Efficacy of Transdiagnostic Cognitive-behavioral Therapy for Assertiveness: A Randomized Controlled Trial

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Introduction

Experiences of stress, anxiety, and depression are often associated with avoidance. A person who is all too stressed from an ever-increasing workload may want nothing more than to tell their supervisor there are too many tasks on the table, yet still takes on another assignment when the supervisor asks. A person with social anxiety may want nothing more than to take part in social gatherings, yet chooses to abstain to avoid the feeling of being judged or scrutinized by others. A person who is depressed may want nothing more than to call a friend, yet chooses not to, as to not risk being put down if the friend were to not pick up the phone. These behaviors may all be associated with inadequate assertiveness, i.e., avoidance of constructively presenting one's thoughts, feelings, needs, and wishes in relation to others.

Assertiveness can be difficult to delineate from social skills in general (Linehan, 1979), but a common definition is "direct, firm, positive […] action [enabling] us to act in our own best interests, to stand up for ourselves without undue anxiety, to exercise personal rights without denying the rights of others, and to express our feelings and needs […] honestly and comfortably" (Alberti & Emmons, 2017, p. 34). Examples include politely saying 'no' to a boss requesting undue overtime, actively participating in social activities, accepting/acknowledging a compliment without deflecting, and verbalizing feelings in personal relationships without acting out. Lack of assertiveness is associated with several psychological problems, including stress, anxiety, depression, and panic disorder, as well as emotional instability, strained relationships, and low self-esteem (Speed et al., 2018). While there are diagnoses, diagnostic tools, and treatment manuals for these conditions, no evidence-based interventions specifically target assertiveness for a broader population.

Assertiveness training in general, however, goes back to the very first behavioral therapies, for example, as described by Salter (1949) or Wolpe & Lazarus (1966). Assertiveness was presented as a behavioristic alternative to psychoanalysis. In the 1970s, the concept was popularized in self-help books by Alberti & Emmons (1974), Smith (1975), as well as Fensterheim & Baer (1975). Research in assertiveness training peaked in the 1980s (Speed et al., 2018). Although the behavioral techniques of the first wave of therapy were supplemented by cognitive restructuring techniques (e.g. Beck, 1979) in the following decades, techniques such as modeling and behavior rehearsal have remained active parts of treatments for psychological syndromes such as anxiety disorders and depression. The Linehan (1979) manual for assertion therapy combining behavior rehearsal with cognitive restructuring was a stepping stone towards Dialectical Behavior Therapy (DBT), of which assertion skills training in a group setting is an integral part Linehan (1993).

(Säga något här om ev för- och nackdelar med transdiagnostiska behandlingsmål jämfört med syndromal symptomreduktion som mål, relatera till ex ACT och Rozentals prokrastineringsmål? Kolla upp vad forskningen säger här.)

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Building on the definition from Alberti & Emmons (2017), assertiveness can be operationalized as acting with respect to both personal rights and rights of others. Assertion, when made in a constructive way, thus takes into account not only the expected result of the interaction (e.g. having said no to someone else's demand, or having made a request) but also negotiates the strength of the interaction with regards to both the importance of the relationship (e.g. "Having stated my refusal/request, what do I want the other person to think of me?") and what Linehan (1993) refers to as 'self-respect' ("Having stated my refusal/request, what do I want to think of myself?"). Assertive behavior, using this definition, can be thought of the product of respect of rights of others, and respect of rights of self. This definition offers plenty of opportunities for idiographic and contextual descriptions of assertion in therapy, i.e. when designing in vivo behavioral experiments, regardless of cultural influences on what is considered to be acceptable behavior (within a family, community, society, et.c.).

Speed et al. (2018) conclude that while assertiveness training remains part of DBT, as well as acceptance and commitment therapy (ACT), general assertiveness training has otherwise fallen into oblivion in favor of interventions designed for specific psychiatric disorders. Very little research on assertiveness training has been published since the early 1980s. Recent exceptions include Baker & Jeske (2015), showing a negative relationship between social anxiety and assertiveness, and Vagos & Pereira (2019) showing a negative relationship between mental distress in general and assertiveness. Speed et al. (2018) further conclude that there is potential for assertiveness training as an intervention for individuals suffering from anxiety and depression, and as a means to increase relationship satisfaction. The lack of contemporary evidence for the assertiveness construct and assertiveness training as a transdiagnostic intervention calls for new research on the subject.

The Western Australian Centre for Clinical Interventions (CCI) offers various self-help resources for mental health problems. These resources include Assert Yourself (Michel & Fursland, 2008), a series of ten modules with concepts and strategies primarily based on CBT, with a focus on assertiveness. While current evidence for assertiveness training is scarce, at best, there is great evidence for CBT for symptoms and syndromes associated with inadequate assertiveness. In a review of meta-analyses, Hofmann et al. (2012) conclude that CBT is one of the most effective forms of therapy. This includes the application for symptoms related to trauma and stress, as well as syndromes related to depression and anxiety. A review by Andrews et al. (2018) also lends support to internet-delivered CBT (iCBT) for anxiety and depression, showing an average between-group effect size g = 0.8, compared to controls. Carlbring et al. (2018) have also shown that iCBT, on average, produces equivalent overall effects compared to face-to-face treatment. Both guided and unguided iCBT (i.e., with or without therapist support) have been shown to be effective, though guided iCBT tends to produce slightly larger effects (Baumeister et al., 2014). iCBT has further been proven effective in transdiagnostic applications, including interventions targeting stress (Day et al., 2013), procrastination (Rozental et al., 2015), and perfectionism (Rozental et al., 2017).

This study aims to evaluate the effects of an eight-week iCBT intervention for assertiveness, Respekt[2], based on the Michel & Fursland (2008) modules, through a randomized controlled trial. The research questions are:

- What are the effects on assertiveness (adaptive, aggressive, and aggregated) of guided and unguided participation in Respect[2], compared to a waitlist control?

- What are the effects of guided and unguided participation on measures of anxiety and depression, compared to the control?

Method

Ethics and pre-registration

Before recruitment started, the study received ethics approval from the Swedish Ethical Review Authority (Diary number: 2019-05165). The study was pre-registered at ClinicalTrials.gov (NCT04240249).

Design

The study design follows the RCT criteria proposed by Chambless & Ollendick (2001), with a randomized allocation of participants to three groups: (1) Guided self-help intervention, (2) Self-help intervention (unguided), and (3) a ten-week Waitlist control. A sample size of 210 (70 per group) was decided on through an a priori power calculation according

to guidelines for linear models set forth in Cohen (1988), assuming a between-group effect size of Cohen's d of 0.8 on the primary measure for assertiveness, power 0.9, alpha 0.05, and a 15% drop-out rate per week (8 weeks in total).

