An online self-administered social skills training for young adults: Results from a pilot study

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Abstract

Up to 95% of teens and young adults in western societies are online, and research shows striking evidence that users suffering from social fears use the Internet more frequently. Social phobia (SP) is one of the most common anxiety disorders, characterized by early onset and more frequent histories of childhood and adolescent shyness. SP is often untreated because adolescent sufferers hesitate to talk to teachers or attend any face-to-face treatment. Furthermore, teachers and caregivers, responsible for educating these young adults, often lack the clinical-psychological knowledge to help. Therefore, we developed an online training for providing educative knowledge about social skills, social fears and body relaxation methods (including evidence-based cognitive-behavioural therapy (CBT) elements combined with elements from social skills trainings (SST)). Until now, no such online tool was readily available for teachers and caregivers in Europe’s German-speaking areas. In addition, the transformation of a well-evaluated (offline) SST with CBT elements into an attractive online form rendered a definite challenge. To assist teachers and caregivers, we developed an online-based self-administered SST with CBT elements especially for adolescents and young adults. The novelty of the project was its development in close cooperation with target groups to ensure usability and acceptance. This multi-stage program for the prevention of social fears and social phobia includes the promotion of social skills moreover cognitive restructuring. Fourteen text- and comic-based sessions (one session per week, each session takes 30–40 min) provide knowledge about social fears and social skills. The effectiveness was evaluated using pre- and post-tests with 61 training participants and 47 control group students. Preliminary results showed promising and significant effects in the intervention group: a decrease of social fears as well as an increase of social skills. These findings suggest that our self-administered online training is effective preventing social fears, and may be considered as an educative tool for teachers and caregivers (providing evidence-based information about social fears, social skills and body relaxation methods).

1. Introduction

Ninety-five percent of teens and young adults are online in the U.S., and 63% of adolescents between 12 and 17 years of age use the Internet daily (Pew Internet, 2012). The Internet is an important aspect of everyday life. It provides a low-risk method of communicating with other people via chat or other social networking services (Campbell, Cumming, & Hughes, 2006; Kelleci & Inal, 2010). It is an excellent tool especially for teachers and caregivers for providing education and information (e.g. information about social skills). Rubin-Vaughan, Pepler, Brown, and Craig (2011) explicitly stated new technologies are efficient tools to support children and young adolescents. It provides low-threshold possibilities to reach out to adolescents suffering from tabooed issues, such as extreme shyness and social fears (thus “If the mountain won’t come to Muhammad, Muhammad must go to the mountain”). There is evidence that adolescents suffering from social phobia (SP) spend more time online searching for self-help, information and social interaction (Chen et al., 2011; Erwin, Turk, Heimberg, Fresco, & Hantula, 2004). Wittchen et al. (2011) stated SP is one of the most
actual psychological problems in the EU and worldwide. SP is characterized by an early age of onset (between the age of 15–25), and social phobics report more frequent histories of childhood shyness (Beidel et al., 2007; Stemberger, Turner, Beidel, & Calhoun, 1995). Studies suggested that SP continues through to adulthood with only a small chance of spontaneous remission (Ost, 1987; Spence, Donovan, & Brechman-Toussaint, 1999). It is a prevalent and potentially debilitating disorder, defined by a marked and persistent fear of one or more situations in which someone is exposed to unfamiliar people.

Despite this, SP is often untreated because adolescent sufferers hesitate to talk to teachers or attend any face-to-face treatment; furthermore, there is a shortage of therapists in many rural areas. Teachers and caregivers are often not trained to provide clinical-psychological knowledge which adolescents with SP would need. Correspondingly, adolescents and young adults suffering from SP often choose the Internet as a more attractive form of communication, because it does not require face-to-face interaction (Chen et al., 2011; Erwin et al., 2004). These considerations led us to the idea of developing an online training for the treatment of social fears, especially for teachers and caregivers, in close cooperation with the target group to enhance acceptability and usability. With this online training, teachers and caregivers are able to provide a low-threshold training to work on social fears, especially for shy students and for adolescents suffering from SP.

