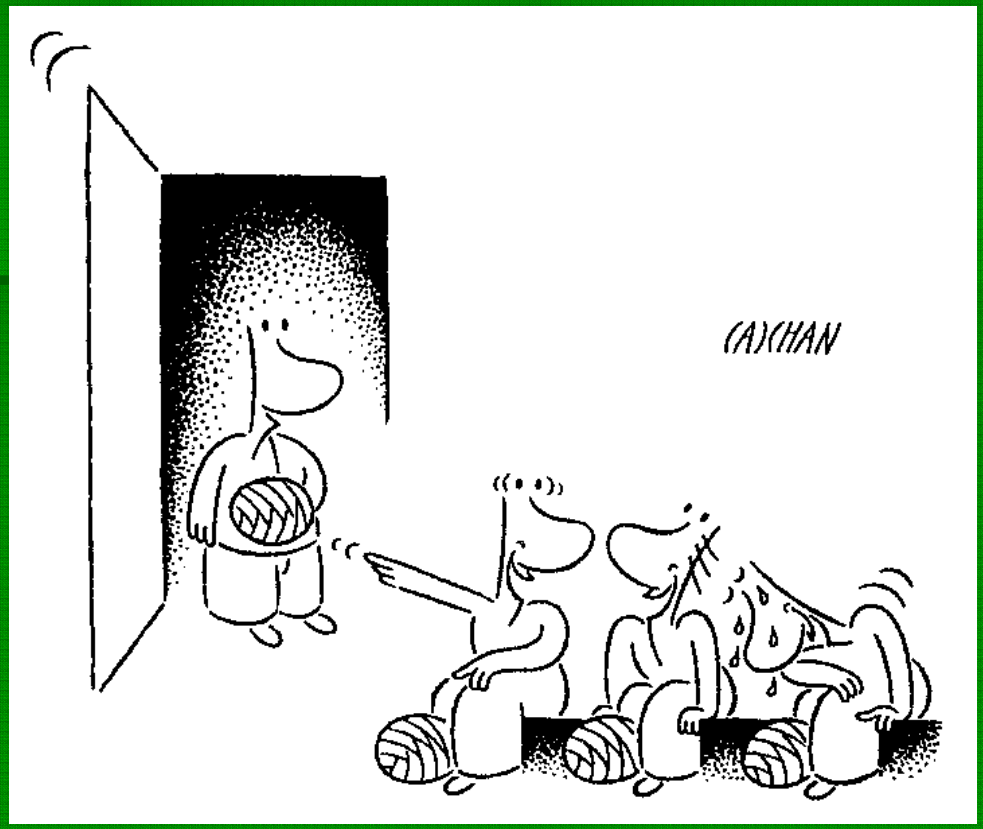
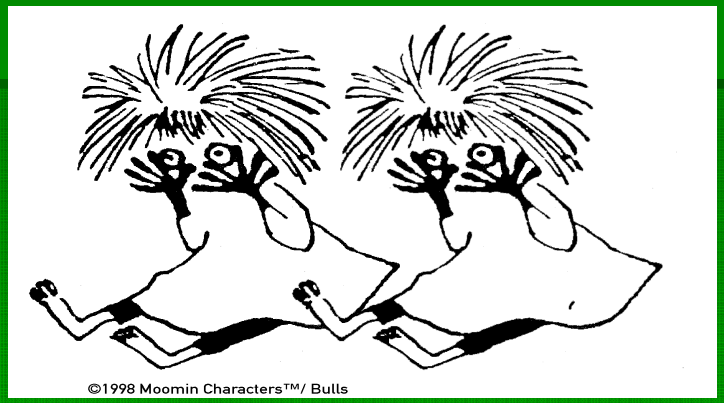
University students with social phobia and public speaking fears: A randomized trial of Internet delivered self-help with or without live group exposure



Who are we?



- Maria Tillfors[1], Per Carlbring[3], Tomas Furmark[2], Susanne Lewenhaupt[2], Maria Spak[2], Anna Eriksson[2], Lisa Ekselius[2], Bengt Westling[2] and Gerhard Andersson[3]

- 1Örebro University, Örebro, Sweden
- 2Uppsala University, Uppsala, Sweden
- 3Linköping University, Linköping, Sweden

- This study was supported by the Swedish Council for Working life and Social research.

Jean-Paul Sartre (1905-1980)

” A lot of people around the world feel like being in hell because they are depending of other peoples’ opinions”

Why is this study important?