Participants

Participants were recruited from the public through advertisements on social media and other websites. Interested individuals were referred to a purpose-built website with more information on the study, including criteria for participation. Participants were required to be Swedish citizens, at least 18 years of age, have access to the internet, and be fluent in Swedish. Information on the website also included risks associated with participation, as well as terms and conditions for participation. People were invited to submit their email addresses and those who did were sent a link to complete online screening. The online self-report screening battery included measures of anxiety, depression, and assertiveness, as well as questions regarding socio-demographics, experiences of psychological treatment, any current medication, and motivation for participation.

In total, 657 individuals submitted their email addresses, of which 464 completed the screening questionnaire. Among those, 126 were excluded for meeting exclusion criteria. Exclusion criteria were concurrent psychological treatment, a recent change in psychotropic medication, lack of time and/or motivation for participation, and a rating of 15 or above on the PHQ-9 measure of depression. The remaining 338 individuals were invited to participate in the study. Of those, 253 accepted the invitation.

Procedure

In accordance with the a priori power calculation, 210 participants were randomized to be included in the study. The remaining 43 individuals were offered access to treatment materials but were excluded from all analyses. The 210 participants were randomized to the three treatment conditions. Participants in the guided condition were randomized to one of two therapists. All randomization was performed by an independent third party at Stockholm University, using the online services random.org (Haahr, 2018) and sealedenvelope.com (Sealed Envelope Ltd., 2021).

Measures

Measurements were collected using the below scales pre treatment (week 0), midway during the intervention (week 4), post treatment (week 8), and at 1 year follow-up.

Primary measures

Assertiveness style was measured using a Swedish translation (contributed by TH) of the Adaptive and Aggressive Assertiveness Scales (AAA-S; Thompson & Berenbaum (2011)) which contained 30 items, including "When someone I don't know well borrows something from me and forgets to return it, I… a. Demand it back b. Ask if she/he is done and ask for it back" (a. and b. both scored 1 = Never, 5 = Always). The AAA-S has good and excellent internal consistency for aggressive (0.88) and adaptive (0.93) assertiveness, respectively. A Swedish translation (contributed by TH) of the Rathus Assertiveness Schedule (RAS; Rathus (1973)) was used as an additional measure of assertiveness style with 30 items, including "I find it embarrassing to return merchandise", (+3 = Very characteristic of me, extremely descriptive, -3 = Very uncharacteristic of me, extremely nondescriptive).

Secondary measures

Depression was measured using the Patient Health Questionnaire (PHQ-9; Kroenke et al. (2010)) which contained nine items, including "Feeling down, depressed, or hopeless" (0 = Not at all, 3 = Nearly every day). Anxiety was measured using the Generalised Anxiety Disorder 7-item Scale (GAD-7; Spitzer et al. (2006)) which contained seven items, including "Feeling nervous, anxious or on edge" (0 = Not at all, 3 = Nearly every day). Social anxiety was measured using the Liebowitz Social Anxiety Scale (LSAS-SR; Fresco et al. (2001)) which contained 24 items, including "Calling someone you don't know very well" (Fear or anxiety, 0 = None, 3 = Severe; Avoidance, 0 = Never, 3 = Usually). These self-report measures have reported either good or excellent internal consistency (0.87, 0.89, 0.92, and 0.96, respectively).

Intervention

The intervention was based on the Assert Yourself modules by Michel & Fursland (2008), adapted to Swedish by TH with permission from the copyright holders. The self-help material teaches the distinction between different types of assertiveness (constructive, aggressive, passive, and passive-aggressive). It also aids the reader in finding reasons to act more assertive and constructive. The material is inspired by and cites works by Alberti & Emmons (1974), Gambrill & Richey (1975), and Smith (1975), among others. In the material, assertiveness is described and operationalized based on the theoretic assumptions by Wolpe (1990) regarding reciprocal inhibition and classic conditioning: By assertively practicing the expression of feelings, wishes, and demands in anxiety-evoking situations and relationships (where the person previously were prone to non-assertive behaviors, e.g., subdued disappointment or anger), a person may experience less discomfort from autonomous anxiety responses, over time. This is to be practiced in vivo, not just by acting. The long-term goal is to learn how to inhibit anxiety by being assertive. In cases where a physical counterpart is missing and anxiety is invoked by places, objects, or words, Wolpe (1952) suggests relaxation as a means to inhibit the anxiety response.

The material also includes a rationale for cognitive restructuring with methods by Beck (1979), Clark (1986), Clark & Wells (1995), and Powell (2017). Through behavioral experiments, readers are to test the validity of negative thoughts, with the purpose of achieving greater flexibility in responses. Furthermore, the material includes a passage on progressive muscle relaxation, for the reader to recognize bodily tension, reduce general strain, and practice an active coping technique for stressful situations. Finally, chapters on specific challenges, such as saying no, dealing with criticism, and coping with disappointment, conclude the material.

The Swedish adaptation prompted some additions to Michel & Fursland (2008), some of which are presented in this paragraph. Based on recent research on exposure and inhibitory learning (e.g., Craske et al. (2008)), participants were encouraged to actively vary learning situations and work on new skills in as many environments as possible. In another new passage, inspired by the works on acceptance by Hayes (e.g., 2004) and others, participants were encouraged to actively search for and remain in the respondent discomfort they previously avoided. In line with Öst's (2006) recommendations for applied tension, progressive muscle relaxation was introduced early in the intervention and expanded over several weeks. The written material was also complemented by downloadable audio with relaxation exercises, video of conversations and role-playing, and several new, interactive exercises.

Additional support for participants in the guided Self-help condition included weekly messages in the treatment platform, including homework feedback, encouragement, validation, psychoeducation, and answers to any questions. Time for guiding participants was allocated not to require more than 15 minutes per participant and week.

Therapists

Both therapists supporting participants in the guided condition were final-year psychology students at Stockholm University, training to become clinical psychologists. Both had completed basic training in CBT and received continuous supervision from a licensed psychotherapist with more than two decades of iCBT experience.

Data preparation

Five participants were excluded from the analyses due to wrongful inclusion as they were receiving concurrent psychological treatment.

Analysis

All data were organized in one dataset and analyzed using R 4.1.1, using lmerTest (Kuznetsova et al., 2020), emmeans (Lenth, 2020), ggeffects (Lüdecke, 2018), performance (Lüdecke et al., 2022), and clinicalsignificance (Claus, 2022) packages. All syntax is available at https://github.com/hmep/r2fu/, together with anonymized data.