### 1.1. Social skills training and treatment of social fears

Adolescents suffering from SP usually have negative expectations concerning their performance in social situations (e.g. Alfano, Beidel, & Turner, 2006; Inderbitzen-Nolan, Anderson, & Johnson, 2007; Miers, Blöte, Bokhorst, & Westenberg, 2009; Miers, Blöte, & Westenberg, 2010). They are perceived as having significantly poorer social skills (Miers et al., 2010), even if they generally possess the knowledge about social skills. Originally, psychologists focused on providing social skills trainings (SST). The treatment of choice based on the assumption that patients suffering from SP only lacked basic social skills (e.g. Bijstra & Jackson, 1999; Spence et al., 1999). Recent studies confirmed that adults who suffer from SP have social skills deficits compared to people with no disorder (Beidel, Rao, Scharfstein, Wong, & Alfano, 2010).

On the other hand, Clark and Wells (1995) have suggested that young adults who suffer from SP possess some social skills, but are too distressed with maladaptive cognitions (e.g. “If I blush, everyone will think I’m a loser”) to use these skills in social settings. CBT (cognitive behavioural therapy) aims to change these maladaptive cognitions. A meta-analysis by Zalta (2011) revealed highly significant decreases in anxiety symptoms of CBT treatment groups compared to controls. A combination of CBT and SST is more effective than SST alone (Cartwright-Hatton, Tschernitz, & Comersall, 2005): Patients gain knowledge about social skills, plus they modify maladaptive beliefs about skills deficits. Consequently, we used these methods for our online training (see Section 2.3).

### 1.2. Online-based trainings

Several studies revealed that Internet-based treatment is superior to placebo or waiting list assignments; likewise, Internet-based self-help therapies have been shown as effective intervention methods for social fears (Newman, Szkodny, Llera, & Przeworski, 2011). Some of these online programs were more effective than face-to-face interventions in respect of decreasing general anxiety symptoms (Andersson et al., 2006; Newman et al., 2011; Reger & Gahm, 2009; Zalta, 2011). Carlbring et al. (2007) studied the effects of a 9-week Internet-delivered CBT with short weekly telephone calls. The treated participants showed significant reductions on measurements of social anxiety, with notable long-term effects compared with a control group (Carlbring et al., 2007; Carlbring, Nordgren, Furmark, & Andersson, 2009). Tillfors et al. (2008) investigated the effects of an Internet-based self-help program with minimal therapist contact via email. They found an Internet-based program on its own is as efficient in treatment of social fears as an Internet-bases program with added group exposure sessions. Botella et al. (2010) studied the effects of a solely Internet-based program for the treatment of the fear of public speaking in comparison to face-to-face interventions and found that both treatment conditions were equally efficacious. Common and effective elements of Internet-based self-help training programs for social fears include cognitive restructuring and guides for exposure (Andersson, 2009; Botella et al., 2010; Carlbring et al., 2009; Tillfors et al., 2008). Therefore, Andersson (2009) concluded that it is inappropriate to not use Internet-based treatment at least as a complementary service to common treatment methods for sociophobic users.

In like manner, Internet-administered training procedures can also be a supplement for face-to-face CBT, crucially reducing the contact time between a patient and a therapist (Newman, Erickson, Przeworski, & Dzus, 2003). It is argued that online-based CBT is not appropriate for severe generalized social phobia, but it can lower the threshold for sociophobic users to attain face-to-face treatment or be successful in the treatment of social fears. Eighty percent of psychotherapists recommend the use of media-administered self-help procedures as an adjunct to therapy (Botella et al., 2010).

