but at the end of treatment it appears that the scores levelled off.

A more recent study compared two psychotherapies and assessed anxiety levels three times during treatment. For both treatments conditions, the decreasing anxiety scores followed a distinctly linear trend (Cottraux, Note, Albuisson, Yao, Note, Mollard, Bonasse, Jalenques, Guérin & Coudert, 2000).

As in the combined treatment literature, there is a definite shortage of research for the process of anxiety reduction of purely psychological approaches. Aside from these studies, little is known about the actual therapeutic process of anxiety reduction with various psychological SP treatments. For that reason, I shall widen the search to other anxiety disorders in an attempt to gain more information on the anxiety reduction process.

A study investigating the efficacy of CR for treating OCD versus exposure monitored anxiety levels during 16 weeks (Cottraux, Note, Yoa & Lafont, Mollard, Bouvard, Sauteraud, Bourgeois & Dartigues, 2001). From the beginning of treatment to week 4, anxiety scores decrease linearly for both groups. However, from week 4 to 16 (end of treatment), anxiety actually increased for both groups. Again, this increase in anxiety counters the expected effect of the treatment and invites further studying of this occurrence. Neither treatment was found to be more effective at reducing avoidance behaviours and subjective distress at a statistically significant level.

An earlier study conducted a similar investigation of OCD with the same treatments and number of sessions (van Oppen, de Haan, van Balkom, Spinhoven, Hoogduin & van Dyck, 1995). Again, the difference in anxiety scores between the two treatments was not significant; however the diminishing scores followed a significant linear trend.

In the treatment of panic disorder and agoraphobia, Bouchard, Gauthier, Laberge, French, Pelletier and Godbout (1996) examined the effectiveness of exposure and CR in a 15 session treatment. They measured the anxiety levels of participants at the beginning of treatment, at the 5^{th} and 10^{th} session, and at the end of treatment. No significant differences were found between the two treatments, although the exposure group had consistently lower anxiety scores than the CR group. Overall, there was a significant reduction of anxiety levels over time, regardless of the treatment used; anxiety levels diminished at a steady linear rate

An additional study investigated the process of anxiety reduction but for post traumatic stress disorder (Marks, Lovell, Noshirvani, Livanou & Thrasher, 1998). The researchers compared CR, a relaxation technique and CBT over a 10 week treatment. Anxiety was measured at the beginning of treatment, at week 6 and at the end of treatment. The pattern of anxiety reduction appeared to follow a linear trend. All the treatments groups had significantly lower anxiety scores compared to the relaxation group. However, there was no significant difference between the CR and CBT group.

From these studies, it can be deduced that the anxiety reduction process, no matter the psychological treatment used, follows a straightforward linear trend with some indication of scores increasing or remaining the same towards the end of treatment. Also, from the process studies examined, neither treatment is manifestly superior to any other, as Stravynski's review of outcome studies concludes.

Exposure alone reduces anxiety quite successfully yet does not address the improvement of social functioning. As shown, cognitive restructuring and SST do not add any useful element to anxiety reduction compared to exposure. The fact that these treatments produce similar outcomes points to a similar therapeutic process. In addition, in terms of improvement in social functioning, SST combined with the interpersonal approach is not superior to interpersonal approach alone. Again, SST is not shown to be any better treatment for that aspect.

Pharmacological treatments

A third approach in treating SP that could provide information on the anxiety reduction process is medication. In this section, the main medications used to treat social phobia will be discussed and compared for their effectiveness.

An overview of the outcome studies using medication was done by Stravynski (2007). He summarized that "...overall the various classes of medication appear to results in similar outcomes, with phenelzine showing a slight advantage over moclobemide [...]." (Chapter 10, pp. 305-306.). Hence, there does not seem to be a medication that is markedly superior, except that certain classes of medication have less adverse effects and are therefore preferred practically.

Of more interest is the actual the process of reducing anxiety with medication. The existing literature for the pharmacological treatment of SP is much richer in process studies. In one study, moclobemide took effect at week 8 of a 12 week treatment. Overall, the pattern of anxiety reduction was linear. However, towards the last sessions (week 8 to 12), the scores remained stable or increased slightly (Noyes, Moroz, Davidson, Liebowitz, Davidson & Siegel, 1997). In another study, the trend of anxiety reduction was similar. Participants in the moclobemide group reported statistically significant improvements as of week 4 (Stein, Cameron, Amrein & Montgomery, 2002).

Studies using SSRIs as treatment for social phobia report the same process of treatment. With fluoxamine, psychosocial impairment, as measured by anxiety questionnaires, diminished linearly until week 8, afterwards the scores stabilized. Participants in fluoxamine reported lower anxiety throughout the whole treatment period but the difference between the placebo group was significant from week 5 until week 10 (Asakura, Tajima & Koyama, 2007).

In a similar study, participants taking fluoxamine reported overall a greater reduction in anxiety and social phobic levels than the placebo group. For both treatment groups, the anxiety

reduction process was linear until week 4 in a 12 week treatment. From that point in time until the end of treatment, the reduction in anxiety scores became more stable. The difference in scores between the medicated and placebo group became significant as of week 8. However, at week 1, scores increased for the fluoxamine group before reducing steadily until the end of treatment (Stein, Fyer, Davidson, Pollack & Wiita, 1999).

Another study of the same duration demonstrated a comparable pattern, where participants in the fluoxamine group reported an increase in anxiety scores between the beginning of treatment and week 2. From that point on, anxiety levels reduced linearly. The superior therapeutic gains of the medicated group versus the placebo group were statistically significant as of week 6 until the end of treatment (week 12) (van Vliet, de Boer & Westenberg, 1994).

The same type of medication was also used for another study, this time the fluoxamine group reported lower anxiety levels throughout the whole treatment process, yet towards the end of the sessions (between week 10 and 12), the scores did not decrease as steadily. On the whole, the medicated group reported lower scores than the placebo but the difference became significant from week 4 to 12 (Davidson, Yaryuar-Tobias, DuPont, Stallings, Barbato, van der Hoop & Li, 2004b). Another study reported that participants in the fluoxamine group displayed decreasing anxiety scores during the complete 12 week treatment. The differences of the anxiety levels between the medicated and placebo group were statistically significant only at weeks 4, 8, 10 and at the end of treatment (Westerberg, Stein, Yang, Li & Barbato, 2004).

In another study, participants in both a paroxetine and a placebo treatment group reported a linear reduction in anxiety levels. At mid-point, week 6, the scores for both groups levelled off and remained at similar levels until the last week of treatment (week 12). Participant taking 20 milligrams of paroxetine a day reported significantly lower avoidance and distress scores than participants in the placebo group from week 8 to 12. Those taking 40 and 60 milligrams of

paroxetine a day reported significantly lower scores than the placebo group at the end of treatment (Liebowitz, Stein, Tancer, Carpenter, Oakes & Pitts, 2002).

For another study comparing paroxetine and placebo, a linear reduction of anxiety was evident during all the 12 weeks of treatment. Participants in the paroxetine group displayed significantly lower anxiety scores at week 6 until the end of treatment (Lepola, Bergtholdt, Lambert, Davy & Ruggiero, 2004).

The use of sertraline for the treatment of social phobia, compared to placebo, showed that it was inferior to placebo in the first three weeks of a 20 week treatment but afterwards it became significantly superior. The pattern of anxiety reduction was linear throughout the treatment process but towards the end of the sessions (between week 16 and 20), the scores for both groups remained the same and ceased decreasing at a steady rate (van Amerigen, Lane, Walker, Bowen, Chokka, Goldner, Johnston, Lavallé, Nandy, Pecknold, Hadrava & Swinson, 2001). Another study showed that participants in a 12 week study taking either sertraline or placebo reported a steady decrease in anxiety levels during the whole treatment process. The superiority of sertraline over placebo was significant from week 6 until the end of treatment (Liebowitz, DeMartinis, Weihs, Londborg, Smith, Chung, Fayyad & Clary, 2003).

With venlafaxine (a SNRI), the therapeutic process followed a linear trend during the first half of the treatment (until week 6). Afterwards, anxiety scores did not decrease as progressively but remained at similar levels until the end of treatment (week 12). Participants in the medicated group showed significantly lower anxiety scores from week 4 to the end of treatment (Rickels, Mangano & Khan, 2004). Once again for another study, the same pattern of anxiety reduction was observed. Also, the superior efficacy of velafaxine over placebo became significant at mid-treatment (week 6 of 12) (Liebowitz, Mangano, Bradwejn & Asnis, 2005).

As for the other classes of medications, the comparisons between placebo and medication follow a somewhat different treatment process. In the use of gabapentin and placebo, during a 14 week treatment process, the anxiety reduction pattern is not as consistent with a linear trend. The reduction is more gradual and at the last sessions (between week 10 and 14), the levels increase slightly (Pande, Davidson, Jefferson, Janney, Katzelnick, Weisler, Greist, & Sutherland, 1999). For participants taking pregabalin, anxiety levels reduced at a linear pace during the first 4 weeks. After that, they remained more or less the same (Pande, Feltner, Jefferson, Davidson, Pollack & Stein, 2004).

When comparing different types of medication, the treatment process remains essentially linear. One study compared moclobemide and phenelzine and found both drugs decreased anxiety linearly for the whole 16 week treatment. Both drugs produce equivalent scores but participants taking phenelzine did however report more side effects than those taking moclobemide (Versiani, Nardi, Mudim, Alves, Liebowitz & Amrein, 1992).

When comparing moclobemide and citalopram, anxiety scores decreased linearly until week 4 of an 8 week study, afterwards the scored remained at similar levels for both groups. For the citalopram group, there was a minor increase in the scores at week 6 before decreasing slightly. No statistically significant differences were found in this study between the two medications (Atmaca, Kuloglo, Tezcan & Unal, 2002).

In another study comparing clonazepram combined with paroxetine and paroxetine combined with placebo, it was found that all the treatment groups reported a continuous reduction in anxiety until week 6 of a 20 week study. From that point, the scores plateaued and remained at the same levels. The differences between the scores of the treatment groups were not significant (Seedat, & Stein, 2004).

In summary, whether comparing medication and placebo or two classes of drugs, the anxiety reduction process is comparable. During the first half of the treatment process, the reduction of anxiety follows a linear pattern, in some cases there is an increase in anxiety before the reduction takes place. Towards mid-treatment or the late sessions, the anxiety levels stabilize and do not fall as much. This steadying of anxiety levels, also found in the combination and psychological studies, invites further exploration to determine if it is a regular occurring pattern. When comparing medication and placebo, the drug treatment appears to show its effects towards the middle of the treatment. At best, medication reduces anxiety levels at a fairly quick rate but does not improve social functioning.

Current Study

As outlined in the literature review, there is a significant amount of evidence on the outcome of anxiety levels for SP treatment studies but very little on the process that leads to it. Furthermore, the current class of medication used to treat SP has not been compared or combined to a psychological approach. To address such a disparity, the present study aims to ascertain if a combination of a SSRI and an interpersonal approach to therapy is more effective at reducing anxiety during a 12 week treatment than interpersonal therapy alone.

Because of its multi-pronged advantage (improved social functioning and anxiety management), it is expected that a combination treatment would produce lower anxiety levels than a single approach treatment by simultaneously reducing anxiety via medication and psychotherapy. As for the *process* of anxiety reduction, based on previous process studies (be it combination, psychological or pharmacological studies), they showed that no matter the treatment used, reductions in anxiety followed linear patterns and towards the end of treatment a

steadying of anxiety levels was noticeable (Clark et al., 2003; Stravynski et al., 1987; van Amerigen et al., 2001) . Moreover some studies, again using different types of treatment, have actually reported increases in anxiety during treatment (Otto et al., 2000; Cottraux et al., 2001; Pande et al. 1999). However, with the interpersonal approach, the process of anxiety reduction would follow a slightly different pattern based in its theoretical framework. In Stravynski's book (2007), he explains that the interpersonal approach attempts to replace the self-protective patterns with new strategies, promoting participation in social encounters. This entails facing challenging situations during therapy that could at first increase anxiety before any improvements surface.

With those considerations in mind, the following hypotheses are formulated for this study:

Outcome Hypothesis:

(1) The combined treatment condition, paroxetine and the interpersonal approach to therapy, will report significantly lower anxiety levels than the interpersonal approach alone at the end of treatment.

Process Hypotheses:

(2) The participants in the interpersonal condition will report increases of anxiety at the beginning of treatment.

(3) Both experimental conditions will report linear reductions in anxiety between the beginning and end of treatment.

(4) The anxiety levels for both experimental conditions will stabilize towards the end of treatment.

Method

This study was part of a large-scale investigation by Stravynski et al. (2006).

Participants

A total of 48 social phobic participants, 30 males and 18 females, took part in the study. Participants were recruited through referrals of the L.H. Lafontaine Hospital in Montreal and advertisement on the CRFS and Social Anxiety Clinic (University of Montreal) websites. Those interested contacted the CRFS by telephone or email and underwent a twenty-minute telephone interview to ascertain that the difficulties of the potential participant are mostly of social phobic nature. It consisted of six questions (open and closed ended) about participants' current difficulties (Appendix I). Participants were asked for their contact information, whether they consumed alcohol, took medications and had previous consultations for mental health issues. They were also asked if they had any depressive complaints, what type of social difficulties they were experiencing and how frequent these difficulties occurred.

Prospective participants who seemed to be socially phobic during the telephone interview, were over the age of eighteen, were not taking any psychotropic medication and did not have any other cormobid complaints were scheduled for an in-person unstructured psychiatric evaluation (lasting 90 minutes) with one of three psychiatrists of the L.H. Lafontaine Hospital, Drs. Sidoun, Fabian and Todorov, to determine if they met the DSM-IV criteria for social phobia. This was done again by a clinical psychologist following a subsequent interview based on the ADIS-R. An inter-rater agreement regarding social phobia was established. In the case of disagreement, the participant was excluded.

After the psychiatric interviews, 59 participants were included in the study. 31 participants were assigned to the interpersonal condition and 28 participants to the combined condition. At the end of treatment, 48 participants remained, 24 in the interpersonal condition (11 males and 13 females) and 24 in the combined condition (19 males and 5 females). The mean age of the sample was 37.55 (*SD*= 10.74), with an average education level of 15.02 years (*SD*= 3.21). Most participants were single (40%) or with a partner (37.5%), with limited years of cohabitation and few had children. The majority of participants were French-speaking (96%). The average duration of social phobic problems were 23.81 years with onset in early adolescence. See table I (p. 22) for sample characteristics.