- In Western countries social phobia, or social anxiety disorder, is considered to be the most common anxiety disorder with lifetime prevalence rates in the 7 to 13% range (Furmark, 2002)
- In a community survey in Sweden, Furmark, Tillfors, Everz, Marteinsdottir, Gefvert and Fredrikson (1999) noted a point prevalence of 15.6%
- Among Swedish university students social phobia is highly prevalent (16.1%; Tillfors & Furmark, 2006)
- A low proportion of persons with the disorder receive any treatment and untreated social phobia in most cases probably has an unremitting course (Rapee & Spence, 2004)
- Without treatment there is an elevated risk for dropping out of school, academic underachievement, and also an increased risk for being unemployed (Stein & Kean, 2000)
- A first-line psychological treatment for social phobia is cognitive behavioural therapy (Rodebaugh et al., 2004)
- The access of cognitive behavioural therapists in Sweden is sparse
- Internet-based treatment could increase the accessibility to seek treatment for people with social phobia in spite of their fear to be scrutinized

Previous research

- Previous research has only reported a few studies regarding self-help Internet delivered treatments of social phobia based on CBT-principles
- Andersson, G., Carlbring, P., Holmström, A., Sparthan, E., Furmark, T., Nilsson-Ihrfelt, E., Buhrman, M., & Ekselius, L. (in press). Internet-based self-help with therapist feedback and in-vivo group exposure for social phobia: a randomized controlled trial. *Journal of Consulting and Clinical Psychology.*
- Botella, C., Hofmann, S.G., & Moscovitch, D.A., (2004). *A self-applied, Internet-based intervention for fear of public speaking. Journal of Clinical Psychology, 60,* 821-30*.*
- Carlbring, P., Furmark, T., Steczkó, J., Ekselius, L., & Andersson, G. (2006). An open study of Internet-based bibliotherapy with minimal therapist contact via email for social phobia. *Clinical Psychologist, 10,* 30-38.

Aim of the present study

- The aim of the present study was to compare Internet delivered self-help, of social phobia and public speaking fears among university students, with and without five live group exposure sessions and a wait-list control group
- The purpose of extending the group exposure sessions to five instead of Andersson and colleagues' (2006) two sessions was to relatively increase the exposure time and thereby investigate if the live exposure sessions are adding something comparing to the e-mail clinician contact regarding the treatment effects.
- The background behind focused on the situation public speaking is partly that the situation is the most prevalent social fear and partly because it's a common situation students' have to endorse in their education

Method
Recruitment and selection

- The participants were recruited via Internet and newspaper articles in regional and student papers during autumn 2004.
- The ethical regional committee of Uppsala University approved the study.
- A webpage was created which included general information about social phobia and CBT, ethical- and secrecy-principles as well as information about the working staff.
- The participants filled in an application form and a computerized screening interview consisted of the Social Phobia Screening Questionnaire (SPSQ; Furmark et al., 1999) and the self-rated version of the Montgomery Åsberg Depression Rating Scale (MADRS-SR; Svanborg & Åsberg) as well as additional questions regarding current and past treatment.

Recruitment and selection

- (1) fulfill the fourth version of the Diagnostic and Statistical Manual (DSM-IV; APA, 1994) criteria for social phobia according to the SPSQ
- (2) be afraid of giving a public speech
- (3) have a total score of <22 on the MADRS-SR depression scale and <4 on the suicide item of this scale
- (4) undergo no other psychological treatment for the duration of the study, and have no history of earlier CBT
- (5) if on prescribed drugs for anxiety/depression, dosage had to be constant for 3 months before the start of the treatment, and the patient had to agree to keep the dosage constant throughout the study
- (6) have access to a computer with Internet connection
- (7) study at the Universities of Örebro or Karlstad or at the University College of Mälardalen.

Recruitment and selection

- The participants who fulfilled the inclusion criteria were contacted via the telephone and went through a short version of the Structured Clinical Interview for DSM-IV (SCID; First, Gibbon, Spitzer, Williams & Benjamin, 1999) to conform the social phobia diagnosis. Only the module F part in the research version dealing with social phobia was administrated.
- Of the 66 students who applied to the treatment program, 43 of them fulfilled the inclusion criteria 1 to 7 and were therefore contacted for the above mentioned telephone interview.
- Two of them withdraw their application.
- 15 of the 66 had > 21 and/or > 3 on the suicide item of the MADRS-SR.
- Three of the students didn't fulfil the criteria for social phobia according to SPSQ and further three underwent another treatment.
- After the SCID-interview one person was excluded because not fulfilling the criteria for social phobia.
- The remaining 40 participants took part in the pre-test measurements.
- Two more students chosen to withdraw and a total of 38 started the treatment program.