### 1.3. Aims of the present study: development of our online training and evaluation

Since SP and social fears have an early age of onset, we focused on the target group – adolescents and young adults. Our training is designed as a self-administered educational interactive program for adolescents and young adults aged 14–30 (and above). From January 2010 to January 2011 we developed the online training. As a novel aspect in our study, it was created in close cooperation with the target group. Three meetings were arranged with groups of four young students aged 16–24 in order to enhance usability and acceptability of our online-training. In the first meeting, ideas were collected concerning the fundamental design of the online training. In the second meeting, the design of the online training was presented and discussed further critique (e.g. how to bring fun into a serious matter like using comics instead of videos and texts, and the length of the educational text). A crucial critique was the absence of “fun” elements to the online training. We discussed how to incorporate mini-games and role-plays as comics into the training. At the third, the final design of the training was presented and further critique points collected, such as the length and difficulty level of the educational text. No previous study has developed a self-administered online-training in cooperation with young adults, and investigated the outcomes for young adults in German-speaking areas. In this pilot study, the preliminary results of our pre- and post-test measurements in respect of a treatment (with access to the online-training) and control (without access to the online-training or any other SST) group are presented.
2. Materials and methods

2.1. Participants

The current pilot study was conducted from March 2011 to February 2012. Voluntary participants were recruited at several lectures (bachelor study) at the faculty of psychology, University of Vienna in Austria. We recruited highly shy students as well as students interested in participating in our online social skills training. As a voluntary pilot study, our intervention group included socially phobic students as well as non-phobic students interested in participating in our online training (it was therefore not possible to randomize the sample).

At baseline \((t_1)\), 123 students answered our questionnaires including the informed consent in our intervention group (IG). Further 22 participants only logged in and created a user name. A total of 61 (52 female) participants finished the online administered training program including the post-test measurements \((t_2)\) voluntarily until February 2012. The total dropout rate in the IG was therefore 50.4%.

It was important to attain equal control data to control the effects of administering questionnaires concerning social fears and social skills. We recruited voluntary students in similar (parallel) lectures \((n = 47)\), the dropout in our control group (CG) was 24.19%. The CG was not provided with any SST or CBT online or offline, nor did they have access to our online training. Both IG and CG participated in our online questionnaires at the same time; only the IG had access to our self-administered online training. Table 1 presents the sociodemographic characteristics of the two study groups. No significant differences were found by gender, education status, age and sum scores of SPIN (social phobia inventory, see Section 2.3) and LSAS (Liebowitz social anxiety scale, see Section 2.3) at \(t_1\).

2.2. Procedure

The development of our online training is based on common SST (lesson 7–11) combined with CBT elements (lessons 1–6). It involves 14 sessions (\(40 – 50\) min). Each lesson followed a similar structure: It begun with a revision of the former lesson, followed by text- and comic-based information including mini-games, and ended with workbooks (tasks related to the topic) and body-relaxation techniques provided as mp3-file. In general, we recommended finishing one lesson each 5–7 days and sent daily reminders by email to our participants in the IG. Fig. 1 demonstrates the structure of the training.

Lessons one to six included CBT elements to restructure maladaptive thoughts. The first lesson provided general knowledge about the structure of the online training, and the user chose his or her avatar (there are three male and three female avatars to choose from) – a personal companion who functions as a guide through all 14 lessons. Lesson 1 also included an informed consent concerning the online questionnaires, the structure of the training, and the rights of participants (to stop the online training at any given point without any reason, and to contact a real life psychologist if there are any problems). Our questionnaires (see Section 2.3) via an online form were administered at the end of lesson 1. Lesson two included information about social fears (prevalence, cognitive, behavioural and physiological aspects of fear). Further basic knowledge and cognitive techniques were provided in lessons three to six, such as identifying and modifying maladaptive cognitions and basic cognitive restructuring. Users were asked to identify negative automatic thoughts and exposed to helpful coping strategies, such as body relaxation methods and the exercise of helpful thoughts. Examples were given with the help of comics and mini games such as “the thought pool” (match negative with positive thoughts). Homework included daily diaries in which the user records situations, associated thoughts and body relaxation methods. Each lesson concluded with a body relaxation method via MP3 or downloadable work sheet (progressive muscle relaxation, autogenic training and fantasy journey).