A linear mixed-effects model was fitted using unscaled data to estimate fixed and random effects of group, time, and group-time interaction, using an unstructured covariance pattern, and the REML method of estimation. Kenward-Roger approximations were used to estimate denominator degrees of freedom. Post-hoc pairwise comparisons of estimated marginal means were performed using T-tests with Bonferroni-corrected p-values. The proportions of participants showing reliable change and reaching clinical significance were determined in accordance with Jacobson & Truax

Figure 1: A total of 210 participants were included in the study through randomization; they were further randomized into groups Self-help, Support, and Waitlist, with 70 participants each.

(1991), using the 'c' definition to select the cutoff value. To honor the intention to treat principle in the analysis of clinical significance, any missing value was replaced with the value from the previous time point.
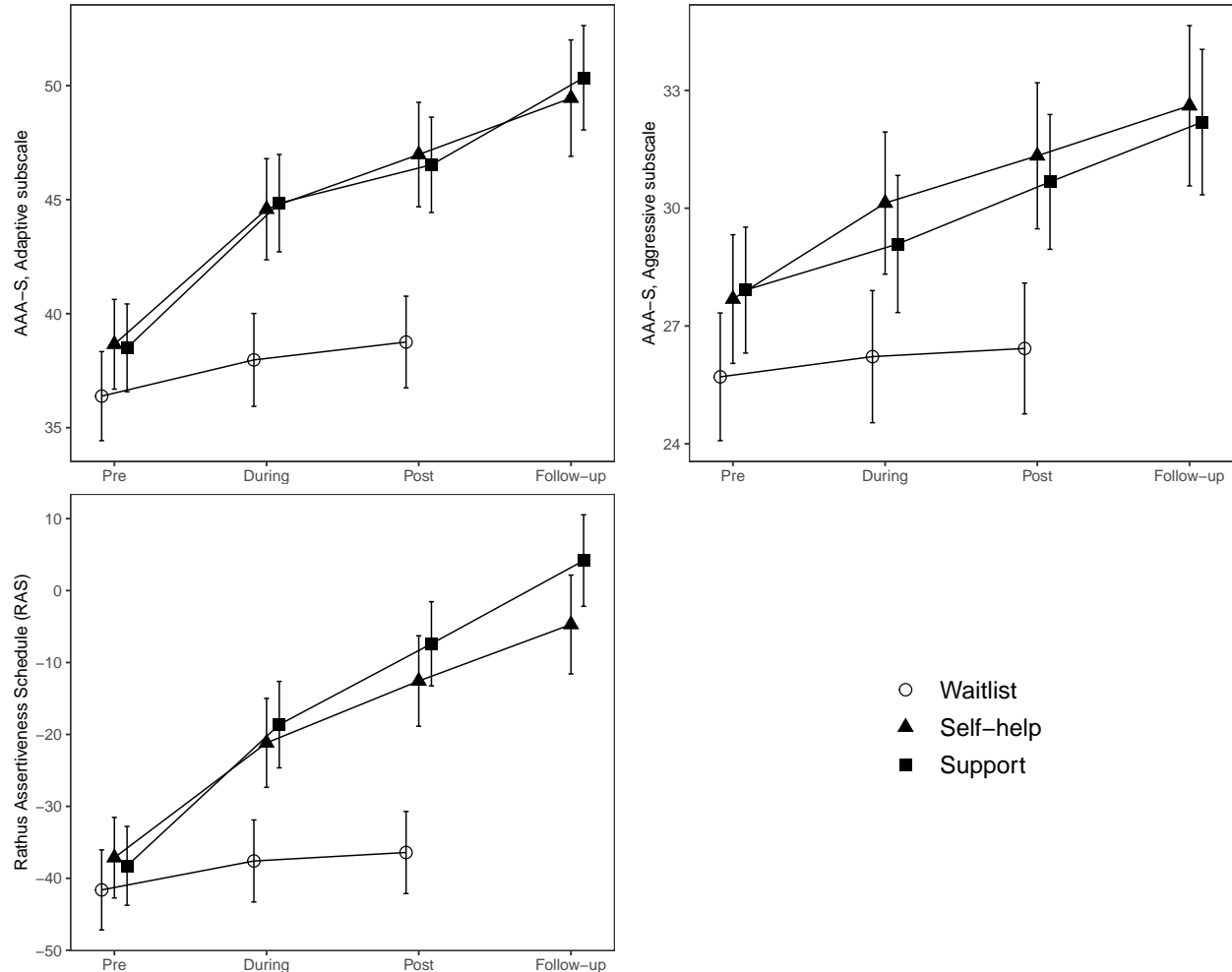
Results