Outcome measures

- The Liebowitz Social Anxiety Scale self-report version (**LSAS-SR**; Liebowitz, 1987; Baker et al. 2002)
- The Social Phobia Scale (**SPS**), The Social Interaction Anxiety Scale (**SIAS**; Mattick & Clarke, 1998)
- The Social Phobia Screening Questionnaire (**SPSQ**; Furmark et al., 1999).
- The Beck Anxiety Inventory (**BAI**; Beck, Epstein, Brown, & Steer, 1988)
- The Montgomery Åsberg Depression Rating Scale (**MADRS-SR**; Svanborg & Åsberg, 1994)
- The Quality of Life Inventory (**QOLI**; Frisch, Cornell, Villanueva, & Retzlaff, 1992).

Participants

- The 38 participants included were randomized into either a Combination program (n=19), i.e. Internet delivered self-help treatment with five live group exposure sessions, or a self-help Internet delivered treatment with only e-mail clinician contact (n=19).
- Quasi-experimental comparisons between the two treatment conditions and a historical wait-list group (n=26) close in time was done instead of randomization into three groups in accordance with the experimental design initially planned for.
- The reason behind was to try to increase the power and the possibility to detect differences between the two treatment groups if there were any.
- During treatment one student begun a face-to-face psychotherapy and was therefore excluded in the statistical analyses (n=37; Combination: n=18; Internet: n=19).

Demographic description of the participants

	Combination (n=18)	Internet (n=19)	Historical wait-list (n=26)
Gender			
Female	15 (83.3%)	15 (78.9%)	18 (69.2%)
Male	3 (16.7%)	4 (21.1%)	8 (30.8%)
Age (years)			
M (SD)	30.4 (6.3)	32.3 (9.7)	33.5 (9.3)
Range	19-41	19-53	22-51
Marital status			
Married/Living together	12 (66.7%)	8 (42.1%)	16 (61.5%)
Partner but not living together	2 (11.1%)	2 (10.5%)	2 (7.7%)
Single	3 (16.7%)	9 (47.4%)	8 (30.8%)
Widow	1 (5.5%)	0 (0.0%)	0 (0.0%)
Highest educational level			
9-year compulsory school			1 (3.8%)
Secondary school (not completed)			1 (3.8%)
Vocational school (completed)			1 (3.8%)
Secondary school (completed)			5 (19.2%)
College/University (not completed)	18 (100%)	19 (100%)	9 (34.6%)
College/University (completed)			9 (34.6%)

Attrition rate

- Eight participants prematurely dropped out from the treatment programs (21.6%).
- Out of these persons, one quitted in the second week, two persons in the fourth week, one in the fifth week, two in the seventh week, one in the eight week, and lastly one in the ninth week.
- The main reason for dropping out was lack of time.
- However, nineteen participants (51.4%) in the two treatment groups did not finish all weekly modules in the intended time frame of the nine weeks.
- The overall modules finished in time were 6.5 (Combination program: 5.9; Internet program: 7.1).

Intention-to-treat

- According to the intention-to-treat principle the post-test as well as the one-year follow up measurements were collected from all of the participants.
- At post-test all participants except one answered their computerized questionnaires and the pre-test score of that participant was carried forward to the post-test assessment point.
- At the follow up three students did not answer the questionnaires and their post-test scores were likeness carried forward to the one-year follow up assessment point. In addition, at post-test all students answered the mailed evaluation.

Material and treatment

- All the participants had to have access to a computer with an Internet connection and a program for e-mail as well as an opportunity to print out PDF-files.
- The main treatment component was a self-help manual, which consisted of nine modules, adapted for use via the Word Wide Web. The text was built on already established CBT-principles for social phobia.

Module	Content	Nr of pages Combination	Nr of pages Internet
1	Introduction and psychoeducation	19	19
2	Clark & Wells' cognitive model	20	20
	for social phobia	32	31
3	Cognitive restructuring I	25	23
4	Cognitive restructuring II	24	23
5	Exposure I	20	19
6	Shift of focus	18	17
7	Exposure II	19	19
8	Social skills	22	22
9	Relapse prevention		
	The total number of pages	199	193

Treatment

- Broadly, each module comprised of information, exercises and ended with a couple of essay questions.
- Weekly the participants were asked, in their own words, to summarize a central section of the module in question, describe their experience of and the outcome of the exercise done, answer an interactive multiple-choice quiz and lastly take an active part in an online discussion group (separated for the two treatment groups) about a predetermined topic.
- In general, the feedback on the homework assignment was given within 36 hours (weekends not included) after the participant had sent their answers via the e-mail.
- If the homework was completed the next module were sent.