Lessons seven to twelve included SST, aimed at providing basic knowledge about relevant social skills. It opened with a discrimination training to distinguish between self-assertive, shy and aggressive behaviour in lesson seven – always in respect to maladaptive or helpful thoughts. Lessons eight to twelve provided knowledge about social skills, such as: establishing social contacts, accepting demands, saying no, giving/receiving feedback and solving conflicts. Users were asked to identify similar situations in their life and to note their usual reactions in these social interactions via daily diaries and homework. Examples were given with the help of comics, demonstrating the differences between an aggressive, shy and self-assertive behaviour. We further created mini-games, e.g. the “Do you remember” – Game at the beginning of each lesson. Users were asked to remember important facts from the preceding lesson, with the avatar providing feedback. Each lesson concluded with a body relaxation method via MP3 or downloadable work sheet. The last lessons thirteen and fourteen repeated the core topics of the training as a review. The topic of each lesson was recounted with a summary of the contents. The last lesson provided information about relapse prevention.

The online-training was available via a special link. On the web page, a left-handed menu indicated the actual lesson with a coloured button. The progress of each lesson is displayed at the top of the page. To provide access to formerly completed lessons, we created a “personal area” at the bottom left of the page containing information about the recent homework, the body relaxation methods, work sheets, and an online diary. Fig. 2 demonstrates the structure of the web page.

### Table 1
Baseline demographic characteristics by condition.

<table>
<thead>
<tr>
<th>Variables</th>
<th>IG ((n = 61))</th>
<th>CG ((n = 47))</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male ((n))</td>
<td>9</td>
<td>6</td>
<td>(x^2 = .088, p = .497)</td>
</tr>
<tr>
<td>Female ((n))</td>
<td>52</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compulsory school</td>
<td>1</td>
<td>2</td>
<td>(x^2 = 2.95, p = .565)</td>
</tr>
<tr>
<td>High school</td>
<td>57</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Age Mean (SD)</td>
<td>23.47 (3.51)</td>
<td>25.14 (7.79)</td>
<td>(t = -.689, p = .530)</td>
</tr>
<tr>
<td>SPIN total score</td>
<td>19.79 (11.29)</td>
<td>18.44 (12.05)</td>
<td>(t = -.594, p = .554)</td>
</tr>
<tr>
<td>LSAS total score</td>
<td>38.24 (21.42)</td>
<td>35.78 (21.78)</td>
<td>(t = -.587, p = .558)</td>
</tr>
</tbody>
</table>
2.3. Instruments

To survey social phobia and social fears we used the German versions of the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987) and the Social Phobia Inventory (SPIN; Connor et al., 2000). The LSAS is a 24-item questionnaire assessing fear and avoidance symptoms of SP (Liebowitz, 1987; German version by Stangier & Heidenreich, 2005). Some example items are “Acting, performing, or speaking in front of an audience” or “Being the centre of attention.” The items are rated on a four-point Likert-type scale for fear (from none to severe) and avoidance behaviour (from never to usually), see http://www.socialanxietysupport.com/disorder/liebowitz for the complete questionnaire. The LSAS provides subscale scores for fear of social interaction, fear of performance, avoidance of social interaction and avoidance of performance (Heimberg et al., 1999). In previous studies, Cronbach’s $\alpha$ was high (.95) for socially phobics (Fresco et al., 2001). At $t_1$, the current data showed Cronbach’s $\alpha = .94$ for LSAS total score, $\alpha = .92$ for LSAS subscale “fear” and $\alpha = .89$ for LSAS subscale “avoidance”.

The SPIN (Connor et al., 2000; German version by Sosic, Gieler, & Stangier, 2006) is a highly used screening instrument for SP. Connor et al. (2000) recommend the SPIN for surveying effects of intervention studies. It is a 17-items instrument, rated on a 5-point Likert-type scale. Example items are “I am afraid of people in authority” or “I am bothered by blushing in front of people” (rated on a scale ranging from not at all to extremely), see http://psychology-tools.com/spin for the complete questionnaire. Ranta, Kaltiala-Heino, Rantanen, Tuomisto, and Marttunen (2007) suggested the following cut-off scores: 0–19 non- and sub-clinic socially phobic, and socially phobic at 20