All participants reported public performance, such as making a speech, as a difficulty experienced in their daily lives. The majority of the sample (approximately 69%) also feared blushing when spoken to. In the interpersonal group, interpersonal fears (70.8%), i.e. difficulty maintaining relationships at work, with friends and family members, was a main complaint followed by fear of sweating in a social situation (54.2%). In the combined group, 41.7% of participants complained of interpersonal difficulties and 37.5% feared public sweating (see table II, p. 23)

Exclusion criteria

Potential participants under the age of eighteen were excluded from this study. Participants who were allergic to paroxetine or those who had a high risk of suicide as well as those who were pregnant or breast-feeding were excluded. Furthermore, participants who were on benzodiazepines, MAOI's, or had a history of chronic abuse of psychotropic medication were not included. Finally, participants who did not meet criteria for social phobia according to the DSM-VI (from both the psychiatrists and clinicians) and have it as the main clinical complaint were excluded. A total of 14 participants were excluded because of these various criteria.

Table I. Means (and standard deviations) of demographic and clinical characteristics of the sample.

	Interpersonal (n=24)		Combined (n=24)		Statistics t
	Mean	(s.d.)	Mean	(s.d.)	
Age (years)	37.42	(11.23)	37.67	(10.24)	-0.08 ns
Years of schooling	15.29	(2.77)	14.75	(3.64)	0.58 ns
Years of cohabitation	4.84	(8.09)	9.05	(12.06)	-1.42 ns
Numbers of children	0.67	(0.92)	0.63	(1.01)	0.15 ns
Duration of problems	22.94	(14.78)	24.67	(13.19)	-0.43 ns
Age of onset	14.48	(13.36)	13.00	(8.36)	0.51 ns

Note: ns (not significant)

Table II. Demographic and clinical characteristics of the sample.

Characteristic	Interpersonal (n=24)		Combined (n=24)		Statistics χ^2
	n	%	n	%	
Demographic:					
Sex					
Male	11	45.8%	19	79.2%	5.69*
Female	13	54.2%	5	20.8%	-
Clinical					
Phobia Features:					
Blushing	17	70.8%	16	66.7%	0.10
Shaking	5	20.8%	8	33.3%	0.95
Public performance	24	100.0%	24	100.0%	-
Dysmorphophobia	0	0.0%	2	8.3%	2.09
Social dysfunction	5	20.8%	3	12.5%	0.60
Panic	0	0.0%	4	16.7%	4.36*
Using public toilets	2	8.3%	6	25.0%	2.40
Sweating	13	54.2%	9	37.5%	1.34
Interpersonal	17	70.8%	10	41.7%	4.15*
Swallowing	6	25.0%	3	12.5%	1.23
Vomiting	0	0.0%	0	0.0%	-
Suffocating	3	12.5%	2	8.3%	0.22

* $p \leq .05$

Assessment

All participants completed the assessment battery one week before the first session (T_0), at sessions 1 (T_1), 2 (T_2), 6 (T_3), 10 (T_4), and 12 (T_5). The battery is discussed in detail in the next section.

Clinical interviews

The Anxiety Disorders Interview Schedule (ADIS-R) used by the clinical psychologists is a structured interview designed to identify anxiety disorders such as social phobia, agoraphobia, generalized anxiety disorder and post-traumatic stress disorder according to DSM-IV criteria (di Nardo, Moras, Barlow, Rapee, & Brown, 1993). It assesses fear in a variety of social situations (parties, meetings, etc.). The ADIS-R presents good inter-rater agreement of $\kappa = 0.857$ for social phobia and other anxiety disorders (Blanchard, Gerardi, Kolb, Barlow, 1986). Bouman and de Ruiter (1991) found that the ADIS-R has good concurrent validity with the Diagnostic and Statistical Manual of Mental Disorders-III--Revised (DSM-III--R) and the Symptom Check List-90. This means that the ADIS-R is able to detect disorders as efficiently as other existing instruments. The ADIS-R differentiates among various anxiety disorders, such as agoraphobia, generalized anxiety disorder, social phobia, and detects psychosis, substance abuse and major affective disorders in addition to the principal complaint.

Self-reports: Subjective anxiety

The battery consisted of two self-report questionnaires measuring anxiety:

1. The Social Avoidance and Distress scale (SAD) is a 28-item true-false inventory about avoidance and discomfort during social encounters and interpersonal relationships (see Appendix II) (Watson & Friend, 1969). The SAD consists of two subscales: (1) subjective distress, (2)

avoidance. Examples of items of the two subscales are: *I feel comfortable even in unusual social gatherings* (subjective distress) and *I often find excuses to avoid social obligations* (avoidance). The final score is a summation of the "true" responses.

SAD Reliability. The two SAD subscales have a high correlation of 0.75. The test-retest reliability is .68 and internal consistency 0.9 with a student population (Watson & Friend, 1969). Internal consistency is similarly high, 0.94, with a clinical population (Oei, Kenna & Evans, 1991).

SAD Validity. The predictive validity of the SAD had been evaluated by Watson and Friend (1969). High scores on the SAD predicted greater concern and reluctance to participate in future group discussions. Furthermore, those who scored high tended to speak less during sessions.

As for convergent validity, the SAD is correlated to the Taylor Manifest Anxiety (-0.54), the Audience Sensitivity Index (-0.76), the Jackson Personality Research Form (-0.76) and the Marlowe-Crowe Social Desirability Scale (-0.25). This suggests that the SAD corresponds strongly to other measures of similar constructs. The discriminant validity of the SAD has been studied by Oei, Kenna & Evans (1991) with phobic individuals. Social phobics scored significantly higher than simple phobics and panic disorder participants. In summary, the SAD has established psychometric features with especially strong predictive validity.

2. The Fear Questionnaire (FQ), is 20-item scale that measures three different phobias: agoraphobia, social and blood-injury (see Appendix III) (Marks & Matthews, 1979). Items 4, 5, 7, 11 and 14 measure agoraphobia, items 1, 3, 9, 12 and 15 measure blood injury and items 2, 6, 8, 10 and 13 measure social phobia on a scale of *0*, would not avoid it, to *8*, always avoid it. An example of an item for social phobia would be: *Speaking or acting to an audience.* Items 16 to 20 measure emotional distress on a scale of *0*, at all disturbing, to *8*, very severely disturbing. An

example of items in this category is: *Feeling you or your surroundings are strange or unreal.* For the purpose of this study, only questions pertaining to social phobia and emotional distress were used from the FQ. The advantage of the FQ is that it is quick to complete, easy to score and it emphasizes agoraphobic and social phobic items. The total score is derived by summing the scale number chosen of each item.

FQ Reliability. The test-retest reliability is between 0.81 and 0.96 (Marks & Matthews). The FQ has been shown to have adequate internal consistency with a correlation of 0.45 (Lee & Oei, 1994).

FQ Validity. For discriminant validity, the FQ correctly differentiates between the different phobias it measures, especially for the social phobia subscale in relation to anxiety (Cox, Swinson & Shaw, 1991; van Zuuren, 1988; Mavissakalian, 1986). Its validity has been verified among normal and clinical populations. (Osman, Barrios, Osman & Markway, 1993; Moylan & Oei, 1992). As for convergent validity, the FQ demonstrates moderate correlations with the State Anxiety Inventory (0.25), the Trait Anxiety Inventory,(0.27), the Modified Catastrophic Cognition Questionnaire (0.32) and the Anxiety Sensitivity lndex (0.44) (Lee & Oei). Furthermore, the questionnaire has been applied to various cross-cultural populations with similar results (Moylan & Oei). Overall, the FQ possesses adequate reliability and validity for use on various populations.

Treatment

After being assigned to either the interpersonal or combined group, participants met with one of three psychologists, Drs. Arbel, Roy and Amado to confirm social phobia with the ADIS-R, as well as gather information on their psychosocial functioning. A 'functional analysis' interview was conducted to determine each participant's social phobic problems as occurring in a

social setting. Commons problems identified were performance during job interviews, work-related interactions and social gatherings.Goals and targeted behaviours were set with the therapist to counter specific problems and improve participation. During that meeting (T_0), participants read and signed consent forms (see Appendix IV) agreeing to participate in the study and completed the SAD and FQ questionnaires. The meeting lasted approximately three hours.

The interpersonal approach

Participants both in the psychotherapy and combined group attended twelve weekly sessions of the interpersonal approach to therapy lasting two hours each. The sessions were conducted in groups of six participants with a senior therapist and a co-therapist. The therapists were clinical psychologists with over ten years of experience in the treatment of social phobia.

The interpersonal approach is described in Stravynski (2007, pp. 299-300). The sessions involved training to develop new non-defensive interpersonal ways of dealing with real-life social situations. The goal of developing these new ways of behaving is to enable the individual to actively participate in their various social activities. Because participants are expected to face challenging social situations both during sessions and in real-life situations, anxiety levels would possibly increase at first. After repeatedly acting out the new interpersonal ways of behaving, anxiety levels along with the defensive pattern would subside.

Although this treatment was conducted in a group, each participant had individualized treatment goals tailored to their particular circumstances. The group context of this therapy provides an adequate setting to enact target behaviours of social nature.

The sessions involved training to improve targeted individualized participatory behaviours and actions. During the sessions, participants received instructions and guidelines by the therapist to enact their chosen targeted behaviour. The therapist or another participant

modeled the particular desired behaviour or interpersonal individualized treatment target through role-rehearsal. The participant then rehearsed his targeted behaviour with the therapist or another participant. At the end of the enactment, feedback was given on their role-rehearsal in the form of suggestions from the therapist and the other participants of the group on how to improve the enactment. At the end of each session, homework was given to each participant to practice the target behaviour in real-life situations. Furthermore, they were asked to monitor the frequency of each target's performance and note their level of anxiety experienced during its enactment. The homework was reviewed at the beginning of the next session. Each participant received 20 minutes of therapeutic attention every session to model and rehearse their target behaviours and observed or participated indirectly during other participants` modeling and rehearsals.

The following is an example of a session of the interpersonal approach to therapy dealing with a difficulty speaking during a work related meeting. The targeted behaviour would be to express an opinion. The therapist would ask all the participants to re-enact such a situation within the session. Afterwards, the therapist would suggest and model techniques to help the specific participant to take part actively in meetings. The participant would put the trained behaviour in practice between sessions and as part of their homework; they would apply these techniques during actual meetings and note their feelings of anxiety and impressions in a journal. In the next session, they would review their homework notes with the therapist and discuss their progress.

Combined group

In addition to the interpersonal approach treatment, participants in the combined group were prescribed paroxetine (an SSRI). This aspect of treatment was administered by one of two psychiatrists, Drs. Sidoun and Todorov from the L.H. Lafontaine Hospital. A table outlining the protocol for administering paroxetine was used for this study (see Appendix V). The participants

who received the combined therapy started with a 10 or 20 m.g./day of paroxetine, with a treating physician following the protocol table. The maximum dose was 50 m.g./day. If a participant experienced an adverse reaction, a 10 m.g./day reduction was applied. Those that required more than one dose readjustment were excluded from the study. The participants met with one of the two psychiatrists five times during the twelve week sessions to receive a paroxetine prescription and adjust the dosage. The pharmacotherapy supervisions lasted approximately twenty minutes. Weekly individual supervision and clinical team meetings were held to ensure the treatment protocol was being administered appropriately and to address any issues or problems.

Dosage

The dosages prescribed to each participant in the combined group during the five supervision sessions were noted and analyzed. The descriptive statistics of the dosage levels of the participants of the combined group can be seen in table III (p.30). At session 1, the mean dosage was 12.50 (*SD*= 4.4). For session 2, 3, 4 and 5, the mean dosages (with standard deviations in parentheses) were 22.29 (*SD*= 7.2), 27.50 (*SD*= 12.6), 28.33 (*SD*= 13.1) and 10.83 (*SD*= 6.5) respectively. The highest mean dosage level was during the fourth supervision (see figure 1, p. 31). Thus, the dosage protocol was closely followed, as displayed by the data.

Table III. Paroxetine dosage[a] in the combined condition.

Time	Mean	(s.d.)	Median	Mode	Minimum	Maximum	Variance	Range
Session 1	12.50	(4.4)	10.0	10.0	10.0	20.0	19.57	10.0
Session 2	22.29	(7.2)	20.0	20.0	5.0	40.0	52.13	35.0
Session 3	27.50	(12.6)	25.0	20.0	5.0	50.0	158.70	45.0
Session 4	28.33	(13.1)	30.0	30.0	5.0	50.0	173.19	45.0
Session 5	10.83	(6.5)	7.5	10.0	5.0	30.0	42.75	25.0

[a] Note: in mg.

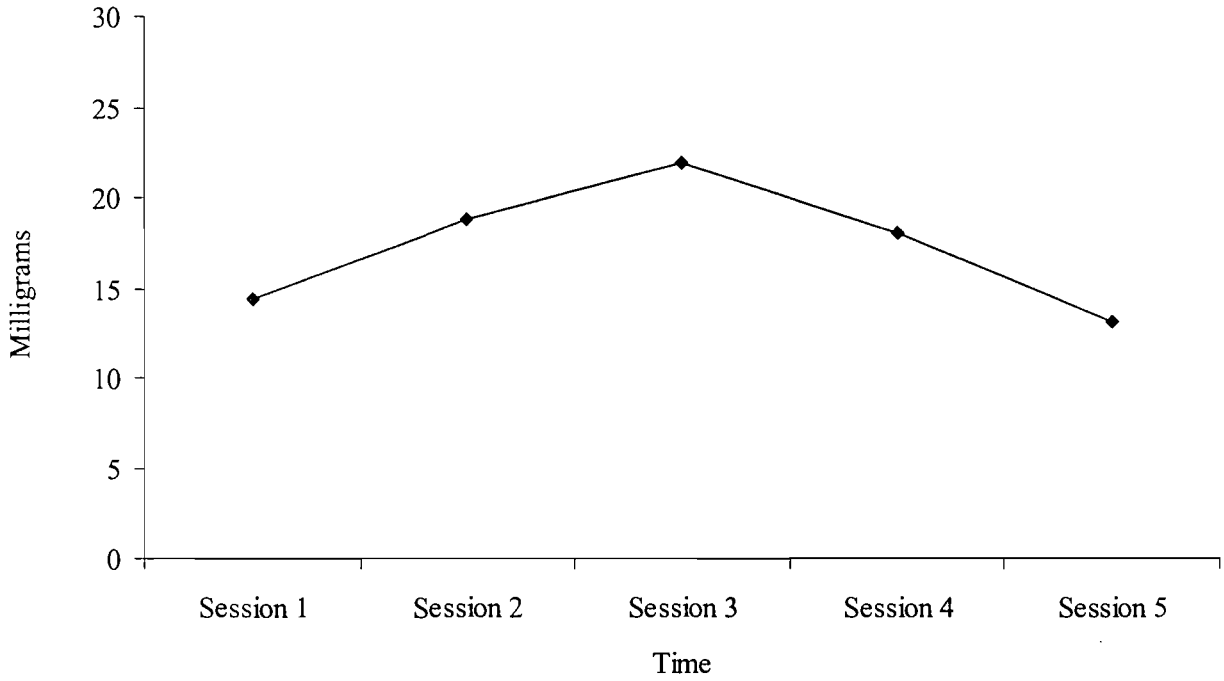


Figure 1. Mean dosage of patients in the combined group across time.