Figure 2: Plots of estimated fixed effects for the primary transdiagnostic scales used to measure skillful, assertive behaviors. Participants' estimated means for all three measures exhibit increasing levels of assertiveness during the course of treatment in the Support and Self-help groups, with negligable or only small differences between the two treatment conditions. The trends continue beyond the Post time point, showing further increased estimated mean levels of assertive behaviors at 1-year Follow-up. The Waitlist group's estimated marginal means recover spontaneously, although not significantly, between the Pre and Post time points, for all three measures.
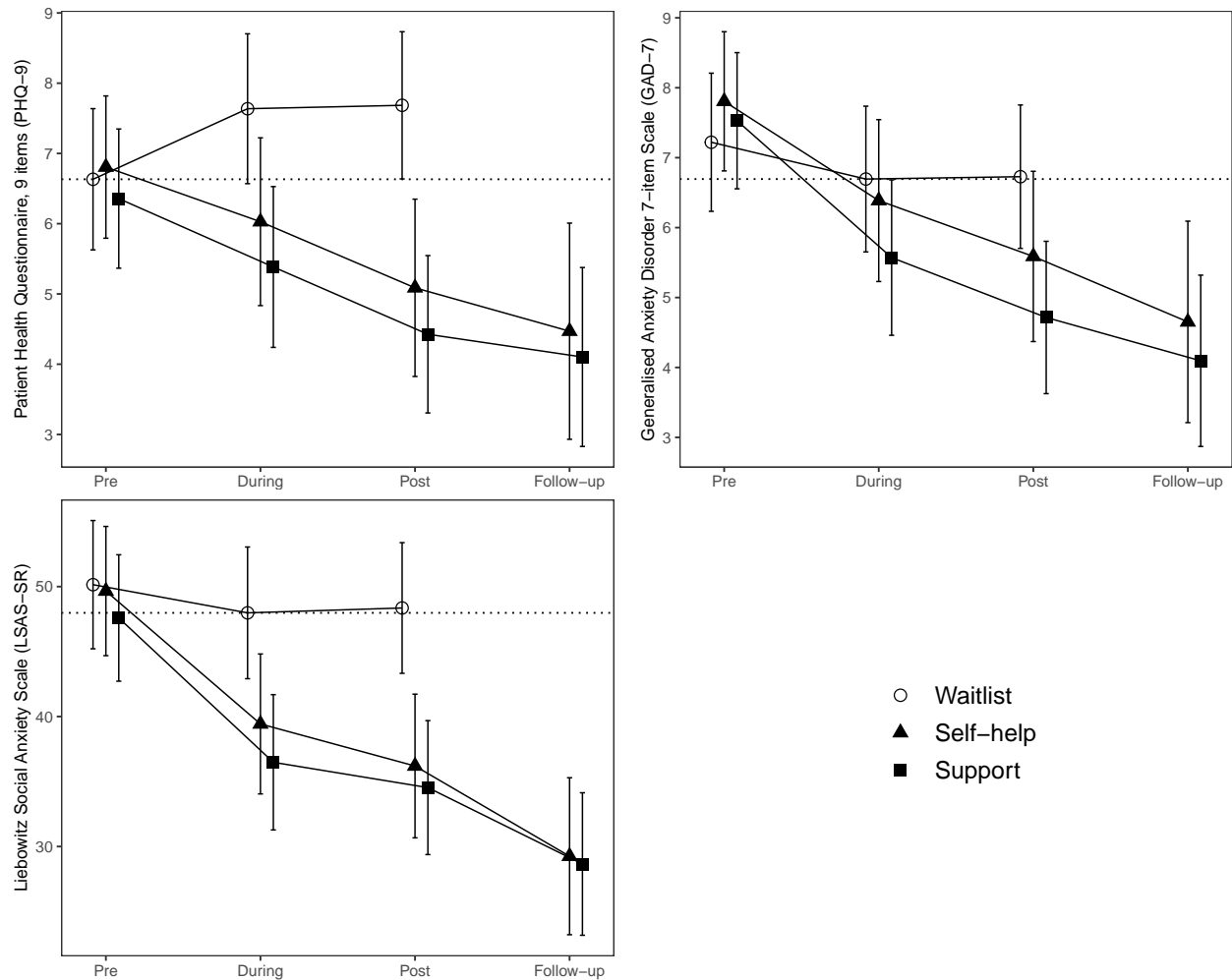
Figure 3: Plots of estimated fixed effects for the secondary syndromal outcome measures. Participation in the Support and Self-help conditions lead to signficant symptom alleviation between the Pre and Post as well as and 1-year Follow-up time points for depression, generalized anxiety and social anxiety, as captured with their respective measures. As with the transdiagnostic measures of assertive behaviors, the difference between the two treatment groups is small or statistically inappreciable at both Post and 1-year Follow-up time points. The Waitlist control group did not significantly change between time points. However, to counteract any nocebo effect for the between-group comparisons the most conservative estimate for the Waitlist control condition was used; see dotted line.

Table 1: Within group effect sizes [95% CI] comparing estimated marginal means between Pre- and Post-treatment, as well as between Pre-treatment and 1-year Follow-up, and between group effect sizes [95% CI] at Post-treatment and 1-year Follow-up.

	Primary transdiagnostic measures of skillful behaviors			Secondary measures of syndromal symptoms		
	AAA-S Adaptive	AAA-S Aggressive	RAS	PHQ-9	GAD-7	LSAS-SR
Within-group effect sizes						
Self-help, Pre vs. Post	1.01 [0.76, 1.26]***	0.53 [0.31, 0.75]	1.05 [0.82, 1.28]***	0.41 [0.10, 0.71]	0.53 [0.25, 0.82]	0.65 [0.45, 0.84]***
Self-help, Pre vs. Follow-up	1.31 [1.02, 1.60]***	0.72 [0.47, 0.97]	1.39 [1.12, 1.65]***	0.55 [0.18, 0.92]	0.76 [0.42, 1.10]	0.98 [0.75, 1.21]***
Self-help, Post vs. Follow-up	0.30 [0.00, 0.60]	0.19 [−0.08, 0.45]	0.34 [0.07, 0.60]	0.15 [−0.25, 0.54]	0.23 [−0.14, 0.59]	0.33 [0.10, 0.57]
Guided self-help, Pre vs. Post	0.98 [0.75, 1.20]***	0.40 [0.21, 0.60]	1.32 [1.11, 1.53]***	0.46 [0.18, 0.73]	0.68 [0.42, 0.93]	0.63 [0.46, 0.80]***
Guided self-help, Pre vs. Follow-up	1.44 [1.18, 1.70]***	0.63 [0.40, 0.85]	1.81 [1.57, 2.05]***	0.53 [0.23, 0.84]*	0.83 [0.53, 1.12]	0.91 [0.71, 1.11]***
Guided self-help, Post vs. Follow-up	0.46 [0.21, 0.72]*	0.22 [−0.00, 0.45]	0.49 [0.26, 0.73]**	0.08 [−0.24, 0.40]	0.15 [−0.15, 0.45]	0.28 [0.09, 0.48]
Waitlist, Pre vs. Post	0.29 [0.09, 0.49]	0.11 [−0.07, 0.29]	0.22 [0.03, 0.41]	−0.25 [−0.50, 0.01]	0.12 [−0.12, 0.36]	0.09 [−0.07, 0.24]
Between-group effect sizes						
Self-help at Post vs. Waitlist at Post	1.00 [0.62, 1.38]***	0.72 [0.35, 1.09]	1.02 [0.65, 1.39]***	0.61 [0.22, 1.01]	0.27 [−0.11, 0.66]	0.59 [0.22, 0.95]
Self-help at Follow-up vs. Waitlist at Post	1.30 [0.90, 1.71]***	0.90 [0.51, 1.29]	1.35 [0.96, 1.75]***	0.76 [0.32, 1.20]	0.50 [0.07, 0.93]	0.92 [0.54, 1.30]***
Self-help at Follow-up vs. Waitlist at †	(idem)	(idem)	(idem)	0.51 [0.07, 0.95]	0.49 [0.06, 0.92]	0.90 [0.52, 1.29]***
Guided self-help at Post vs. Waitlist at Post	0.95 [0.59, 1.30]***	0.62 [0.27, 0.97]	1.24 [0.88, 1.60]***	0.77 [0.40, 1.14]**	0.48 [0.12, 0.85]	0.67 [0.32, 1.02]*
Guided self-help at Follow-up vs. Waitlist at Post	1.41 [1.03, 1.79]***	0.84 [0.47, 1.21]	1.73 [1.36, 2.11]***	0.85 [0.45, 1.24]**	0.63 [0.25, 1.02]	0.95 [0.58, 1.31]***
Guided self-help at Follow-up vs. Waitlist at †	(idem)	(idem)	(idem)	0.60 [0.21, 0.98]	0.63 [0.24, 1.02]	0.93 [0.57, 1.30]***
Guided self-help at Post vs. Self-help at Post	−0.05 [−0.43, 0.32]	−0.10 [−0.47, 0.27]	0.22 [−0.15, 0.59]	0.16 [−0.24, 0.56]	0.21 [−0.18, 0.60]	0.08 [−0.29, 0.45]
Guided self-help at Follow-up vs. Self-help at Follow-up	0.11 [−0.31, 0.53]	−0.06 [−0.46, 0.34]	0.38 [−0.02, 0.78]	0.09 [−0.39, 0.56]	0.13 [−0.32, 0.59]	0.03 [−0.37, 0.42]

Notes.