<table>
<thead>
<tr>
<th>Maladaptive Cognitions</th>
<th>Cognitive Restructuring</th>
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<tbody>
<tr>
<td>Lesson 1</td>
<td>introduction, structure of the online training, avatar</td>
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<tr>
<td>Lesson 2</td>
<td>fear and stress on a cognitive, behavioral and physical level</td>
</tr>
<tr>
<td>Lesson 3</td>
<td>Vicious circle of fear</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>Maladaptive cognitions I</td>
</tr>
<tr>
<td>Lesson 5</td>
<td>Maladaptive cognitions II</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>Cognitive restructuring – adaptive cognitions</td>
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<tr>
<th>Social skills training</th>
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<tbody>
<tr>
<td>Lesson 7</td>
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<tr>
<td>Lesson 8</td>
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<tr>
<td>Lesson 9</td>
</tr>
<tr>
<td>Lesson 10</td>
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<tr>
<td>Lesson 11</td>
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<td>Lesson 12</td>
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<table>
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<tr>
<th>Relapse prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson 13</td>
</tr>
<tr>
<td>Lesson 14</td>
</tr>
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</table>

Fig. 1. Structure of our online training.

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and beyond. Previous studies found that Cronbach’s alpha is satisfactory at .87 – .94 (Connor et al., 2000). In our study, Cronbach’s alpha is comparably good at .91.

To measure self-concepts concerning social skills, we used the “Frankfurter Self-concept Scales” (FSKN; Deusinger, 1986). The FSKN measures self-concepts on 10 subscales (e.g. general performance potential, problem solving, making decisions, general self-worth, and emotional sensitivity and mood). High values indicate more favourable statements. The FSKN inventory consists of 10 one-dimensional scales to identify self-concepts that individuals have developed concerning relevant social skills. Example items are “In general, I am very satisfied with myself” or “Sometimes I think I am good for nothing” (rated on a scale ranging from I strongly agree to I strongly disagree). The reliability is very good (Cronbach’s alpha = .97) (Deusinger, 1986). Our study found a satisfactory Cronbach’s alpha (.75).

2.4. Statistical analysis

In our research, we use pre- and post-test measures (in both treatment and control group) to evaluate the training effects (GLM with repeated measures design). Analyses were carried out with SPSS 18, Cohen’s was calculated using MS Excel. According to Cohen (1988), effect sizes ranged between $d = .20$ and $d = .49$ indicate a small effect, effect sizes ranged between $d = .50$ and $d = .79$ indicate medium effects and effect sizes ranged over $d = .80$ indicate large effects.

3. Results

3.1. Social anxiety

Table 2 reveals the correlations between the anxiety related questionnaires. Significant effects were reached in the anxiety-relevant questionnaires’ total scores, in addition, further significant decreases in the LSAS ($p = .001, d = .65$) and SPIN ($p < .001, d = .94$) were detected. We found significant decreases in both avoidance and fear subscales of LSAS, see Table 3 for the means and standard deviations of the pre- and post-test measurements.

Table 2

<table>
<thead>
<tr>
<th>Scales and subscales</th>
<th>LSAS – AP</th>
<th>LSAS – ASI</th>
<th>LSAS – FP</th>
<th>LSAS – FSI</th>
<th>LSAS total score</th>
<th>SPIN total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSAS – AP</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSAS – ASI</td>
<td>.764**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSAS – FP</td>
<td>.756**</td>
<td>.591**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSAS – FSI</td>
<td>.649***</td>
<td>.755***</td>
<td>.825**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSAS total score</td>
<td>.888**</td>
<td>.865**</td>
<td>.899**</td>
<td>.908**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SPIN total score</td>
<td>.640**</td>
<td>.608**</td>
<td>.774**</td>
<td>.810**</td>
<td>.798**</td>
<td>1</td>
</tr>
</tbody>
</table>

*p < .01; AP — avoidance of performance, ASI — avoidance of social interaction, FP — fear of performance, FSI — fear of social interaction.
The program aimed at questioning maladaptive thoughts as well as providing social skills for daily life. The novelty of this online training on participants was examined in comparison to non-intervention control group (waiting list condition). After 12) of the IG participants no longer met the diagnostic criteria for SAD at t2, compared to 44.3% \((n = 27)\) at t1 (\(t(60) = 5.848, p = .001, d = 1.15\)). In the CG, 42.6% \((n = 20)\) were classified as sociophobic according to SPIN cutoff criteria at t1 and 36.2% \((n = 17)\) at t2 (\(t(46) = -.772, p = .444, d = .15\)).