Results

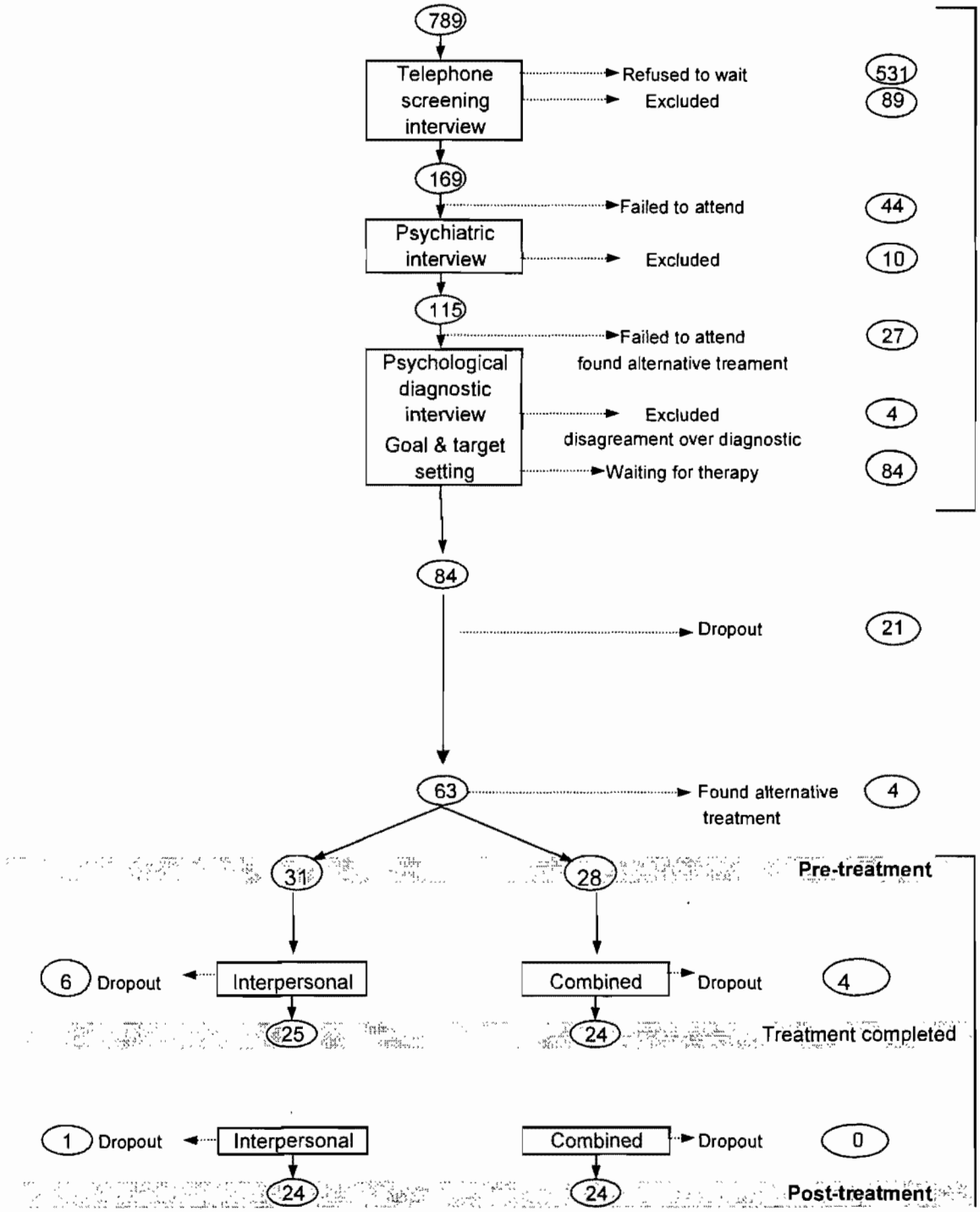
Participation rates

789 individuals seeking treatment for social phobia contacted the CRFS and underwent a screening telephone interview. Of that number, 89 were not eligible (11.3%) following the telephone interview, 531 declined to participate because of waiting list delays (67.3%), and 169 were eligible and accepted to be evaluated (21.4%). Those scheduled for a psychiatric evaluation, 44 did not present themselves (26%), even after several re-schedulings, and 10 were excluded because they met exclusion criteria, e.g. such as depression and/or self-medication with alcohol or other substances.

115 individuals were asked to come in for the pre-treatment appointments. 27 participants did not attend the appointment and 4 individuals were excluded over disagreement regarding the diagnosis between the clinicians and psychiatrists. Thus, 84 participants were on a waiting list for the treatment to begin. 21 dropped out during the waiting period. Of 63 individuals who were contacted to begin treatment, 4 declined because they had found alternative treatment.

In total, 59 individuals began treatment; 30 were randomly assigned to the interpersonal condition and 29 to the combined condition. During treatment, 6 participants from the interpersonal condition dropped out and 4 participants from the combined condition dropped out. At post-treatment, 1 participant from the interpersonal condition dropped out. (see Figure 2, p. 33, for participant flowchart).

Figure 2. Flowchart of the study



Descriptive statistics

The mean scores and standard deviations for each treatment group on every self-report questionnaire and its subscales were derived for each measure in time: beginning of treatment (T_0), session 1 (T_1), 2 (T_2), 6 (T_3), 10 (T_4) and 12 (T_5). These descriptive statistics are presented in tables IV-VI (p. 35) for the SAD Total scores and its subscales, and in tables VII-IX (p. 36) for the FQ Composite scores (the combined subscales scores) and its subscales.

F correction

Before proceeding to testing the hypotheses, certain assumptions needed to be tested to ensure homogeneity of the data. To ascertain that the effects of the two experimental conditions were consistent, Mauchly's Test of Sphericity was conducted. This test determines whether the assumption of sphericity was violated and hence the F statistic of each effect needs to be corrected.

As the SAD Total score, χ^2 (14, N= 48) = 29.48, $p \leq .01$, and the Avoidance subscale, χ^2 (14, N= 48) = 43.23, $p \leq .001$, produced chi-squares with an associated alpha level of 0.5 or less, the assumption of sphericity was violated. The Huynh-Feldt epsilon value was used to adjust the degrees of freedom and the corrected F values were used. For the SAD Distress subscale, the FQ Composite score and its subscales, the assumption of sphericity was not violated, therefore no correction was required.

Table IV. Means (and standard deviations) of the SAD Total.

Time	Interpersonal		Combined	
	Mean	(s.d.)	Mean	(s.d.)
Before treatment	20.6	(4.8)	22.8	(5.6)
Session 1	15.2	(11.5)	25.3	(3.5)
Session 2	13.1	(7.8)	17.0	(4.9)
Session 6	10.7	(6.2)	11.3	(4.5)
Session 10	10.1	(7.2)	10.5	(7.5)
Session 12	9.2	(7.1)	7.7	(6.9)

Table V. Means (and standard deviations) of the SAD Avoidance subscale.

Time	Interpersonal		Combined	
	Mean	(s.d.)	Mean	(s.d.)
Before treatment	8.5	(3.4)	10.4	(2.9)
Session 1	5.0	(4.6)	9.8	(2.8)
Session 2	5.8	(3.4)	7.5	(2.2)
Session 6	6.3	(3.9)	6.5	(2.7)
Session 10	3.1	(2.8)	4.8	(3.6)
Session 12	2.8	(2.2)	3.2	(2.7)

Table VI. Means (and standard deviations) of the SAD Distress subscale.

Time	Interpersonal		Combined	
	Mean	(s.d.)	Mean	(s.d.)
Before treatment	12.2	(2.4)	12.4	(3.0)
Session 1	7.5	(5.6)	12.3	(2.8)
Session 2	7.8	(5.0)	10.1	(3.0)
Session 6	5.1	(2.9)	5.4	(2.3)
Session 10	7.6	(5.4)	6.2	(4.6)
Session 12	7.0	(5.8)	5.0	(4.9)

Table VII. Means (and standard deviations) of the FQ Composite.

Time	Interpersonal		Combined	
	Mean	(s.d.)	Mean	(s.d.)
Before treatment	46.3	(9.7)	43.1	(12.7)
Session 1	42.3	(10.8)	36.8	(13.1)
Session 2	39.8	(10.6)	35.2	(14.0)
Session 6	35.5	(12.0)	27.8	(14.3)
Session 10	32.3	(8.9)	22.4	(12.2)
Session 12	32.3	(8.9)	22.4	(12.2)

Table VIII. Means (and standard deviations) of the FQ Social Phobia subscale.

Time	Interpersonal		Combined	
	Mean	(s.d.)	Mean	(s.d.)
Before treatment	23.1	(7.3)	24.1	(6.7)
Session 1	20.8	(9.1)	22.0	(6.3)
Session 2	20.4	(8.0)	21.9	(7.2)
Session 6	17.7	(7.6)	16.7	(8.4)
Session 10	16.9	(6.9)	14.2	(7.3)
Session 12	16.9	(6.9)	14.2	(7.3)

Table IX. Means (and standard deviations) of the FQ Emotional Distress subscale.

Time	Interpersonal		Combined	
	Mean	(s.d.)	Mean	(s.d.)
Before treatment	22.1	(5.9)	19.4	(8.0)
Session 1	20.9	(6.4)	15.3	(8.0)
Session 2	18.4	(8.0)	13.7	(8.2)
Session 6	17.5	(8.6)	11.6	(7.9)
Session 10	15.0	(6.0)	8.8	(7.5)
Session 12	15.0	(6.0)	8.8	(7.5)

Test of Equality of Variance-Covariance

A second test of normality of the data was Box's Test of Equality of Covariance. This test is used to determine whether the variance of the SAD and FQ scores were equal between the interpersonal and combined conditions.

The SAD Total scores and the Avoidance subscale yielded statistically significant values, F (21, 7782.65) = 3.58 and F (21, 7782.65) = 2.45, $p \leq .001$. The Distress subscale also displayed significant F (21, 7782.65) = 3.12, $p \leq .001$. This means that the observed variance-covariance of the SAD questionnaire and its subscales are not equal between the conditions. However, since the sample sizes of the two conditions are equal, the effect of violating this assumption was minimal. As for the FQ Composite score and its subscales, the assumption of normality was not violated.

Inferential statistics

To test the hypotheses of whether the combined group is a more effective treatment in reducing anxiety, repeated measures analysis of variance (ANOVA) was conducted (see table X, p. 38). The design was a 2X6 with six points of time, T_0 to T_5, and two levels of treatment, interpersonal and combined conditions.

Change in anxiety across time and treatment group. Significant improvements in time for participants in both experimental conditions were found for the SAD Total score, F (4.37, 201.00) = 7.06, $p \leq .001$, the SAD Avoidance subscale, F (4.02, 185.12) = 5.02, $p \leq .001$, the SAD Distress subscale, F (5, 230) = 7.44, $p \leq .001$, the FQ Composite score, F (5, 160) = 2.34, $p \leq .05$., and the FQ Social Phobia subscale, F (5, 170) = 2.34, $p \leq .05$.

For the SAD Total scale, participants in the interpersonal condition displayed significantly lower scores than participants in the combined group from the beginning of treatment until session 10. This result is contrary to the second hypothesis, where the interpersonal condition was

Table X. Change in anxiety and distress across time and treatment group.

	Statistics F		
	Group	Time	G X T
SAD: Total	3.72	51.44***	7.06***
SAD: Avoidance	8.00**	40.00***	5.02***
SAD: Distress	0.68	33.05***	7.44***
FQ: Composite	0.05	29.63***	2.34*
FQ: Social Phobia	0.50	29.63***	2.34*
FQ: Emotional Distress	6.54*	16.60***	0.62

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

expected to report an increase in anxiety at the beginning of the sessions. However, in concordance with the first hypothesis, participants in the combined group reported lower scores by session 12.

Participants in the interpersonal condition had significantly lower SAD Avoidance scores at the beginning of treatment and at sessions 1, 2, 10 and 12. At session 6, participants in both experimental conditions reported equivalent scores. These results did not support the proposed hypothesis of the combined treatment being more effective and reducing avoidance behaviours and distress at end of treatment. Moreover, no increases in anxiety scores were detected at the beginning of the sessions for the interpersonal condition, as expected by the second hypothesis.

For the SAD Distress subscale, participants in the interpersonal condition had significantly lower scores at the beginning of treatment and at sessions 1 and 2. Once again, the second hypothesis is not supported with these results. At session 6, participants in both experimental conditions reported equivalent scores. At sessions 10 and 12, participants in the combined group yielded significantly lower scores than the interpersonal condition. These results support the first hypothesis.

As for the FQ Composite, participants in the combined group reported lower scores than participants in the interpersonal condition from the beginning of treatment until the end. These results partly support the hypothesis, it was expected that the combined treatment would be superior after a certain time delay. However, in this measure it is clearly the combined group that is reporting lower anxiety scores all throughout treatment. For the Social Phobia mean scores, from the beginning of treatment to session 6, the participants in the interpersonal condition reported lower scores. This result does not support the second hypothesis. However, as expected, from session 6 until the end of treatment, the combined group reported lower scores.

It seems that the interpersonal condition has greater success at reducing anxiety, both as avoidance behaviours and subjective distress, at the beginning of treatment. Nonetheless, this effect becomes attenuated toward the middle of the treatment process when the combined group displays equivalent rates of improvement. At the end of the treatment, the combined group is more successful at further reducing avoidance behaviours and distress of the sample than the interpersonal condition.

Contrary to expectations, there were no significant improvements in time for participants in either treatment group on the FQ Emotional Distress subscale.

Improvement in Time. Significant improvements in time, from beginning of treatment to end of treatment, were evident for all measures and their subscales at a p value of $\leq .001$. As expected, participants reported significant reduction of FQ and SAD scores throughout the treatment sessions. Thus, the experience of anxiety, both as subjective distress and as the tendency to avoid social situations, became significantly lower from beginning to end of treatment.

Treatments. Significant differences between the interpersonal and combined condition were found in the reported scores of the SAD Avoidance subscale, $F(1, 46) = 8.00, p \leq .01$, and the FQ Emotional Distress subscale, $F(1, 32) = 6.54, p \leq .05$. Contrary to the first hypothesis, participants in the interpersonal condition had significantly lower scores on the SAD Avoidance than the combined group *throughout* the treatment, let alone at post-treatment.

As for the FQ Emotional Distress measure, the first hypothesis was confirmed. Participants in the combined group reported significantly lower scores on the FQ Emotional Distress subscale than the interpersonal condition, again throughout treatment as well at the end of the session. The combined treatment was thus more successful at reducing emotional distress than the interpersonal condition. However, the process of reducing anxiety of the two treatments

did not follow the proposed hypothesis; the combined group was actually superior from the beginning of the treatment until the end. The insignificant F results for the SAD total score, SAD Distress subscale and the FQ Composite score and Social Phobia subscale mean that the anxiety reduction process was the same between the interpersonal and combined condition for these measures. These results did not support the hypothesis.