CI = confidence interval

AAA-S Adaptive = Adaptive and Aggressive Assertiveness Scales, Adaptive subscale; AAA-S Aggressive = Adaptive and Aggressive Assertiveness Scales, Aggressive Subscale, RAS = Rathus Assertiveness Schedule; PHQ-9 = Patient Health Questionnaire, 9 items; GAD-7 = Generalised Anxiety Disorder 7-item Scale; LSAS-SR = Liebowitz Social Anxiety Scale.

Pre = pre-treatment measurement at 0 weeks; During = measurement during week 4; Post = measurement after completion of treatment at week 8; Follow-up = measurement at 1 year after completion.

†= the most conservative measurement for the Waitlist control condition, in order to suppress any nocebo effects; see dotted lines in graphs in Figure 3 for identification of time point.

* = $p < .05$, ** = $p < .01$, *** = $p < .00$; p-values are Bonferroni adjusted, based on pairwise comparisons of all time points and conditions.

Treatment effectiveness, primary and secondary measures

Mixed models for two of three primary measures of assertiveness behaviors revealed time × group interaction effects: The Adaptive subscale of AAA-S, $F(5, 375.61) = 6.68$, $p < 0.001$, and the RAS, $F(5, 385.18) = 14.52$, $p < 0.001$, suggesting that participation in the treatment conditions did have an effect over time on assertiveness behaviors. However, the model for Aggressive subscale of AAA-S did not, $F(5, 371.75) = 2.23$, $p = 0.051$, indicating that the self-assessed expressed or perceived levels of aggressive assertions were not affected by participation in the intervention. Similarly, mixed models for two secondary measures of syndromal symptoms, PHQ-9 and LSAS-SR, revealed time × group interaction effects, $F(5, 381.62) = 3.63$, $p = 0.003$, and $F(5, 363.37) = 6.52$, $p < 0.001$ respectively, while the model for GAD-7 did not, $F(5, 378.05) = 2.23$, $p = 0.051$, indicating that estimated mean levels of depressive mood and social anxiety symptoms – but not those of generalized anxiety – were significantly affected by participation in the intervention.

Within-group effects

For the primary transdiagnostic measures of skillful behaviors it is notable that both treatment groups Self-help and Guided self-help improved significantly during the course of the intervention, showing large within-group effects with regards to AAA-S Adaptive from Pre to Post, $\Delta M = 8.3$, $t_{388} = -8.25$, $p < 0.001$, $ES = 1.01$, 95% CI [0.76, 1.26], and $\Delta M = 8.0$, $t_{381} = -8.95$, $p < 0.001$, $ES = 0.98$, 95% CI [0.75, 1.20] respectively. No Pre to Post effect was found for the Waitlist condition, $p = 0.34$. For the RAS, significant large effects on assertiveness were also found for the Self-help group, $\Delta M = 24.6$, $t_{393} = -9.41$, $p < 0.001$, $ES = 1.05$, 95% CI [0.82, 1.28], and the Guided self-help group, $\Delta M = 30.9$, $t_{390} = -13.05$, $p < 0.001$, $ES = 1.32$, 95% CI [1.11, 1.53]. As with AAA-S Adaptive, means in the Waitlist condition did not change between Pre and Post with regards to the RAS, nor with any other remaining measure, all $p = 1$. Both treatment groups showed sustained within-group effects for on assertiveness at 1 year Follow-up when compared to the Pre-treatment measurement time point, measured with AAA-S Adaptive and the RAS, suggesting that assertive behaviors were still manifest well beyond the end of participation in the intervention. However, only in the Guided self-help group was the Post to Follow-up comparison in itself significant, and only for AAA-S Adaptive and the RAS, $\Delta M = 3.8$, $t_{369} = -3.64$, $p = 0.02$, $ES = 0.46$, 95% CI [0.21, 0.72] and $\Delta M = 11.6$, $t_{380} = -4.20$, $p = 0.002$, $ES = 0.49$, 95% CI [0.26, 0.73] respectively. For the other measures, there was no difference between Post and Follow-up time points in either group. This indicates that, with regards to adaptive assertiveness, therapist support provided some benefit to participants' ability to generalize behaviors beyond the duration of the intervention. Table 1 summarizes significance tests of estimated marginal mean differences and effect sizes.

Among the secondary measures of syndromal symptoms, depression as captured with PHQ-9 had decreased significantly from Pre only for the Guided self-help group, and only at Follow-up, $\Delta M = 2.3$, $t_{394} = 3.42$, $p = 0.05$, $ES = 0.53$, 95% CI [0.23, 0.84], possibly indicating that therapist support benefits depressed participants on a longer rather than shorter time scale. Symptoms of social anxiety, however, decreased significantly for all four combinations of time points and groups. For the Self-help group, the effect from Pre to Post was $\Delta M = 13.5$, $t_{372} = 6.70$, $p < 0.001$, $ES = 0.65$, 95% CI [0.45, 0.84], increasing to $\Delta M = 20.4$, $t_{371} = 8.65$, $p < 0.001$, $ES = 0.98$, 95% CI [0.75, 1.21] Pre to Follow-up. For the Guided self-help group, the effect from Pre to Post was $\Delta M = 13.1$, $t_{368} = 7.34$, $p < 0.001$, $ES = 0.63$, 95% CI [0.46, 0.80], increasing to $\Delta M = 18.9$, $t_{368} = 9.39$, $p < 0.001$, $ES = 0.91$, 95% CI [0.71, 1.11] Pre to Follow-up. Taken together, this tentatively indicates that the intervention was effective at addressing more contextually specific anxiety-induced avoidance and escape behaviors, replacing them with already desired assertive behaviors, to a larger extent than it was effective at helping participants struggling with generalized anxiety or depression to formulate reasons to start responding more flexibly. There was no difference between Post and Follow-up for either group, suggesting that change in relief from symptoms of social phobia plateaued earlier than did change in manifest expressions of adaptive assertiveness.

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Table 2: Clinical significance summary of the number (and proportion in %) of participants that changed reliably and moved from the clinical to the functional population from Pre-treatment to Post- and 1-year Followup-time-points respectively (rows named "Recovered"). For missing values (i.e. caused by drop-outs), the last collected value was moved forward to the next measurement time point, in order to respect the intention to treat principle.