### 3.2. Self concept concerning social skills

Significant effects of the online training in six out of ten scales of the FSKN were recorded. Although the intervention group had higher scores on every scale in comparison to the control group at t2, we did not find any significant effect in the scales “emotional sensitivity and emotional irritability” \((p = .286, d = .21)\), “emotional stability in groups” \((p = .251; d = .23)\), “respect and appreciation from other people” \((p = .086; d = .34)\), and “feelings and relationships” \((p = .057; d = .38)\). Table 4 presents the measurements of the pre- and post-test scores: higher scores represent an increase of social skills.

### 4. Discussion

SP and social fears are often a taboo for adolescents, something they would rather not talk about. It is a challenge for teachers and caregivers to provide education about social skills, especially when it comes to shy and sociophobic students. Therefore, the aim of this pilot study was to develop and evaluate a self-administered online-training to prevent social fears. With this online training, teachers and caregivers should be able to provide a low-threshold training to work on social fears, especially for shy students and for adolescents suffering from SP. The program aimed at questioning maladaptive thoughts as well as providing social skills for daily life. The novelty of this project was its development in close cooperation with young adults, to enhance both acceptability and usability in our target groups.

FSTN subscale | Group | \(M_1 (SD_1)^a\) | \(95\% Cl_1\) | \(M_2 (SD_2)^a\) | \(95\% Cl_2\) | \(F\) | \(p\) | \(d\)
--- | --- | --- | --- | --- | --- | --- | ---
General performance potential | IG | 44.72 (5.57) | [43.29, 46.14] | 48.01 (7.06) | [46.20, 49.82] | 9.84 | .002 | .61
 | CG | 47.67 (7.01) | [45.49, 49.86] | 48.30 (7.00) | [46.14, 50.45] | 6.85 | .010 | .51
Problem solving | IG | 47.16 (5.79) | [45.68, 48.64] | 49.26 (5.94) | [47.74, 50.78] | 8.42 | .005 | .57
 | CG | 47.86 (4.91) | [46.33, 49.40] | 47.69 (5.49) | [46.00, 49.38] | 7.19 | .005 | .59
Decision making | IG | 27.44 (3.35) | [26.58, 28.30] | 29.06 (3.58) | [28.14, 29.98] | 8.42 | .005 | .57
 | CG | 28.02 (4.21) | [26.70, 29.33] | 27.73 (4.18) | [26.49, 28.98] | 6.85 | .010 | .51
Self-worth | IG | 45.27 (6.13) | [43.70, 46.84] | 48.90 (7.08) | [47.08, 50.71] | 8.21 | .005 | .56
 | CG | 47.11 (7.67) | [44.72, 49.51] | 48.82 (7.51) | [46.59, 51.05] | 8.21 | .005 | .56
Emotional sensitivity | IG | 22.59 (3.32) | [21.73, 23.44] | 24.57 (4.48) | [23.42, 25.72] | 1.15 | .286 | .21
 | CG | 22.00 (5.93) | [20.71, 23.82] | 23.08 (4.41) | [21.77, 24.39] | 1.15 | .286 | .21
Emotional stability in groups | IG | 50.57 (11.75) | [47.56, 53.58] | 53.93 (10.89) | [51.14, 56.72] | 1.33 | .251 | .23
 | CG | 50.83 (10.09) | [47.73, 53.94] | 52.01 (10.17) | [48.98, 55.03] | 1.33 | .251 | .23
Sociability | IG | 28.36 (3.18) | [27.54, 29.17] | 29.60 (3.59) | [28.68, 30.52] | 4.23 | .042 | .4
 | CG | 28.20 (3.21) | [27.34, 29.33] | 28.30 (3.48) | [27.26, 29.34] | 3.80 | .086 | .34
Respect from others | IG | 28.18 (4.72) | [26.97, 29.38] | 29.50 (5.19) | [28.17, 30.83] | 3.00 | .086 | .34
 | CG | 28.10 (4.91) | [26.59, 29.61] | 27.88 (4.54) | [26.53, 29.22] | 3.00 | .086 | .34
Emotional irritability | IG | 22.44 (5.76) | [20.96, 23.92] | 24.32 (5.40) | [22.40, 25.71] | 6.59 | .012 | .5
Feelings and relationships | IG | 27.39 (4.27) | [26.29, 28.48] | 28.86 (3.79) | [27.90, 29.83] | 3.70 | .057 | .38
 | CG | 29.00 (3.86) | [27.81, 30.18] | 28.96 (3.59) | [27.89, 30.03] | 3.70 | .057 | .38