Subsequent analyses

Effect size measure

Some of the results of the previous analyses were ambiguous, especially between the two experimental conditions, and thus warrant further investigation. Because the significant differences in anxiety levels between the two experimental conditions were quite small and negligible, calculating the effect size will determine if these differences were large enough to be able to use as support for the hypotheses. To identify to size of these observed effects, the partial eta squared ratio, η_p^2, was used. The partial eta squared value discloses the proportion of variance in the self-report scores. According to Cohen (1988), a large effect is 0.14 or above, a medium effect is between 0.4 and 0.14 and a small effect is less than 0.01. If the proportion of variance is large enough between the scores, then it further supports the significance of the findings. If the proportion of variance is found to be small, the differences between the scores, although significant, would be too small to support the hypothesis.

Change in anxiety across time and treatment group. The mean difference between the two experimental conditions on part of the SAD measures and the FQ Composite and Social Phobia scores was found to be statistically significant throughout the sessions. To find out the size of these differences, η_p^2 was calculated. For the SAD total scores, the effect size was $\eta_p^2=$

0.13. This means that the size of the difference on the SAD total scores between the experimental conditions is moderate. The subscale of Avoidance and Distress on the SAD also had a medium effect sizes for interaction, $\eta_p^2 = 0.10$ and $\eta_p^2 = 0.14$ respectively. For the FQ Composite and Social Phobia scores, the effect size were $\eta_p^2 = 0.74$ and $\eta_p^2 = 0.06$. Overall, the size of the difference on the anxiety measures between the two experimental conditions over the therapy sessions is modest, except for the FQ Composite which had a large effect. Although it is not as large as expected, the difference in effect size between the two treatments is enough to support the proposed hypotheses.

Improvement in Time. In line with the hypothesis, all the measures of anxiety were significantly reduced from beginning to the end of treatment. The effect sizes for these significant findings were as follows: $\eta_p^2 = 0.53$ for the SAD total scores, $\eta_p^2 = 0.47$ for the Avoidance subscale, $\eta^2 = 0.42$ for the Distress subscale, $\eta_p^2 = 0.50$ for the FQ Composite score, $\eta_p^2 = 1.00$ for the Social Phobia and $\eta_p^2 = 0.61$ for the Emotional Distress subscale. The large effect sizes for the factor of time add support to the confirmed hypothesis of substantial reduction in anxiety levels throughout the treatment process.

Treatment Conditions. A significant difference was found between the interpersonal and the combined conditions on the SAD Avoidance and FQ Emotional Distress scores only. The Avoidance subscale had a medium effect size, $\eta_p^2 = 0.15$ as well as the FQ Emotional Distress subscale, $\eta_p^2 = 0.17$. These effects sizes, although not as large as the previous ones, are moderate nonetheless and confirm the magnitude of the significant findings.

Pairwise comparisons

Repeated measures analysis showed that there was significant improvement in time on the measures of all the self-report questionnaires. However, a more refined analysis may detect at *which point in time* during t he treatment (T_0 to T_5) the differences became significant. Therefore, post-hoc pairwise comparisons (Bonferroni) were conducted for each questionnaire and subscale (see Appendix VI for values).

SAD. For the SAD total scores, significant reductions in the reported scores were most apparent between the first half of the treatment sessions and the rest of the sessions. No significant reductions were noted between session 6 and the last half of the sessions. Similar results were also found with the SAD Distress scores, except that no significant reductions in the mean scores were found between sessions 1 and 2. However, with the SAD Avoidance scores, significant reductions were found between sessions but not between sessions 1 and 2, and 1 and 6 and between sessions 10 and 12.

FQ. Similarly for the FQ Composite scores and its subscales, significant reductions in the mean scores were detected between the early sessions and later sessions. The FQ Composite mean scores were significantly different between the beginning of treatment and sessions 2, 6, 10 and 12. Significant reductions in mean scores were also evident between session 1 and 6, 10 and 12. The mean scores for session 2 were significantly different from sessions 6, 10 and 12. Similar results were also obtained for the FQ Social Phobia and Emotional Distress subscales.

These results indicate that the biggest therapeutic changes (diminishing anxiety scores) were between the early sessions and the late sessions. During mid-treatment (sessions 2 and 6) there is not much significant change in the reported scores, therefore the process of anxiety reduction is quite gradual during that stage. At first, anxiety scores are quite high and as the sessions continue, there is a slight reduction of anxiety. By the end of treatment, the scores are

quite low when compared to the early stages of the treatment, which explain the significant findings.

Trend analysis

The previous analyses demonstrated that there were significant lessening of anxiety over time on all the measures and significant and considerable interaction effects on certain measures. To detect the pattern of these effects and whether they correspond to the hypothesis, trend analyses were performed for each significant finding.

Linear trends. A linear trend is a pattern of the data that is consistently decreasing or increasing. Significant linear patterns were detected for improvements in time for all the measures of anxiety. In concordance with the hypothesis, all anxiety measures diminished in a linear fashion as the sessions progressed. For the interaction effect, significant linear trends were detected for the SAD total score and its subscales and the FQ Composite and the FQ Social Phobia subscale. Hence, on these measures, both conditions reported diminishing scores during the treatment sessions (see tables XVII-XIX in Appendix VII). To better illustrate a basic linear trend, a sample graph is displayed in Appendix VIII.

Quadratic trends. A quadratic trend is a pattern of data that remains at constant levels (see Appendix VII for a sample quadratic trend graph). Significant quadratic trends for improvements in time were found for the SAD total scores, $F\,(1, 46) = 4.98, p \leq .05$, and for the Distress subscale only, $F\,(1, 46) = 17.17, p \leq .001$. Significant quadratic trends for the interaction effect were found for the SAD Distress subscale only, $F\,(1, 46) = 7.25, p \leq .01$. Since a quadratic effect was found, this means that the declining SAD Total and Distress scores did not continue to decrease at the end of the treatment process but more or less remained the same.

Cubic trends. A cubic trend describes a series of data that increases and decreases alternately. A sample cubic trend graph can be seen in Appendix VIII. Significant cubic trends were noted for the interaction effect for the SAD total scores, $F(1, 46) = 9.78, p \leq .01$, for the Avoidance subscale, $F(1, 46) = 6.52, p \leq .01$, and for the Distress subscale, $F(1, 46) = 12.85, p \leq .001$. As for the FQ, significant cubic trends were found for the factor of time for the FQ Composite, $F(1, 32) = 4.96, p \leq .05$, and the FQ Social Phobia subscale, $F(1, 34) = 4.96, p \leq .05$. A significant cubic trend indicates an increase of the scores (see figures 3-8, pp.46-51). Specifically, on the SAD Total measure, only the combined condition reported an increase at session 1. On the SAD Avoidance measure, at session 6, there is an increase in anxiety for the interpersonal condition that matched the combined condition's mean scores. As for the SAD Distress measure, scores increased at session 2 and 10 for the interpersonal condition. For the FQ Composite mean scores, the combined condition reported an increase at session 2. Both conditions reported an equivalent increase of FQ Social Phobia scores at session 2.

In sum, these results point to a general trend of the anxiety reduction process in SP. As hypothesized, linear trends were found on most measures, meaning that anxiety reduces at a gradual pace. Moreover, as demonstrated by the cubic trend analysis, there were increases in scores on some of the measures towards the beginning of the sessions and during mid-treatment. These results partly confirm the third hypotheses; there indeed were increases in anxiety levels but some of these occurred during the middle of treatment, which was not expected. Therefore, although there were broadly linear reductions in anxiety, certain points during the sessions the levels increased before the therapeutic changes entered into effect. Another interesting pattern that was revealed by the quadratic trend analysis was a stabilizing of some measures at the end of treatment. This result confirms the hypothesis and the findings in previous studies. On the whole, these analyses offer a general image of the anxiety treatment process. While from the beginning

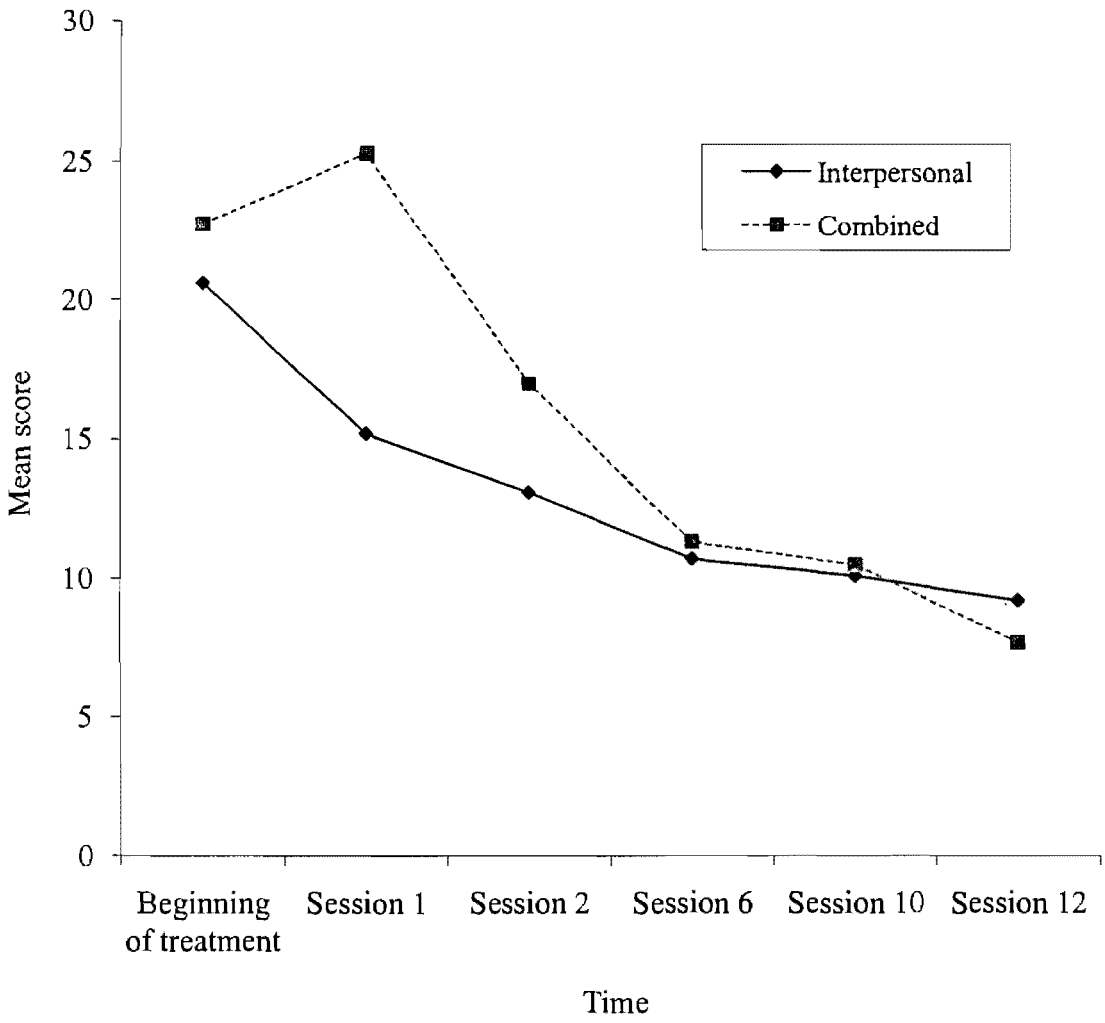


Figure 3. Mean scores of the SAD Total scale by treatment group across time.

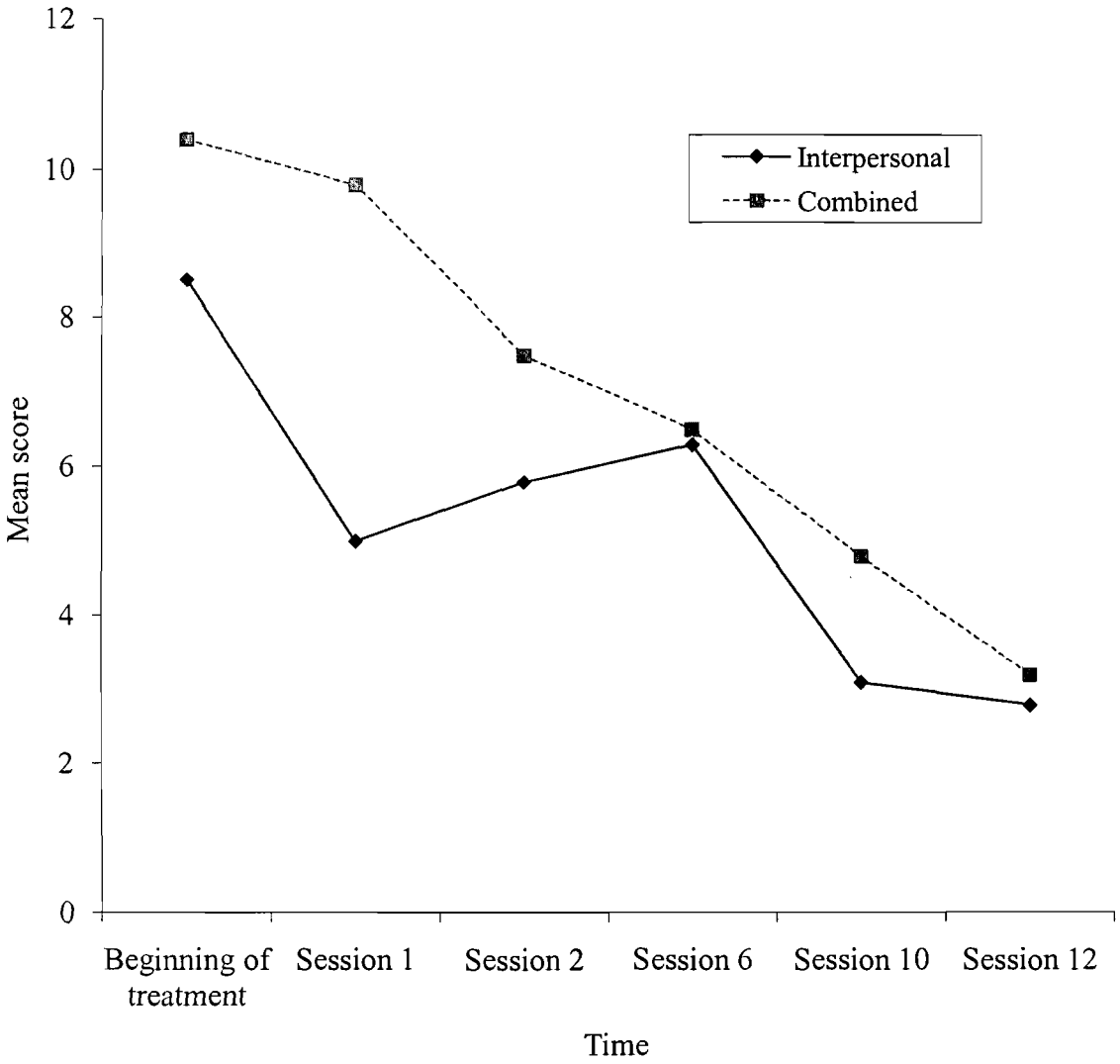


Figure 4. Mean scores of the SAD Avoidance subscale by treatment group across time.