	Waitlist	Self-help		Guided	
	Pre–Post	Pre–Post	Pre–Follow-up	Pre–Post	Pre–Follow-up
AAA-S Adaptive					
Recovered	3 (4%)	13 (19%)*	15 (22%)**	13 (19%)*	18 (26%)**
Improved	8 (12%)	4 (6%)	6 (9%)	6 (9%)	5 (7%)
Unchanged	57 (84%)	50 (75%)	46 (69%)	51 (73%)	47 (67%)
Deteriorated	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Harmed	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
AAA-S Aggressive					
Recovered	6 (9%)	6 (9%)	7 (10%)	5 (7%)	11 (16%)
Improved	3 (4%)	7 (10%)	9 (13%)	5 (7%)	6 (9%)
Unchanged	55 (81%)	53 (79%)	51 (76%)	59 (84%)	51 (73%)
Deteriorated	1 (1%)	1 (1%)	0 (0%)	1 (1%)	1 (1%)
Harmed	3 (4%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)
RAS					
Recovered	3 (4%)	17 (25%)**	21 (31%)***	20 (29%)***	25 (36%)***
Improved	3 (4%)	11 (16%)	9 (13%)	13 (19%)	13 (19%)
Unchanged	62 (91%)	39 (58%)	37 (55%)	37 (53%)	32 (46%)
Deteriorated	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Harmed	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
PHQ-9					
Recovered	3 (4%)	10 (15%)	11 (16%)	16 (23%)**	18 (26%)***
Improved	4 (6%)	5 (7%)	6 (9%)	4 (6%)	5 (7%)
Unchanged	49 (72%)	47 (70%)	48 (72%)	45 (64%)	40 (57%)
Deteriorated	8 (12%)	1 (1%)	0 (0%)	3 (4%)	2 (3%)
Harmed	4 (6%)	4 (6%)	2 (3%)	2 (3%)	5 (7%)
GAD-7					
Recovered	8 (12%)	13 (19%)	14 (21%)	14 (20%)	19 (27%)
Improved	5 (7%)	7 (10%)	9 (13%)	4 (6%)	4 (6%)
Unchanged	47 (69%)	42 (63%)	38 (57%)	51 (73%)	44 (63%)
Deteriorated	6 (9%)	2 (3%)	2 (3%)	1 (1%)	2 (3%)
Harmed	2 (3%)	3 (4%)	4 (6%)	0 (0%)	1 (1%)
LSAS-SR					
Recovered	2 (3%)	11 (16%)*	14 (21%)**	11 (16%)*	18 (26%)***
Improved	7 (10%)	13 (19%)	12 (18%)	12 (17%)	10 (14%)
Unchanged	52 (76%)	41 (61%)	40 (60%)	47 (67%)	41 (59%)
Deteriorated	5 (7%)	1 (1%)	1 (1%)	0 (0%)	0 (0%)
Harmed	2 (3%)	1 (1%)	0 (0%)	0 (0%)	1 (1%)

Notes.

AAA-S Adaptive = Adaptive and Aggressive Assertiveness Scales, Adaptive subscale; AAA-S Aggressive = Adaptive and Aggressive Assertiveness Scales, Aggressive Subscale, RAS = Rathus Assertiveness Schedule; PHQ-9 = Patient Health Questionnaire, 9 items; GAD-7 = Generalised Anxiety Disorder 7-item Scale; LSAS-SR = Liebowitz Social Anxiety Scale.

* = $p < .05$, ** = $p < .01$, *** = $p < .00$; p-values are Bonferroni adjusted.

Between-group effects

Comparing against Waitlist, the effect of the Self-help condition on adaptive assertiveness using the AAA-S Adaptive primary measure was large at Post-treatment, $\Delta M = 8.2$, $t_{381} = -5.29$, $p < 0.001$, $ES = 1.00$, 95% CI [0.62, 1.38], and even larger at 1-year Follow-up, $\Delta M = 10.7$, $t_{439} = -6.45$, $p < 0.001$, $ES = 1.30$, 95% CI [0.90, 1.71]. Similar effects at Post were found for the primary RAS measure $\Delta M = 23.8$, $t_{353} = -5.50$, $p < 0.001$, $ES = 1.02$, 95% CI [0.65, 1.39], and at Follow-up, $\Delta M = 31.7$, $t_{402} = -6.96$, $p < 0.001$, $ES = 1.35$, 95% CI [0.96, 1.75]. These effects were not significantly different from those of the Guided self-help condition for AAA-S Adaptive, which compared against Waitlist were $\Delta M = 7.8$, $t_{346} = -5.25$, $p < 0.001$, $ES = 0.95$, 95% CI [0.59, 1.30] at Post, and $\Delta M = 11.6$, $t_{393} = -7.46$, $p < 0.001$, $ES = 1.41$, 95% CI [1.03, 1.79] at Follow-up, suggesting that participants working through the intervention on their own fared just as well as those who were supported by therapist. The same phenomenon was observed on the RAS for the Guided self-help condition, $\Delta M = 29.0$, $t_{327} = -6.96$, $p < 0.001$, $ES = 1.24$, 95% CI [0.88, 1.60] at Post, and $\Delta M = 40.6$, $t_{371} = -9.31$, $p < 0.001$, $ES = 1.73$, 95% CI [1.36, 2.11] at Follow-up. When it comes to assertive behaviors, excluding aggressive assertions, participants benefited from participation in the intervention, regardless of treatment condition.

Again comparing against Waitlist, there was no significant effect of the Self-help condition on reduction of social anxiety symptoms measured with LSAS-SR at Post-treatment, however, a large effect was found at Follow-up, $\Delta M = 18.7$, $t_{364} = 4.66$, $p < 0.001$, $ES = 0.90$, 95% CI [0.52, 1.29], comparing against the lowest value collected, half-way through the intervention, in order to cancel out any possible nocebo effect of the Waitlist condition; see Figure 3 for a graphic identification of the During time point. No effect on alleviation of depressive symptoms measured with PHQ-9 was found comparing Waitlist and Self-help groups. Some evidence was found suggesting that depressive participants might benefit from therapist support, where the Waitlist versus Guided self-help comparison for PHQ-9 revealed a medium sized effect at Post, $\Delta M = 3.3$, $t_{435} = 4.16$, $p = 0.002$, $ES = 0.77$, 95% CI [0.40, 1.14]. However, this effect dissipated when the Follow-up comparison was instead made using the most conservative value collected for the Waitlist, at Pre instead of Post; see Figure 3 for a graphic exploration of a possible nocebo effect, that is worsening over time, of the Waitlist condition. Thus, the between-group effect on depression at Post should be interpreted with caution.