* Lower mean scores represent increase of social skills.
participating in the online-training, 24.6% of the intervention group no longer met social phobia criteria according to SPIN; the rate
decreased significantly from 44.3% to 19.7%, with a Cohen's $d = 1.15$ indicating a very large effect. In the CG, the percentage decreased from
42.6% to 36.2% (with a small effect size of $d = .15$).

Concerning FSKN, the IG significantly improved in six of ten scales. Participants of our online training perceived a significantly higher
general performance potential, a higher problem solving ability, a higher potential for decision making, better general self-worth, a better
sociability in their life and less emotional irritability. No effects were found in respect of emotional sensitivity, an emotional stability in
groups, perceived respect by other people and feelings in relationships. These promising outcomes have to be examined especially in respect of
long-term effects (6-months follow up studies).

Several limitations of our pilot study have to be considered. The most problematic aspects were the high percentage of female students
(with recruiting students at the faculty of psychology), and the number of students who decided not to finish the online-training. This had
an uncontrollable impact on the results. In the pilot study, we were not able to randomize the participants via extreme scores or gender, the
participation was voluntarily. A randomized control-trial has to be established in a follow-up research to confirm our preliminary findings.
Botella et al. (2010) reported similar drop-out rates of 51.6% (compared to 50.4% in our study), and suggested using email, text messages and
telephone calls to decrease the dropout rate. According to the recommendations by Botella et al. (2010), we reduced the text-based
information included in each lesson, and increased the amount of time our participants were allowed to work with the treatment materi-
als (7 days for each lesson).

Additionally, we have to mention that the promising results from this study were limited to a self-administered online-based training
program in comparison with an untreated CG. The results were possibly affected by the training program itself, however, in accordance with
the aim of the study it has been shown that we developed an easily accessible online-based training program for people with social skills
deficits. The modalities of the program were designed to be viewed over the Internet and provided the opportunity of a low-threshold
prevention of social fears. Nevertheless, future studies should further investigate the efficacy and effectiveness of this online-based training
by establishing another intervention group (e.g. face-to-face treatment), as well as balancing the effect of gender to detect possible gender differences.

However, our findings suggest that the online-training is effective in comparison to a non-intervention group in providing social skills as
well as in preventing social fears. Many adolescents and young adults suffer from social fears. It is important to offer evidence-based
interventions, especially on the Internet, to reach out to adolescents – “If the mountain won't come to Muhammad, Muhammad must go
to the mountain.” A future goal would be to investigate the effects of this online training in respect to a face-to-face treatment, similar to
Tillfors et al. (2008).

On the whole, our effect sizes were very large to moderate, but according to Zalta (2011) even small effect sizes can have both a clinical
and economic impact in decreasing cascading effects of anxiety disorders. The cost-effectiveness and ease of access to treatment for people
who don't have easy access to traditional therapy (such as people in rural areas with few therapists) is another advantage of this self-
administered training.

Lastly, the length (12–14 weeks) is relatively short, similar to the Tillfors et al. (2008) program, and participants do not have to see a
psychologist. These features can dramatically increase the availability of CBT especially for shy young adults, who generally hesitate to
obtain face-to-face settings. Internet-based self-administered programs should be seen as a complement and not as a substitute for face-to-
face CBT, for severe cases of generalized social phobia individual face-to-face treatment is still state of the art. Our training is self-
administered, but from an ethical point of view we recommend that users have the possibility to contact a psychologist. Nevertheless it
is an excellent tool for teachers and caregivers to provide a low-threshold training to work on social fears, especially for shy students and for
adolescents suffering from SP.

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