Internet-therapists

- Four Internet-therapists were participated in the present study and consisted of two clinical licensed psychologists with research and/or clinical experience with social phobia, and two persons in their last semester of the five years master's degree program.
- The four Internet-therapists were three times during the treatment in supervision of a licensed cognitive behaviour psychotherapist.
- The participants were through randomization allocated to one of the four Internet-therapists.

Exposure sessions

- In the Combination program five live group exposure sessions were included in conjunction with modules four to eight.
- The participants were randomized into one out of two groups, where one licensed psychologist and one psychologist-candidate was in charge for each group.
- The group exposures followed the recommendation of Heimberg & Becker (2002) and in addition we also worked with safety-behaviours and video feedback (Clark & Wells, 1995).

Results

- The treatment groups made improvements from 1) pre- to post-test and 2) pre-test to one-year follow up on all measured dimensions except for the Combination program on quality of life and the Internet program on general anxiety (BAI) at the follow up.
- There were tendencies for significant improvements from pre- to post-test for the Internet program on general anxiety ($p = .08$) and for the Combination program on depression ($p = .10$).
- No interaction effects were found as well as any differences between the Combination- and the Internet-group across all measurements

Comparisons with the historical waitlist group

- ANCOVA:s were computed on post-treatment measures using pre-treatment scores as covariates.
- The participants who received treatment differed from the historical waitlist group on all the post-test measurements except the quality of life measure

Effect sizes

- The mean within-group effect sizes for social anxiety (SPSQ, SPS, SIAS and LSAS-SR) with Cohen's *d* revealed compatible effect sizes as traditional psychotherapy with CBT both at post-test (Combination: Cohen's *d* = 1.00; Internet: Cohen's *d* = 1.01) and at one year follow up (Combination: Cohen's *d* = 0.98; Internet: Cohen's *d* = 1.31).
- The mean within-group effect sizes for all measures showed for respectively the Combination- and the Internet-group at post-test *d* = 0.79 and *d* = 0.87, and at follow-up *d* = 0.78 and *d* = 1.04.

Clinical significance

- Clinical significance was calculated for the SPS and SIAS respectively for each of the two treatment groups, according a post-test score within two standard deviations (SDs) of the general population without social phobia [SPS: M (SD) = 6.4 (7.4); SIAS: M (SD) = 12.8 (8.8); Furmark et al., 1999].

Evaluations via mail

- According to the students self-rated overall impression of improvement 56.2 % and 57.9 % of respectively the Combination-group and the Internet-group reported at post-test that they were much or very much improved.
- At follow-up after one year 66.7 % respectively 79 % of the Combination-group and the Internet-group judged themselves much or very much improved.

Participation in the live group exposure sessions

- Seven of the 18 students (39%) in the Combination group didn't at all attend to the group exposure sessions.
- Differential effects were therefore investigated through calculating the pre-post effects only for the Combination group using participating in group exposure sessions (yes/no) as the between-group factor and time (pre-post) as the within-group factor.
- The result showed interaction effects for the BAI ($F_{1,16} = 6.85$, $p = .02$) and tendencies for interaction effects for the MADRS-SR ($F_{1,16} = 3.26$, $p = .09$) and SPSQ ($F_{1,16} = 4.08$, $p = .06$).
- The students who participated in the exposure sessions compared with those who didn't had significant higher pre-treatment scores in BAI ($M = 13.1$ vs $M = 6.8$) and SPSQ ($M = 29.0$ vs $M = 21.4$), but not in MADRS-SR ($M = 13.0$ vs $M = 11.6$).

Internet-therapists and outcome

- There were no difference between the two licensed psychologists and the two psychologist-candidates regarding their respectively participants' outcome neither at post-test (t (35) = .01-.62, ns) nor at the follow-up (t (35) = .03-.1.22, ns) across all measures.