Clinical significant change   Adding to the picture that assertive behaviors increased and symptoms of depression and social phobia decreased as a consequence of participation in the intervention, there was a significant difference between the groups at Post in the number of participants that had recovered clinically, that is had moved across the cutoff for reliable and clinically significant change: AAA-S Adaptive, $\chi^2(2) = 7.92$, $p = 0.02$; RAS, $\chi^2(2) = 14.92$, $p < 0.001$; PHQ-9, $\chi^2(2) = 9.67$, $p = 0.008$; and LSAS-SR, $\chi^2(2) = 7.54$, $p = 0.02$. The difference in recovery rates between conditions was also significant at Follow-up for AAA-S Adaptive, $\chi^2(2) = 12.35$, $p = 0.002$; RAS, $\chi^2(2) = 21.51$, $p < 0.001$; PHQ-9, $\chi^2(2) = 11.87$, $p = 0.003$; and LSAS-SR, $\chi^2(2) = 14.2$, $p < 0.001$. However, there was no difference between groups for AAA-S Aggressive, $\chi^2(2) = 0.18$, $p = 0.91$, and GAD-7, $\chi^2(2) = 2.02$, $p = 0.36$ at Post, nor at Follow-up, $\chi^2(2) = 1.73$, $p = 0.42$ and $\chi^2(2) = 5.12$, $p = 0.077$. See Table 2 for a summary of cutoff values, clinical recovery rates and the significance of pairwise post hoc tests. The clinical significance findings are in agreement with the statistical analysis of change, confirming that adaptive expressions of assertiveness captured with AAA-S Adaptive and the RAS increased Pre to Post (in both treatment groups), while a significant proportion of participants recovered from symptoms of social anxiety as captured with LSAS-SR Pre to Post (in both treatment groups). Clinical recovery measured with PHQ-9 Pre to Post indicate that the intervention was effective in weakening symptoms of depression in the Guided self-help group but not the Self-help group, pointing to that interaction with therapists might contribute to faster recovery for depressed participants.

Discussion

Lösrykta tankar/stycken att utveckla och sammanfoga till en helhet:

- Samla upp viktigaste punkterna från uppsatsen.
- Problematisering av otydlig defintion av assertivenss. R2? Adaptiv, aggressiv? Passiv? Passiv-aggressiv? Icke-undvikande/icke-flykt? Det enda som är säkert är att definitionen nog endast bör rymma overta beteenden?

- Man kan ha olika uppfattning om vad som är aggressiv vs adaptiv självhävdelse, finns behov av att mäta dessa antaganden på något adekvat sätt. Att följa upp?

- Skalorna är inte validerade på svenska.

- Problem med ITT – fångar inte ev försämring … men vi får anta att regression to the mean gäller även här.

- Problematisering väntelista som kontroll, hantering av problem. It is noteworthy that the PHQ-9 mean of the non-active Waitlist control group increases as the participants wait in line to begin treatment; this might be due to the nocebo or "reverse placebo" effect (Cuijpers et al., 2016; Furukawa et al., 2014), where participants' expectations contribute to their mood actually worsening, which in turn risks inflating between group effect sizes. The other scales do not exhibit this possible problem. To mitigate any possible nocebo effect, the most conservative estimated marginal mean from either the Pre, During, Post time points was used for all within group pairwise comparisons for each scale.

- Jag vill säga något spekulativt om rimligheten och önskvärdheten att använda positivt formulerat, transdiagnostiskt beteendemål i behandling istf syndromal symptomreduktion. Relatera till utfallsmåtten PHQ9, GAD7, LSAS. Det är väntat att beteendemåtten (AAAS-ad/ag, RAS) sticker iväg snabbare än symtomreduktionsmåtten. Beteendeförändring borde föregå förändring i upplevelse (känslor, tankar). Validerar mao beteendeterapeutiska angreppssättet?

- För en replikering vore det intressant att använda andra transdiagnostiska skalor kopplade till värderat handlande, typ VLQ, och även SAAQ.

- En fördel med självständigt arbete (som när man går i ett självhjälpsprogram) är sannolikt att man tillskriver förbättringar till sig själv och egna förändrade beteenden än till kontakten med terapeuten – skulle spekulativt kunna utgöra en del av förklaringen till att självshjälpsgruppen gjort så stora framsteg på egen hand när effekten mäts med positivt formulerade självhävdelsebeteendemål. Med andra ord synliggörs faktiska beteendeförändringar möjligen bättre.

- …

- …

References

Alberti, R., & Emmons, M. (1974). *Your perfect right* (2nd ed.). Impact.

Alberti, R., & Emmons, M. (2017). *Your perfect right: Assertiveness and equality in your life and relationships*. New Harbinger Publications.

Andrews, G., Basu, A., Cuijpers, P., Craske, M. G., McEvoy, P., English, C. L., & Newby, J. M. (2018). Computer therapy for the anxiety and depression disorders is effective, acceptable and practical health care: An updated meta-analysis. *Journal of Anxiety Disorders*, *55*(December 2017), 70–78. https://doi.org/10.1016/j.janxdis.2018.01.001

Baker, A., & Jeske, D. (2015). Assertiveness and Anxiety Effects in Traditional and Online Interactions. *International Journal of Cyber Behavior, Psychology and Learning*, *5*, 30–46. https://doi.org/10.4018/978-1-4666-5942-1

Baumeister, H., Reichler, L., Munzinger, M., & Lin, J. (2014). *The impact of guidance on Internet-based mental health interventions: A systematic review* (No. 4; Vol. 1, pp. 205–215). https://doi.org/10.1016/j.invent.2014.08.003

Beck, A. T. (1979). *Cognitive Therapy of Depression*. Guilford Publications.

Carlbring, P., Andersson, G., Cuijpers, P., Riper, H., & Hedman-Lagerlöf, E. (2018). Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: an updated systematic review and meta-analysis. *Cognitive Behaviour Therapy*, *47*(1), 1–18. https://doi.org/10.1080/16506073.2017.1401115

Chambless, D. L., & Ollendick, T. H. (2001). Empirically Supported Psychological Interventions: Controversies and Evidence. *Annual Review of Psychology*, *52*(1), 685–716. https://doi.org/10.1146/annurev.psych.52.1.685

Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, *24*(4), 461–470. https://doi.org/10.1016/0005-7967(86)90011-2

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment* (Vol. 41, pp. 22–23). The Guilford Press.

Claus, B. (2022). *Clinicalsignificance: Determine the clinical significance in clinical trials*. https://CRAN.R-project.org/package=clinicalsignificance

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (revised ed.)*. Lawrence Earlbaum Associates, Inc.