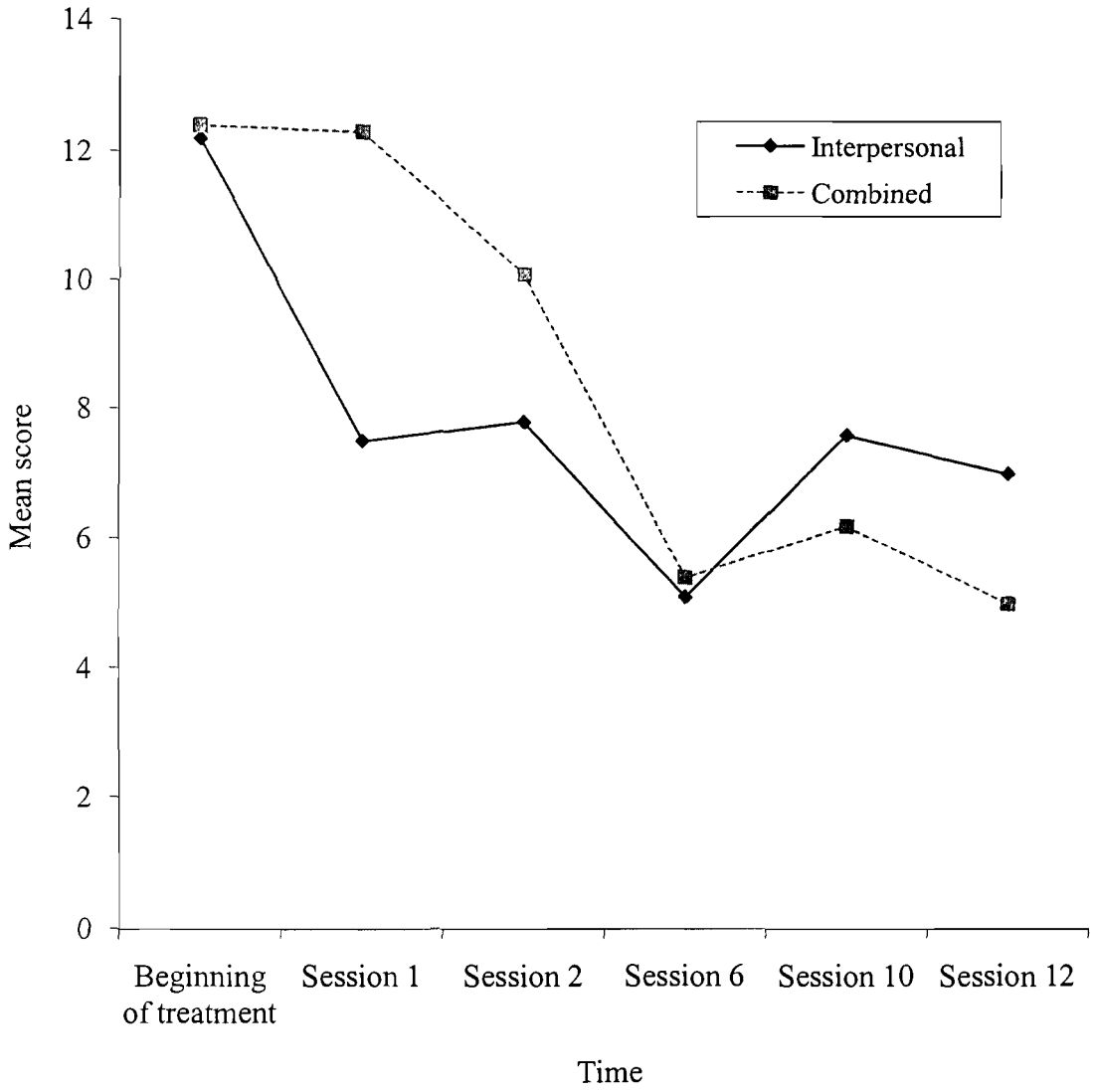


Figure 5. Mean scores of the SAD Distress subscale by treatment group across time.

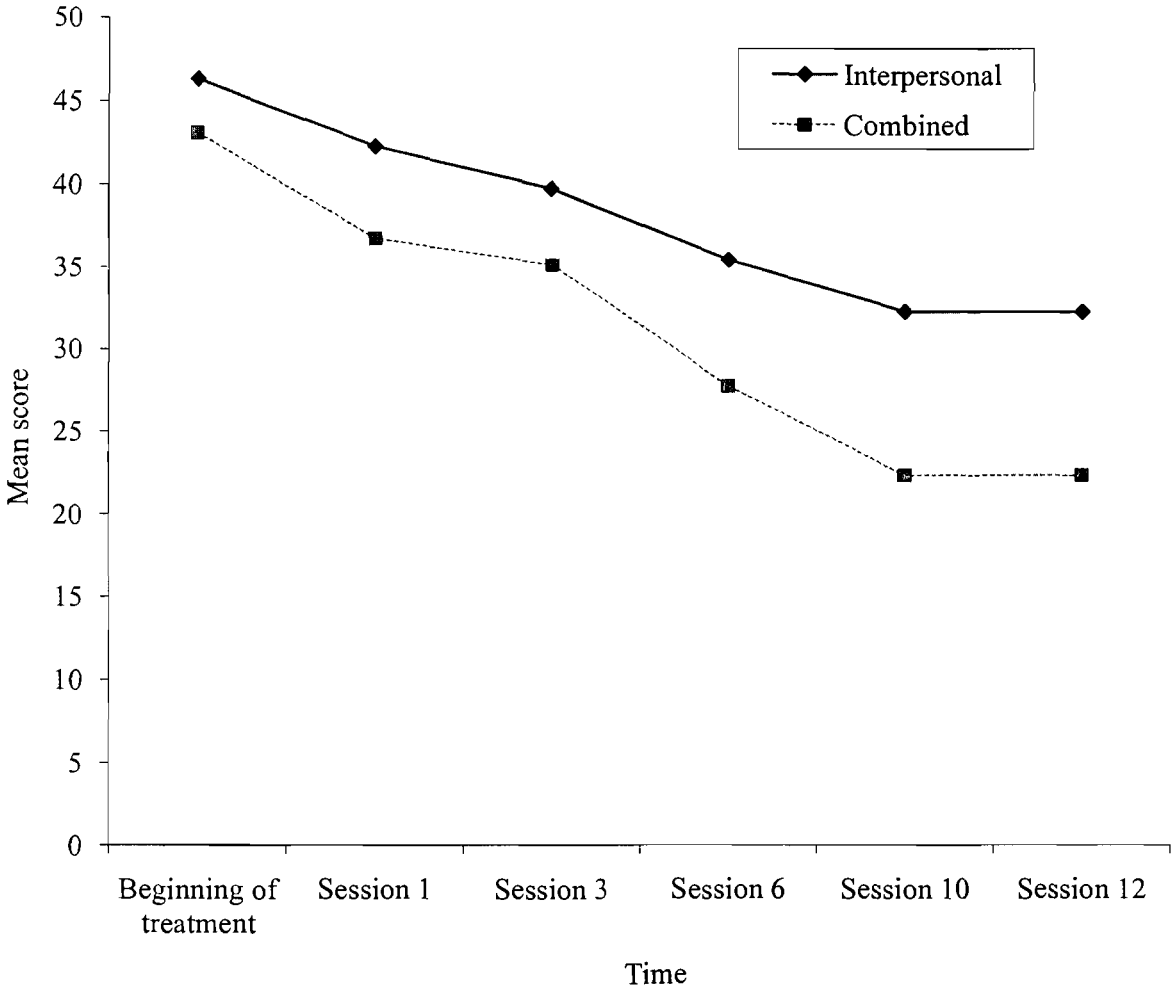


Figure 6. Mean scores of the FQ Composite by treatment group across time.

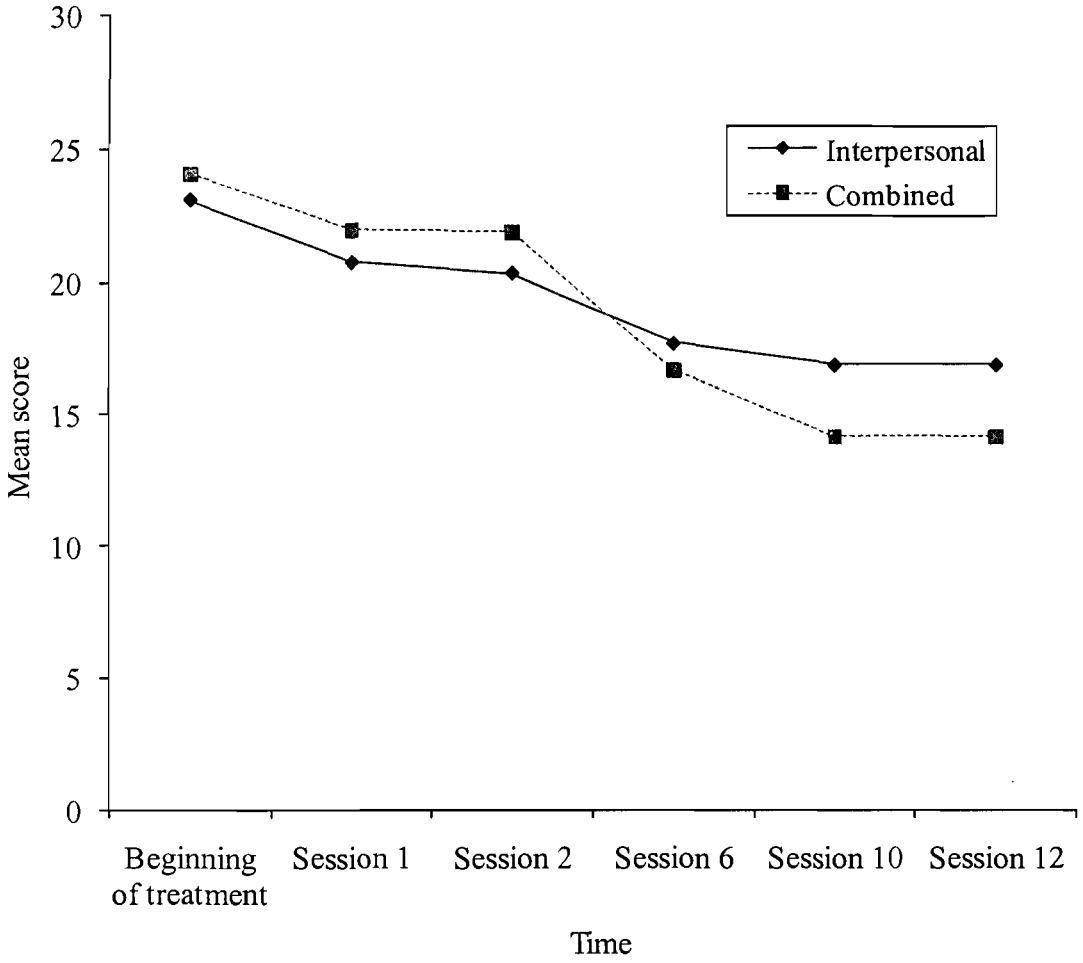


Figure 7. Mean scores of the FQ Social Phobia subscale by treatment group across time.

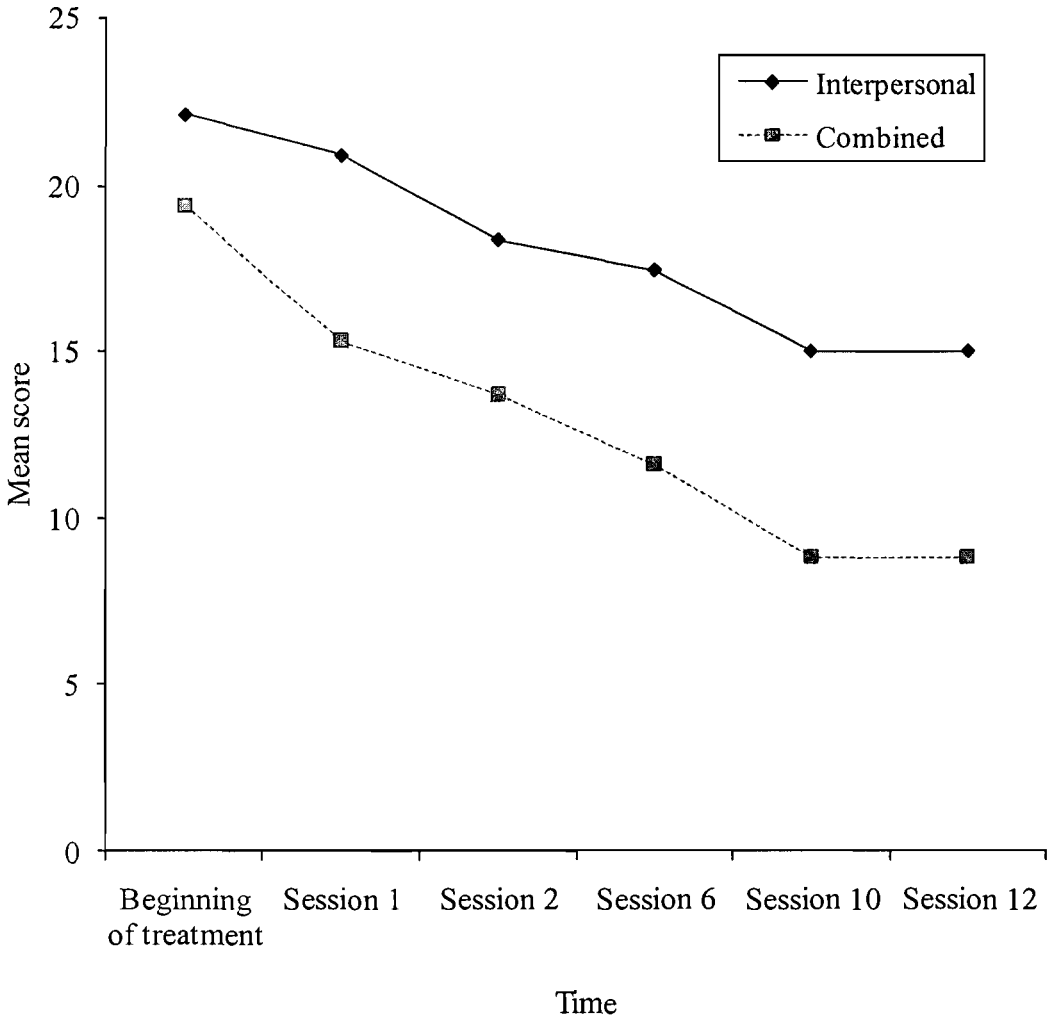


Figure 8. Mean scores of the FQ Emotional Distress subscale by treatment group across time.

to mid-treatment there can be increases of anxiety because of the nature of the therapy (facing challenging social situations), afterwards there is a steady decrease in anxiety. Towards the end of treatment, the decrease in anxiety slows down somewhat.