Discussions

- No indication was found supporting that the Combination-group with the five live exposure sessions was superior over the Internet-group with only e-mail clinician contact.
- This is in line with Carlbring and co-workers' study (2006), and further support the hypothesis that Internet-based self-help with only minimal therapist contact via e-mail is a promising alternative to standard face-to-face therapies for persons suffering for social phobia.
- The participants who received treatment typically differed from the wait-list group on the post-test outcomes except the quality of life measure, when using the pre-test measures as covariates.
- The participants in the present study in general also reported that their social anxiety had been lasting for several years.
- Together these indicating that the treatment effects found probably could be attributed to the treatment per se rather than the passage of time.

Discussions

- The present study could be compared with within effect sizes for exposure (Pre-post: *d*=.82; Pre-follow-up: *d*=.93), cognitive restructuring (Pre-post: *d*=.63; Pre-follow-up: *d*=.96), exposure plus cognitive restructuring (Pre-post: *d*=1.06; Pre-follow-up: *d*=1.08), social skills training (Pre-post: *d*=.65; Pre-follow-up: *d*=.99) and lastly for placebo (Pre-post: *d*=0.48), reported in a meta-analysis of cognitive behavioural treatments for social phobia by Taylor (1996).

Cost-effectiveness

- In comparison with traditional face-to-face therapies the length of the treatment (nine weeks) as well as the time spent with each of the clients (5.25 hours) was in the present study respectively both shorter and lower.
- For example, Stangier and co-workers in their study (2003) reported that total therapist time per patient was 12 hours for group treatment and 15 hours for individual treatment, both lasting for 15 weeks. If computed the time spent with each of the clients in the present study for 15 weeks the result was 8.75 hours and thus still lower.
- In spite of the above the improvements in general seemed to be compatible with traditional CBT, supporting the idea that self-help Internet delivered treatments could be both cost-effective and efficacious.
- However, Internet-based treatment should be seen as a complement and not a substitute for traditional CBT.

Internal validity

- We took the decision to make quasi-experimental comparisons to try to increase the power
- Both in the first RCS of Internet delivered self-help for social phobia (Andersson et al., 2006) as well as in several RCS for social phobia in traditional psychological treatments (Rodebaugh et al., 2004), it has consistently been shown that the wait-list control group does not improve from pre- to post-test. This most probably lower the likelihood that maturational changes could be attributed to the treatment effects in the present study.
- The participants were random assigned into the two treatment groups the risk for the pre-test measures to regress towards the mean been comprised as well as the risk for selection bias.
- Since we used the same standardized and computerized questionnaires as well as instructions in the present study as in Carlbring and co-workers' study (2006), the problem of instrumentation would have been reduced.
- However, a placebo effect could not be ruled out, but most likely the historical wait-list group controls reasonably well for threats to the internal validity.

External validity

- The exclusion criteria of participants with a total score of the depression scale (>21) could have lowered the external validity in the present study, especially since persons with social phobia also frequently are depressed.
- Yet, in the former Internet-studies the cut-off level of the total score of the depression scale was 30, i.e. persons with a moderate depression were included, and still improvements in both social anxiety and depression symptoms were found.
- Although, these results may not be generalized to persons with social phobia and co-morbid depression with scores over 30, i.e. persons with severe depression.
- Since all of the participants were university students the present findings may not be generalizable to persons without higher education. However, one of the aims with this study was to treat university students with social phobia and public speaking fears.
- Yet, the question if Internet-based treatment is effective for persons with social phobia without higher educations is not solved empirical since the earlier Internet-studies also had included persons with an higher than average educational background.

Future research

- Even if Tillfors and Furmark (2006) observed that persons with social phobia do seem to apply for higher education, an association between university students with social phobia and avoidant dysfunctional strategies in educational situations and in anticipation of public speaking were found.
- This could be one mechanism explaining the previous findings of an elevated risk for persons suffering for social phobia of prematurely abolish their studies.
- Hence, one future important goal is to investigate if the present self-help Internet delivered treatment also works for youth in senior high school suffering from social phobia and public-speaking fears, to try to strike the problems relatively early in the course of the disorder before it got more and more impact of one persons life both socially and in the future working career.

To conclude

- This study suggests that for persons with social phobia and public speaking fears only clinician contact via e-mail is as efficacious as live group exposure with a therapist are, indicating that the five live group exposure sessions did not add something to the treatment effect.
- However, it could not be ruled out that the absence of difference between the two programs could be due to law statistical power.
- Regardless of the latter, the result of the present study together with the former Internet-based studies supports the use and further development of Internet-based self-help programs for social phobia.