Craske, M. G., Kircanski, K., Zelikowsky, M., Mystkowski, J., Chowdhury, N., & Baker, A. (2008). Optimizing inhibitory learning during exposure therapy. *Behaviour Research and Therapy*, *46*(1), 5–27. https://doi.org/10.1016/j.brat.2007.10.003

Cuijpers, P., Cristea, I. A., Karyotaki, E., Reijnders, M., & Huibers, M. J. H. (2016). How effective are cognitive behavior therapies for major depression and anxiety disorders? A meta-analytic update of the evidence. *World Psychiatry*, *15*, 245–258. https://doi.org/10.1002/wps.20346

Day, V., McGrath, P. J., & Wojtowicz, M. (2013). Internet-based guided self-help for university students with anxiety, depression and stress: A randomized controlled clinical trial. *Behaviour Research and Therapy*, *51*(7), 344–351. https://doi.org/10.1016/j.brat.2013.03.003

Fensterheim, H., & Baer, J. L. (1975). *Don't say yes when you want to say no*. Dell Publishing Company.

Fresco, D. M., Coles, M. E., Heimberg, R. G., Liebowitz, M. R., Hami, S., Stein, M. B., & Goetz, D. (2001). The Liebowitz Social Anxiety Scale: A comparison of the psychometric properties of self-report and clinician-administered formats. *Psychological Medicine*, *31*(6), 1025–1035. https://doi.org/10.1017/S0033291701004056

Furukawa, T. A., Noma, H., Caldwell, D. M., Honyashiki, M., Shinohara, K., Imai, H., Chen, P., Hunot, V., & Churchill, R. (2014). Waiting list may be a nocebo condition in psychotherapy trials: A contribution from network meta-analysis. *Acta Psychiatrica Scandinavica*, *130*, 181–192. https://doi.org/10.1111/acps.12275

Gambrill, E. D., & Richey, C. A. (1975). An assertion inventory for use in assessment and research. *Behavior Therapy*, *6*(4), 550–561.

Haahr, M. (2018). *RANDOM.ORG: True random number service. [online]*. https://www.random.org.

Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy*, *35*(4), 639–665. https://doi.org/10.1016/S0005-7894(04)80013-3

Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, *36*(5), 427–440. https://doi.org/10.1007/s10608-012-9476-1

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, *59*(1), 12–19.

Kroenke, K., Spitzer, R. L., Williams, J. B. W., & Löwe, B. (2010). The Patient Health Questionnaire Somatic, Anxiety, and Depressive Symptom Scales: A systematic review. *General Hospital Psychiatry*, *32*(4), 345–359. https://doi.org/10.1016/j.genhosppsych.2010.03.006

Kuznetsova, A., Bruun Brockhoff, P., & Haubo Bojesen Christensen, R. (2020). *lmerTest: Tests in linear mixed effects models*. https://github.com/runehaubo/lmerTestR

Lenth, R. (2020). *emmeans: Estimated Marginal Means, aka Least-Squares Means*. https://cran.r-project.org/package=emmeans

Linehan, M. M. (1979). Structured Cognitive-Behavioral Treatment of Assertion Problems. In *Cognitive-behavioral interventions* (pp. 205–240). Elsevier. https://doi.org/10.1016/B978-0-12-404480-7.50013-7

Linehan, M. M. (1993). *Skills training manual for treating borderline personality disorder*. The Guilford Press.

Lüdecke, D. (2018). ggeffects: Tidy Data Frames of Marginal Effects from Regression Models. *Journal of Open Source Software*, *3*(26), 772. https://doi.org/10.21105/joss.00772

Lüdecke, D., Makowski, D., Ben-Shachar, M. S., Patil, I., Waggoner, P., & Wiernik, B. M. (2022). *Performance: Assessment of regression models performance*. https://easystats.github.io/performance/

Michel, F., & Fursland, A. (2008). *Assert Yourself*. Centre for Clinical Interventions. www.cci.health.wa.gov.au/Resources/Looking-After-Yourself/Assertiveness

Öst, L.-G. (2006). *Tillämpad avslappning: manual till en beteendeterapeutisk coping-teknik*. L.-G. Öst.

Powell, T. J. (2017). *The Mental Health Handbook: A Cognitive Behavioural Approach*. Routledge.

Rathus, S. A. (1973). A 30-item schedule for assessing assertive behavior. *Behavior Therapy*, *4*(3), 398–406. https://doi.org/10.1016/S0005-7894(73)80120-0

Rozental, A., Forsell, E., Svensson, A., Andersson, G., & Carlbring, P. (2015). Internet-based cognitive-behavior therapy for procrastination: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *83*(4), 808–824. https://doi.org/10.1037/ccp0000023

Rozental, A., Shafran, R., Wade, T., Egan, S., Nordgren, L. B., Carlbring, P., Landström, A., Roos, S., Skoglund, M., Thelander, E., Trosell, L., Örtenholm, A., & Andersson, G. (2017). A randomized controlled trial of Internet-Based Cognitive Behavior Therapy for perfectionism including an investigation of outcome predictors. *Behaviour Research and Therapy*, *95*, 79–86. https://doi.org/10.1016/j.brat.2017.05.015

Salter, A. (1949). Conditioned reflex therapy. *NY: Capricorn*, *106*.

Sealed Envelope Ltd. (2021). *Sealed Envelope. Simple randomisation service. [Online]*. https://sealedenvelope.com/simple-randomiser/v1.

Smith, M. J. (1975). *When I say no, I feel guilty: how to cope–using the skills of systematic assertive therapy*. Bantam.

Speed, B. C., Goldstein, B. L., & Goldfried, M. R. (2018). Assertiveness Training: A Forgotten Evidence-Based Treatment. *Clinical Psychology: Science and Practice*, *25*(1), 1–20. https://doi.org/10.1111/cpsp.12216

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder. *Archives of Internal Medicine*, *166*(10), 1092. https://doi.org/10.1001/archinte.166.10.1092

Thompson, R. J., & Berenbaum, H. (2011). Adaptive and aggressive assertiveness scales (AAA-S). *Journal of Psychopathology and Behavioral Assessment*, *33*(3), 323–334. https://doi.org/10.1007/s10862-011-9226-9

Vagos, P., & Pereira, A. (2019). Towards a Cognitive-Behavioral Understanding of Assertiveness: Effects of Cognition and Distress

on Different Expressions of Assertive Behavior. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *37*(2), 133–148. https://doi.org/10.1007/s10942-018-0296-4

Wolpe, J. (1952). Objective Psychotherapy of the neuroses. *South African Medical Journal*, *20*(42), 825–829.

Wolpe, J. (1990). *The practice of behavior therapy*. Pergamon Press.

Wolpe, J., & Lazarus, A. A. (1966). *Behavior therapy techniques: A guide to the treatment of neuroses* (pp. ix, 198–ix, 198). Pergamon Press.