Discussion

Conclusions

The main purpose of the study was to find out if the process of anxiety reduction of the combined approach would differ from a purely psychological one. Before launching into a discussion of this core question, I will briefly outline the outcome results of the two treatments.

As expected in the outcome hypothesis, the combined treatment was more effective at reducing anxiety at the end of treatment than the interpersonal approach alone. This study counters Stravynski's conclusions that psycho-pharmacological and purely psychological treatments produce equivalent outcome results. Why this disparity? One possible explanation is in the actual types of treatments examined. In Stravynski's review, he evaluated CR and exposure treatments compared or contrasted to various medications; the interpersonal approach to therapy was not tackled. However, this study used a less commonly used SP treatment and thus produced some interesting and different results, namely that a combined treatment for SP is superior to a purely psychological one.

However, the primary purpose of this study was to clarify the process of anxiety reduction during treatment using two different approaches. The results in this study showed that anxiety levels during the treatment process for social phobia can be effectively lowered with both approaches. As expected in the third hypothesis and confirmed with the linear trend analysis, anxiety was found to decrease in an overall linear fashion on almost all of the measures for both the single and combined treatment. There exists a significant amount of evidence in the reviewed

literature of a linear reduction in anxiety during treatment using a variety of approaches (Clark et al., 2003; van Amerigen et al., 2001, etc.). In the study of Stravynski et al. (1987, p. 28), subjective anxiety "...was found to decrease in a linear fashion." This study further substantiates that process.

Even though participants experienced anxiety for a significant part of their lives (average duration 24 years, average age 38 years), the majority of them improved with this treatment. During the treatment process, participants had to actively engage in role play in sessions, either being the 'centre of attention' by doing a mock presentation or posing as a spectator. Participatory social behaviours learned during the sessions also had to be applied in real life situations. These requirements would be enough to cause significant levels of anxiety for the social phobic. Thus, rather than a reduction of anxiety at the beginning of treatment, an increase in anxiety would likely occur.

As such, the second hypothesis was that participants in the interpersonal condition alone would experience an increase in anxiety during the first few sessions because of the nature of the therapy. The addition of medication with therapy would not increase or reduce such a spike in anxiety levels because there would be a certain time period before the anxiety reducing properties of the drug would take effect. Contrary to expectations, there were no increases in anxiety for the interpersonal condition at the beginning of the sessions. Rather, it was the combined condition that reported increases at the beginning. However, with the interpersonal approach treatment, there are many more increases in anxiety levels during mid-treatment or further along.

Why are these results at odds with the hypothesis? Again, it could be due to the nature of the therapy. The interpersonal approach to therapy requires the participant to face distressing social situations and in addition, actively participate in them. Therefore, it was proposed that, at first, participants would be quite anxious before becoming more accustomed to the process.

Increases of anxiety levels at the beginning of the sessions would be expected and then a steady decrease would enter into effect. Yet, no increases at the beginning were noted, it was towards mid-treatment that the interpersonal condition reported increases in anxiety scores. The nature of the therapy, with the repeated exposure to anxiety-filled scenarios and without the help of medication to manage this anxiety, would explain such a pattern. This issue will be discussed more in detail in the next section. As for the combined condition, why was there an increase at the beginning of the sessions? This could be because the medication did not take effect right away, and thus anxiety levels increased slightly before the effects of paroxetine manifested.

On the whole, the combined group reported fewer increases in anxiety scores and the increase that was reported was at the very beginning of the treatment process only. The anxiety reduction process was more linear and steadier for the combined group. Therefore, the addition of medication with the interpersonal approach to therapy manages anxiety more effectively (fewer increases in anxiety scores) during treatment than the interpersonal approach alone.

Despite such an increase in anxiety at certain points of the treatment process, dropout rates were equivalent with past studies using similar treatments. In previous studies using the interpersonal approach to therapy (Stravynski et al., 2000), dropout rates were between 20-25%. In the current study, the interpersonal condition had about a 23% dropout rate. Although the interpersonal approach to therapy has an added advantage improving social functioning in as well as reducing anxiety, still shows some deficiencies in its treatment process as evidenced by the dropout rates. In the combined group, the dropout rate was 14%. As a result, the addition of medication to the interpersonal approach to therapy helps manages anxiety more effectively and thus fewer participants drop out. This result further bolsters the anxiety reduction effectiveness of the combined treatment.

Thus far, the general anxiety reduction process for SP, whatever the treatment approach, followed a confirmed linear pattern. These results in this study mirror previous studies in that whichever treatment approach used, there is a linear reduction in anxiety during the treatment process. Nevertheless, there were some increases in anxiety levels during certain point in time of the therapy.

The fourth process hypothesis, based on past process studies, was that anxiety scores for both experimental conditions would taper off at the last sessions. Indeed, quadratic trends were found on the SAD Distress measure for both experimental conditions. Hence, the reported scores stabilized for both groups between session 10 and 12. This confirms the pattern found on several past studies, again using different treatments but arriving at similar patterns at the end of treatment (e.g.: Davidson et al. 2004a; Prasko et al. 2006; Stravynski et al. 1987; Stein et al. 2002; Asakura et al. 2007).

To summarize the process of anxiety reduction found in this study, there was a strong linear trend for both experimental conditions, as found in the process studies reviewed. Also, the same studies found some increases in anxiety at the beginning of treatment. In this study, that pattern was found for the combined group but the interpersonal condition had greater number of increases at various points of the treatment. It is this specific pattern that differentiates the two treatment approaches. Finally, the reviewed process studies noted a stabilizing of anxiety levels towards the end of treatment, no matter the type of treatment. This trend was found in this study as well, for both experimental conditions.

In the end, is the anxiety management process of a combined approach superior to a purely interpersonal approach? Based on trend analyses, effect sizes and dropout rates, the combined treatment is more effective at reducing anxiety during treatment and at post-treatment. Both treatment approaches showed a linear reduction in anxiety during treatment and a stabilizing

effect towards the last sessions but the combined condition reported fewer increases in anxiety during treatment.

As a non-medication alternative, the interpersonal approach to therapy is an effective treatment on its own. Not only does interpersonal approach to therapy target the defensive self-protective patterns of the social phobic and improves social functioning, it adequately reduces the experience of anxiety. However, this treatment still shows some deficiencies in its anxiety management process; seven participants stopped treatment in this study. Clinicians would benefit from such knowledge when deciding on which treatment approach to use.

All told, the anxiety reduction process of the combined approach is a more stable treatment, thus fewer participants discontinue their treatment (four dropouts versus seven from the interpersonal condition) allowing the therapeutic gains (i.e.: improved social functioning) to be realized.

Theoretical Conclusions

For a purely psychological treatment of SP, the interpersonal approach to therapy takes effect early on in the treatment in terms of reducing anxiety but is not as stable as a combined treatment approach. During certain sessions, several increases in anxiety levels were noted with this treatment, indicating an unstable reduction in anxiety. This process could explain the dropout rates of past studies and the current one. Interpersonal approach to therapy requires participants to face fearful social situations, thus actually increasing anxiety before any therapeutic benefits manifest. Yet there were more increases and during later stages in the treatment than expected. Therefore, the process of anxiety reduction for the interpersonal approach is more complex than previously thought.

Participants engaging in an interpersonal approach to therapy do not only experience temporary increases in anxiety at the beginning but throughout the whole process. The explanation of this effect can lie in not only the nature or this psychological treatment but also in the duration. Over the course of the 12 sessions, each participant had more than one target behaviour to practice. At the beginning of treatment, facing and enacting the first target behaviour can cause an increase in anxiety but after practicing a few times the individual becomes more comfortable and the anxiety decreases. However, when the next target behaviour is introduced during the following sessions, the individual once again experiences an increase of anxiety before the role playing and exposure reduce the levels once more and so on.

The spikes in anxiety levels during the therapy sessions are inevitable and necessary because the individual must learn to face and experience the distressing state of anxiety in order to break the cycle of avoidant and defensive patterns. But are these increases in anxiety so overwhelming for some that they decide to drop out of treatment completely? It appears so, but fortunately only a small number of individuals did withdraw from this study. Nevertheless, improving this treatment to ensure that all participants are able to complete it would be beneficial to not only the social phobic (gaining therapeutic improvements or even achieving remission by completing the sessions) but also to the clinicians (few drop outs, therefore better management of resources and time).

Based on the results of this study, the combined approach does manage anxiety more effectively during treatment than the interpersonal approach. A combined psycho-pharmacological approach has the double advantage of improving social functioning through the interpersonal approach to therapy while blocking the physical arousal associated with anxiety by means of medication. The latter part of the combined treatment allows the individuals to learn new non-defensive ways of dealing with social situations without being incapacitated with

overwhelming physical complaints (sweating, palpitations, muscle tremors). Although there was an increase in anxiety at the beginning of the sessions only, the anxiety reduction process of the combined treatment followed a much more stable decrease in anxiety. It seems that a combined approach stabilizes the increases in anxiety to allow the therapeutic gains of the interpersonal approach treatment to take effect. The small number of drop-outs confirms the effectiveness of this approach.

Aside from this difference in the anxiety reduction process between the combined and single approach treatment, common patterns were detected. Both treatment approaches decreased anxiety linearly. Also, quadratic trends were found for both approaches. The anxiety scores tapered off towards the end of the sessions. This means that at that point, between sessions 10 and 12, there were no more additional therapeutic gains. As such, 10 to 12 sessions are sufficient for either a combined or single treatment to engender therapeutic changes in participants. This is useful information for clinicians, because stretching out a treatment longer than those 10 to 12 sessions will not continue benefiting the participant. Completely eliminating anxiety while in a social context is not realistic, not even for a non social phobic. There will invariably be a certain amount of anticipation when, for example, meeting someone for the first time. As long as that level of anxiety is tolerable and eventually dissipates somewhat, the individual is no longer incapacitated and unable to function. Therefore, since no therapeutic benefits will continue past that number of sessions, prolonging the treatment would not be advantageous for either the participants or the clinicians.

As shown in this study, the interpersonal approach to therapy itself is anxiety provoking, which can seem counter-intuitive when treating a pattern of conduct that has anxiety as one of its core features. However, this treatment helps reduce anxiety by placing individuals continuously in anxiety evoking situations, while providing them with new strategies of conduct to replace the

overly defensive ones. During therapy, anxiety does increase several times for the participants because they face there very thing that distresses them. Nevertheless, over a short period of time (10 to 12 weeks), the overall experience of anxiety reduces significantly. Also, by adding medication to this therapy, those temporary surges of anxiety are attenuated to allow greater therapeutic gains.

Findings and SP Literature

The findings of this study show that anxiety is an important aspect of improvement in SP. Yet these results also show that it is not the *only* aspect of improvement as certain treatment frameworks posit. Therefore, just aiming to correct social skills or distorted thought processes in social phobics ignores other essential aspects of SP. For example, CR aims at eroding maladaptive thoughts and reducing avoidant behaviours of the individual, and by doing so reducing social anxiety. Yet the effectiveness of the combined treatment and even the interpersonal approach treatment in this study show that on top of being a state of anxiety, SP is also a combination of self-protective patterns. In addition, the results of this study support an *inter*personal perspective of SP, where social anxiety and social functioning exist and interplay between the individual and the social context (Stravynski, 2007, pp. 300).

Contrary to exposure, CR and SST, the interpersonal approach to therapy can be seen as a two-pronged treatment that addresses both dimensions of improvement of SP: social functioning and anxiety. Also, the interpersonal approach not only reduces avoidant behaviours but replaces defensive self-protective patterns with more adaptive ones as well, while the medication assuages the experience of anxiety in order for the social phobic individual to learn these new patterns without being incapacitated.

Despite being a simplistic and incomplete treatment on its own, the pharmacological approach, when combined with a psychological approach, does appear to have some merit based on the results of this study. The combination treatment of paroxetine and the interpersonal approach to therapy addresses social anxiety, avoidant behaviour and the defensive pattern simultaneously and consequently ensures greater chances of successfully completing treatment and replacing this pattern with more socially participatory ones.

Strengths and Limitations

As with all research, certain shortcomings exist in this study. Sample size for this study was adequate but a larger one would increase the validity of the results. Also by having a larger sample size, there would be a greater chance to have a more representative sample of the population. The participants in this study were mainly French-speaking and from a particular cultural background. Moreover, the sample of this study comprised of participants who actively sought out treatment as part of clinical research trial. Thus the results possess limited generalizability to primary care practices, where most social phobics seek treatment.

The use of self-report questionnaires for measuring anxiety presents its own limitations. Participant bias, in terms of memory decay, can prevent accurate reporting the "true" state of anxiety. This type of questionnaire also relies on the respondents' ability to honestly deliver their level of distress; some participants might have possibly over- or under-exaggerated their experience of anxiety. Anxiety is a complex state to measure. It can be done objectively by measuring the physiological symptoms of anxiety (sweating, palpitations etc.) or by use of self-reports. These self-report questionnaires, such as the ones used in this study, have valid psychometric properties and despite the ever-existing risk of participant bias in the responses, the use of these materials to measure anxiety is a reliable and valid method. However, the ecological

validity of these self-report measures, whether they accurately measure the real-life experience of anxiety, remains an open question that ought to be addressed.

One unique advantage this study has is that it investigated the process of anxiety reduction rather than focusing exclusively on the outcome. As outlined in the beginning of this paper, there are not many process studies that have been conducted and none with a combination of SSRI and an interpersonal approach to therapy. Moreover, the use of trend analysis and the calculation of the effect size were not done in other process studies, leaving many unanswered questions about the process of anxiety reduction. In applying these analyses in this study, it was possible to discern the pattern in both conditions and compare them; thus elucidating a qualitative difference, on top of a quantitative difference. Therefore, this study provided much needed clarification of the process of anxiety reduction in the treatment of SP.

Also, research on the currently used class of medication for SP, SSRIs, combined with psychological treatment is far and few between. By examining the process of anxiety reduction of a combined treatment, this study adds valuable insight and knowledge into the way participants experience anxiety during treatment and which treatment better manages such a process. Practically, mental health parishioners would benefit from the findings of this study to determine the appropriate treatment for social phobics.

Future Directions

The use of paroxetine in combination with the interpersonal approach does help to reduce anxiety, but such a therapeutic change takes a certain period of time to manifests itself during the treatment plan. Interpersonal approach to therapy in itself shows consistent indications of being an effective treatment for reducing anxiety and improving social functioning. An earlier study by Stravynski et al. (2000) demonstrated equivalent and substantial improvements in social

functioning and distress levels with the same treatment approach. Even with a low dropout rate, it would still be important to determine ways to reduce it even more and ensure participants are comfortable in completing their treatment. For example, a future study could examine relaxation elements and the interpersonal approach and compare such a combination to the interpersonal approach to therapy alone to detect if it reduces anxiety to a greater degree.

One such technique is the Abbreviated Progressive Muscle Relaxation Technique used in clinical and research settings (Carlson & Hoyle, 1993; Turner, Calhoun & Adams, 1992). This approach involves tensing and relaxing 16 different muscles groups. As such, participants practicing this technique would then learn to identify their anxiety and relax their muscles in a tense situation, thereby reducing their anxiety. If the combined treatment results in lower anxiety levels than the single approach, this would help clinicians better treat SP and the high levels of anxiety experienced during treatment. This potential approach would provide individuals and clinicians with a non-medication alternative to reduce anxiety.

However, the nature of relaxation therapy to treat anxiety stems from an intrapersonal origin. From that point of view, anxiety comes from the individual and their lack of skills in managing it. Relaxation techniques train the individual in recognizing and dealing with their anxiety symptoms. Yet as we've seen, SP is a social pattern that subsists in a social context. Therefore just training a person in relaxation does not address the social nature of anxiety for SP.

An alternative treatment if medication or relaxation is not appropriate would be to implement exposure elements in the interpersonal approach. Since exposure is a well-documented treatment for anxiety, highlighting such an approach would presumably reduce anxiety to a greater degree. This could be done by introducing more "real life" exposure situations and increasing the ecological validity of the study. In the interpersonal approach to therapy sessions, participants are exposed to their feared spheres of social functioning in session

with other participants and the clinician. Although it is a social context, it is still a somewhat artificial setting since it is in a clinic office and the participants are not actual coworkers, managers, romantic interests etc. Also, when asked to apply the learned techniques in their actual life situations, it is possible some participants would avoid that task and not face and conquer their social anxiety.

To make the exposure elements more "realistic", clinicians could organize actual presentations, parties with non-social phobics and have the participants actively engage in these activities. That way, the participants would be obligated to face their anxiety and overcome it by participating less artificial situations. This "real life" interpersonal approach to therapy would hypothetically diminish anxiety more so than the traditional version. Research could use observation techniques to measure quantifiable signs of anxiety during the activities to use conjointly with self-report questionnaires and bolster the strength of their measures.

As a final note, the effectiveness of the combination treatment in this study counters Stravynski's conclusions on his review of outcome studies. He found that combination treatments were not any more effective at reducing anxiety than purely psychological treatments. In this study however, the combination treatment had greater success than the interpersonal approach treatment at reducing anxiety after 12 sessions. Although this is one study compared to an exhaustive review, the results put into question his conclusion and invites further combination treatment studies to be conducted to clarify this discrepancy.

Consequently, a much greater number combination studies of SSRIs and psychotherapies are required. Furthermore, a comparison of an interpersonal approach with an existing and well-established treatment of anxiety (exposure) would serve as a benchmark. Ideally, such study would also have a larger and more representative sample, including participants of different language backgrounds and ethnicities. Finally, different combination of psychotherapy and

pharmacology would provide new insights. Either using an interpersonal approach to therapy before or after medication in an experimental design is yet to be tried.

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Appendix I: Telephone interview script

PHONE INTERVIEW DATE:_____

FAMILY NAME:_____ FIRST NAME:_____

DIAGNOSTIC: SOCIAL PHOBIA:_____ OTHER:_____

NAME OF THE INTERVIEWER:_____

1) DO YOU TAKE ANY MEDICATION? YES_____ NO_____
If yes, what kind?_____

2) HOW MUCH ALCOHOL DO YOU CONSUME?
Weekly?_____ Daily?_____

3) PRESENTLY, DO YOU FEEL DEPRESSED, BLUE, WITH NO ENERGY?

YES_____ NO_____

4) WHICH SOCIAL SITUATIONS ARE DIFFICULT FOR YOU?_____
_____
_____

5) WHAT IS THE IMPACT OF THESE DIFFICULTIES ON YOUR EVERYDAY LIFE?_____
_____
_____

Have you ever been scared or have you ever avoided:

			Scared	Avoided	Comments
	Yes	No	Yes	No	Intensity/frequency
a) Speaking in public	_____	_____	_____	_____	_____
b) Writing in public	_____	_____	_____	_____	_____
c) Eating/drinking in public	_____	_____	_____	_____	_____
d) Working under obs.	_____	_____	_____	_____	_____
e) Urinating in public	_____	_____	_____	_____	_____
f) Going to a party	_____	_____	_____	_____	_____
g) Initiating a conversation	_____	_____	_____	_____	_____
h) Interacting with opp. Sex	_____	_____	_____	_____	_____
i) Addressing authority	_____	_____	_____	_____	_____
j) Talking on the phone	_____	_____	_____	_____	_____

6) HAVE YOU EVER CONTACTED A HEALTH PROFESSIONAL FOR A PHYSICAL OR MENTAL PROBLEM?

YES_____ NO_____

If yes, explain: _____
_____
_____
_____

What were the diagnostics and the treatments?: _____
_____
_____
_____

AVAILABILITY

A.M.	_____
P.M.	_____
EVENING (5-7PM)	_____
EVENING (7-9PM)	_____

MAKE SURE THAT THE PERSON REPEATS AND SPELLS THE SOCIO-DEMOGRAPHIC INFORMATION

FAMILY NAME:_____ FIRST NAME:_____

ADDRESS: Street _____

City: _____ Postal code:_____

PHONE NUMBER: Home: _____ Work: _____

How did you hear about us?

Web Pamphlet Another person Other_____

Any other problems that you forgot to mention?_____

Appendix II: SAD

Social Anxiety And Distress (SAD)

Please respond by TRUE (1) or FALSE (2) to each of the following sentences. Indicate your answer that corresponds to your actual state.

1. I feel relaxed even in unfamiliar social situations. A___
2. I try to avoid situations which force me to be very sociable. A___
3. It is easy for me to relax when I am with strangers. A___
4. I have no particular desire to avoid people. A___
5. I often find social situations upsetting. A___
6. I usually feel calm and comfortable at social occasions. A___
7. I am usually at ease when talking to someone of the opposite sex. A___
8. I try to avoid talking to people unless I know them well. A___
9. If the chance comes to meet new people, I often take it. A___
10. I often feel nervous or tense in casual get-togethers in which both sexes are present. A___
11. I am usually nervous with people unless I know them well. A___
12. I usually feel relaxed when I am with a group of people. A___
13. I often want to get away from people. A___
14. I usually feel uncomfortable when I am with a group of people I don't know. A___
15. I usually feel relaxed when I meet someone for the first time. A___
16. Being introduced to people makes me tense and nervous. A___
17. Even though a room is full of strangers, I may enter it anyway. A___
18. I would avoid walking up and joining a large group of people. A___
19. When my superiors want to talk with me, I talk willingly. A___

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

21. I tend to withdraw from people. A___

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

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

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

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

26. I try to avoid formal social gatherings. A___

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

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

Appendix III: FQ

FEAR QUESTIONNAIRE (FQ)

Choose a number from the scale below to show how much you would avoid each of the situations listed below because of fear or other unpleasant feelings. Then write the number you chose in the box opposite to each situation

0 1 2 3 4 5 6 7 8

Would not avoid it — Slightly avoid it — Definitely avoid it — Markedly avoid it — Always avoid it

#	Question	1 to 8
1	Injections or minor surgery	
2	Eating or drinking with other people	
3	Hospitals	
4	Travelling alone by bus or coach	
5	Walking alone in busy streets	
6	Being watched or stared at	
7	Going into crowded shops	
8	Talking to people in authority	
9	Sight of blood	
10	Being criticized	
11	Going alone far from home	
12	Thought of injury or illness	
13	Speaking or acting to an audience	
14	Large open spaces	
15	Going to the dentist	

Bow choose a number from the scale below to show how much you are troubled by each problem listed, and write the number in the box opposite

0 1 2 3 4 5 6 7 8

Hardly at all — Slightly disturbing — Definitely disturbing — Markedly disturbing — Very severely disturbing

#	Questions	1 to 8
16	Feeling miserable or depressed	
17	Feeling irritable or angry	
18	Feeling tense or panicky	
19	Upsetting thoughts coming into your mind	
20	Feeling you or your surroundings are strange or unreal	

Appendix IV: Consent form

TITLE : The treatment of social phobia with the combination of interpersonal therapy and paroxetine

Researchers: Dr Ariel Stravynski, Ph.D. and Dr Paul Sidoun, M.D.
Contact: Danielle Amado, M.Ps.

TREATMENT OF SOCIAL PHOBIA

Mr, Ms, _____
You have been selected to participate in a study that aims to compare the efficacy of several types of treatment of social phobia. However, before signing the consent form, it is important that you attentively read the following information and that you ask questions in order to fully understand what your participation involves.
Dr Ariel Stravynski and Danielle Amado, psychologists, supervise this study.

PROJECT DESCRIPTION

Social phobia is a persistent fear of one or many situations in which one is likely to be observed fearing of acting in a way that would feel humiliating or embarrassing (examples: being afraid of speaking in public, of choking while eating with others, shaking while writing). Generally, people who have this problem have a tendency to forsee dangers and catastrophes in certain social situations. They tend to use avoidance strategies so as not to confront these situations and to minimize feelings of anxiety. Such tendency contributes to maintaining this problem.
This program aims to decrease anxious distress by bringing the person to confront anxiety-provoking situations and thereby diminish the avoidance that occurs in these situations.
Specifically, the goal of this study is to assess whether the combination of a medication with an interpersonal kind of psychotherapy will result in a better outcome than each of these treatments administered separately. The efficacy of the medication as well as the psychotherapy have already been documented in previous studies. The purpose of the present study is to assess what remains unknown, that is, the effect of their combination.

The psychological approach consists in teaching the participant to confront systematically situations that evoke anxiety while using new ways of behaving in those situations. The pharmacological approach consists of receiving a prescription of Paxil (generic name: paroxetine). It is a selective serotonin reuptake inhibitor (SSRI) anti-depressant that acts as a specific inhibitor to serotonin and contributes to a better regularization of this neurotransmitter. The medication aims at controlling and diminishing anxious distress and the desire to avoid or run away from anxiety provoking situations. The anticipated doses are 10 to 50 mg/day to reach a maximum efficacy and a optimal tolerability. This treatment will be held individually with a psychiatrist that will supervise the administration of the medication and the dosage during the 12 weeks of the active treatment.

The psychotherapy will involve small groups of 5 to 6 participants. This situation in itself may generate anxiety and apprehension for some. But, facing this situation repeatedly, is beneficial in itself. Also, during group meetings and between sessions, we ask that each participant performs certain tasks that might momentarily generate anxiety: for example, if a participant feels anxious when writing while being observed, we may ask him to perform that task; if another is afraid that people will notice he is blushing, he may have to do a brief presentation, etc.

PROCEDURES

You are presently accepted in the treatment program for social phobia. Your commitments are the following:

1- Assessments: I will participate in an interview with a psychiatrist (1 hour), in 4 assessments with a psychologist (1h30) after which I will have to fill out different computerized questionnaires (1h). These assessment sessions will take place at 4 times: before and after treatment, 6 months and 1 year after the end of treatment.

2- Treatment: I will participate in 5 individual meetings of pharmacotherapy spread through the 12 weeks, as well as a meeting that will take place 3 months after the end of the sessions. I commit myself to participate in 12 weekly meetings in small groups of 5-6 people for a duration of 2 hours each, as well as to a meeting that will take place 3 months after the end of treatment. Also, I commit myself to carry out some homework tasks of self-observation as well as fill out two questionnaires on several occasions. Finally, I commit myself to carry out in between the sessions various specific assignments that will be given me by the therapist (example : initiating a conversation or asking for information to a stranger).

While participating in this program, I am aware that I cannot be involved in any other type of therapy, nor take psychotropic drugs. Also, I understand that I cannot drink alcohol in order to diminish or control the anxiety that I may feel in certain social situations. These instructions are valid for the duration of the treatment and the follow-ups, meaning one year after the end of treatment. I understand that I should inform the researcher and quit the study if I do not respect these conditions. Furthermore, the researcher has the right to suspend my participation in the program if I do not respect these conditions.

INCONVENIENTS AND RISKS

The possible side effects of paroxetine are the following (in order of probability): headaches, fatigue, palpitations, hypotension, sweating, nausea, dry mouth, constipation, diarrhea, increase of appetite, somnolence, insomnia, trembling, nervousness, reduction of libido, yawning, vision problems, sexual dysfunction, psychosis and allergic reaction, especially to hypersensitive individuals. However, you will be closely monitored during the administration of the medication. This will be done gradually and the side effects will be taken to account during the treatment.

For the termination of the medication, the possible side effects are nausea, diziness, fatigue and an increase of anxiety. You will receive consultations and will be monitored by members of the therapy team during this period.

The homework assignments can at first provoke a certain degree of anxiety that will normally subside with time. The level of anxiety is generally similar to the one that may be experienced when people expose themselves to such situations in their natural environment.

Alternative treatments for social phobia exist and they involve psychopharmacology such as (Benzodiazepines and anti-depressors IMAO) or psychotherapy (exposition, cognitive therapy).

ADVANTAGES ET BENEFITS

The advantages that you can expect are a reduction of your anxious state, a weaker tendency to avoid social situations and a better participation in social life.

WITHDRAWAL FROM THE STUDY

We reserve the right to remove you from the study, without your consent, for the following reasons:

a) Your physical or psychological state needs a more appropriate alternative treatment; you will be then referred to the appropriate services.

b) You refuse to follow the instructions mentioned above.

However, your participation in this study is fully voluntary and you may interrupt the process at any given time.

CONFIDENTIALITY

The team members have taken different measures to insure the greatest confidentiality:
- Files are kept in locked cabinets which are in an office assigned especially for this study;
- The assignment of subject numbers preserve the anonymity of the collected information;
- The use of a password in order to access computerized information.

Computerized information is preserved in an anonymous data bank for an unlimited amount of time.

FREEDOM TO PARTICIPATE IN OR WITHDRAW FROM THE STUDY

If you decide, by your own will, to dropout from the study, this will not cause you any prejudice and will not hinder your right to receive adequate treatment for your difficulties.

PERSON TO CONTACT

If you feel any worries related to your participation, you can reach Danielle Amado directly at (514) 251-4015, extension 2347.

I therefore consent to participate in a psychological treatment for social phobia. I recognize that I have been informed of the program's procedure and the fees that I will have to pay.

In accepting to participate in this study, I do not renounce any of my rights and I do not free the researchers, organizations, companies or all implicated institutions of their legal and professional responsibilities.

Signatures : of participant : _____

of witness : _____

I certify that a) I explained the terms and conditions of the present consent form to the participant signing this document b) I answered the questions that were asked regarding this consent form; c) I clearly indicated that he/she is free to dropout of the study at any time; and d) I will provide him/her a copy of the present signed consent form.

Name of researcher or authorized representative	Function	Signature	Date
_____	_____	_____	_____

Appendix V: Paroxetine administration protocol table

Week	Session	Content
0	0	Inclusion, wash out period
1	1	Introduction of medication (10-20 mg)
2	2	Evaluation, monitoring of side effects; increase (30 mg)
6	3	Evaluation, monitoring of side effects; increase (40 mg)
10	4	Evaluation, monitoring of side effects; increase (50 mg)
12	5	Evaluation and stopping medication (dosage gradually decreasing
24	6	Evaluation, listing of symptoms; related to the stopping of medication
36	7	Evaluation, listing of symptoms; related to the stopping of medication

Appendix VI: Pairwise comparisons

Table XI. Significant pairwise comparisons of time for the SAD total scores of the sample.

Time	*Statistics* *Mean Difference*		
	Beginning of treatment	Session 1	Session 2
Beginning of treatment	___	ns	-6.68***
Session 1	ns	___	-5.04**
Session 2	6.68***	5.04**	___
Session 6	10.78***	9.13***	4.09**
Session 10	11.40***	9.75***	4.71***
Session 12	13.28***	11.64***	6.60***

Note: ns (not significant); * $p \leq .05$; ** $p \leq .01$;
*** $p \leq .001$

Table XII. Significant pairwise comparisons of time for the SAD Avoidance scores of the sample.

Time	*Statistics* *Mean Difference*			
	Beginning of treatment	Session 1	Session 2	Session 6
Beginning of treatment	___	-2.02*	-2.75***	-3.06*
Session 1	2.02*	___	ns	ns
Session 2	2.75***	ns	___	ns
Session 6	3.06*	ns	ns	___
Session 10	5.46***	3.44**	2.71***	2.40*
Session 12	6.42***	4.40***	3.67***	3.35***

Note: ns (not significant); * $p \leq .05$; ** $p \leq .01$;
*** $p \leq .001$

Table XIII. Significant pairwise comparisons of time for the SAD Distress scores of the sample.

Time	*Statistics* *Mean Difference*		
	Beginning of treatment	Session 1	Session 2
Beginning of treatment	___	-2.40*	-3.31***
Session 1	2.40*	___	ns
Session 2	3.31***	ns	___
Session 6	7.04***	5.04**	3.73***
Session 10	5.35***	9.13***	2.04*
Session 12	6.31***	9.75***	3.00*

Note: ns (not significant); * p ≤.05; ** p ≤ .01; *** p ≤.001

Table XIV. Significant pairwise comparisons of time for the FQ Composite scores of the sample.

Time	*Statistics* *Mean Difference*		
	Beginning of treatment	Session 1	Session 2
Beginning of treatment	___	ns	-2.44*
Session 1	ns	___	ns
Session 2	2.44*	ns	___
Session 6	6.39***	4.13**	3.95**
Session 10	8.08***	5.81***	5.63***
Session 12	8.08***	5.81***	5.63***

Note: ns (not significant); * $p \leq .05$; ** $p \leq .01$;
*** $p \leq .001$

Table XV. Significant pairwise comparisons of time for the FQ Social Phobia scores of the sample.

Time	*Statistics* *Mean Difference*		
	Beginning of treatment	Session 1	Session 2
Beginning of treatment	___	ns	ns
Session 1	ns	___	ns
Session 2	ns	ns	___
Session 6	6.18**	4.41*	4.08*
Session 10	7.53**	5.76***	5.43***
Session 12	7.53***	5.76**	5.43***

Note: ns (not significant); * $p \leq .05$; ** $p \leq .01$;
*** $p \leq .001$

Table XVI. Significant pairwise comparisons of time for the FQ Emotional Distress scores of the sample.

Time	*Statistics* *Mean Difference*		
	Beginning of treatment	Session 1	Session 2
Beginning of treatment	___	ns	-4.71**
Session 1	ns	___	ns
Session 2	4.71**	ns	ns
Session 6	6.20**	ns	___
Session 10	8.88***	6.17**	ns
Session 12	8.88***	6.17**	ns

Note: ns (not significant); * p ≤.05; ** p ≤.01; *** p ≤.001

Appendix VII: Trend analysis tables

Table XVII. Statistical significance of linear trend analysis across time and treatment group.

	Statistics *F*	
	Time	G X T
SAD: Total	225.71***	14.17***
SAD: Avoidance	145.32***	7.00**
SAD: Distress	97.50***	12.66***
FQ: Composite	67.10***	4.58*
FQ: Social Phobia	67.10***	4.58*
FQ: Emotional Distress	35.59***	0.91

* p ≤.05; ** p ≤.01; *** p ≤.001

Table XVIII. Statistical significance of quadratic trend analysis across time and treatment group.

	Statistics *F*	
	Time	G X T
SAD: Total	4.98*	3.05
SAD: Avoidance	0.12	0.12
SAD: Distress	17.17***	7.25**
FQ: Composite	1.36	1.00
FQ: Social Phobia	1.36	1.01
FQ: Emotional Distress	2.09	0.40

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table XIX. Statistical significance of cubic trend analysis across time and treatment group.

	Statistics *F*	
	Time	G X T
SAD: Total	3.72	9.78**
SAD: Avoidance	3.05	6.52*
SAD: Distress	0.51	12.85***
FQ: Composite	4.96*	1.63
FQ: Social Phobia	4.96*	1.63
FQ: Emotional Distress	0.22	0.17

* p ≤.05; ** p ≤.01; *** p ≤.001

Appendix VIII: Sample trend graphs

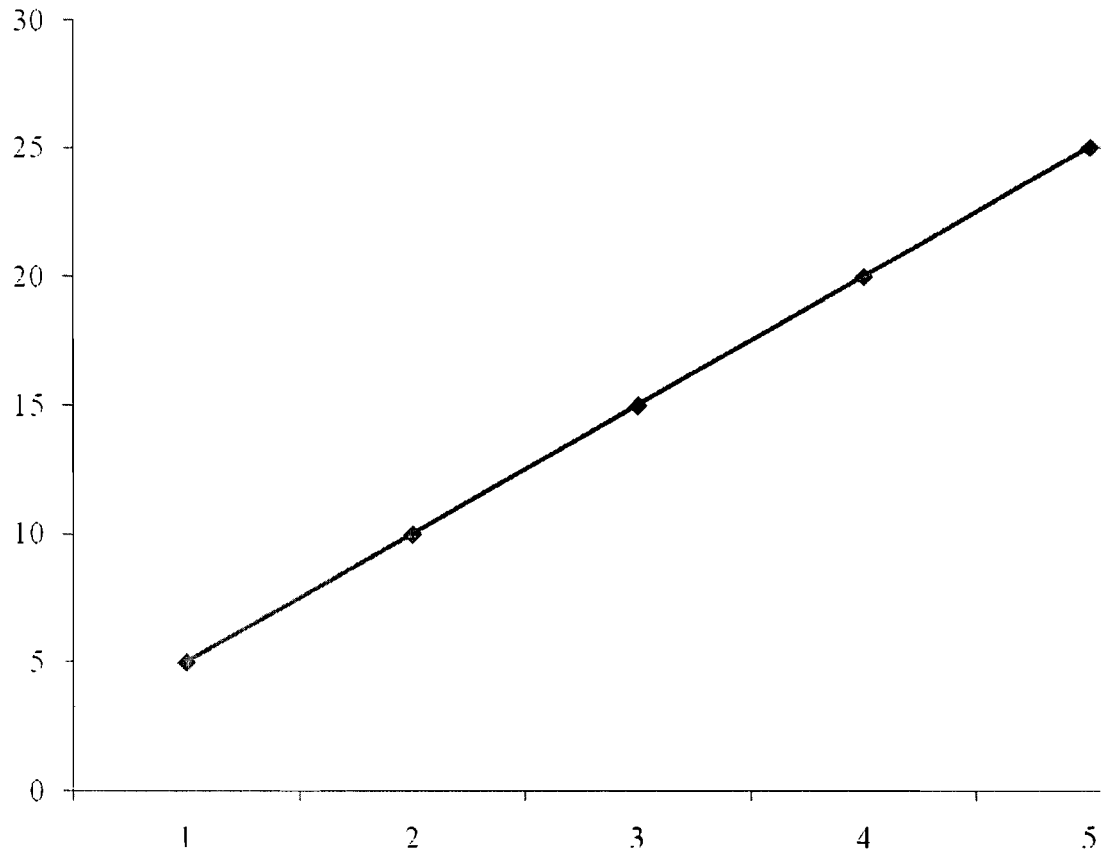

Figure 9. Sample linear trend graph.

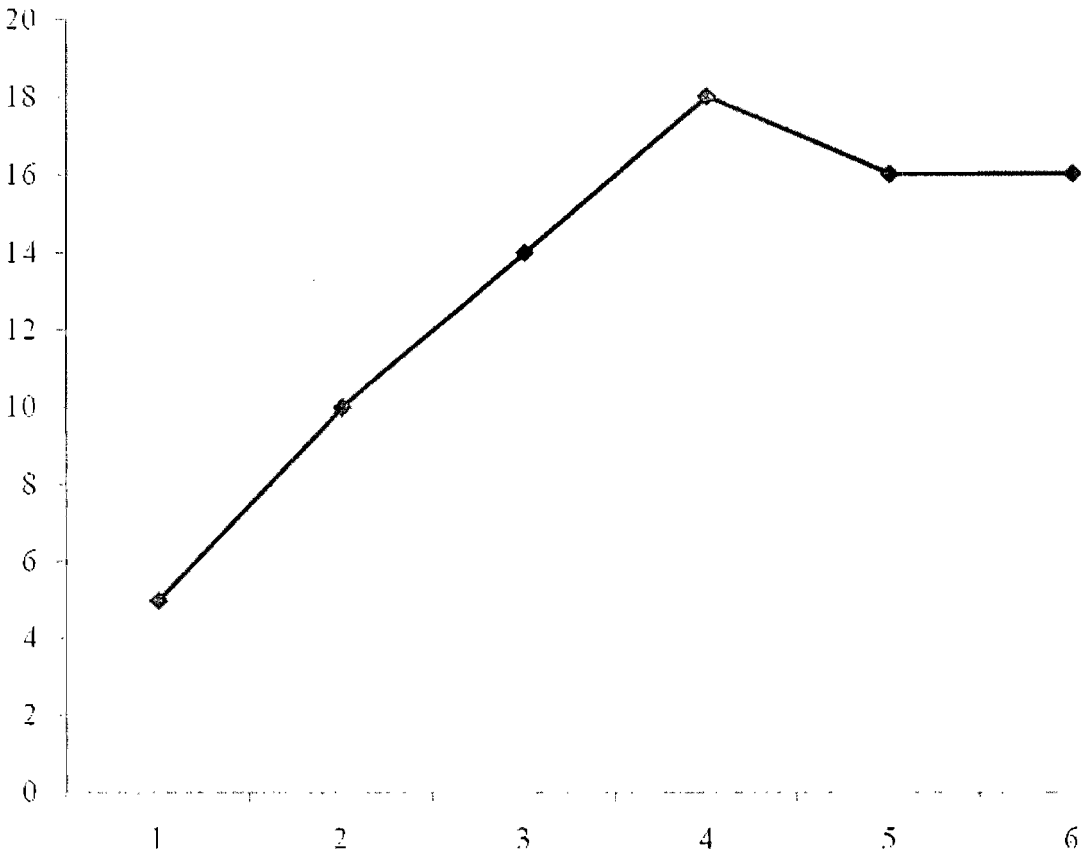

Figure 10. Sample quadratic trend graph.

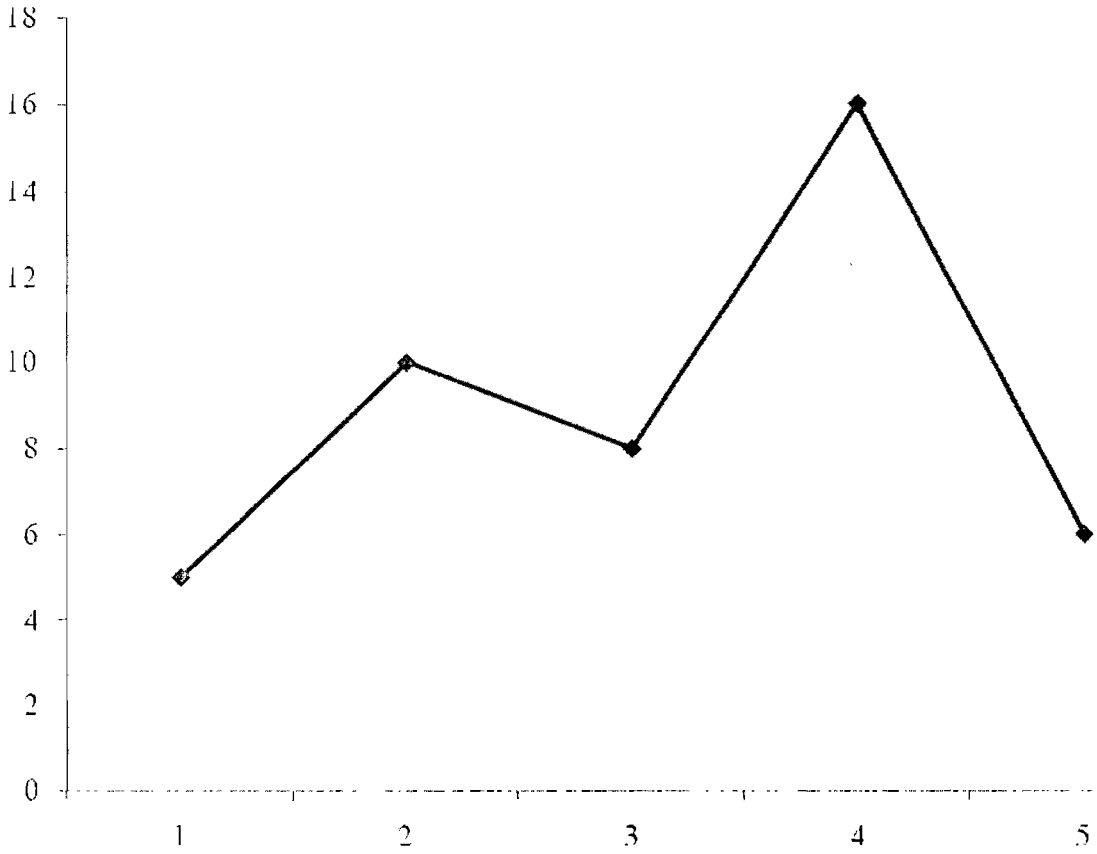

Figure 11. Sample cubic trend graph