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, for fear of being put down if the friend does 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).

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Building on the definition from Alberti & Emmons (2017), assertiveness can be operationalized as acting with respect to personal rights without infringing on the rights of others. A constructive assertion takes into account both the desired result of the interaction (e.g. having said no to someone else's demand, or having made a request) and the intensity of the interaction, where the latter is calibrated with regards to both the importance of the relationship and what Linehan (1993) refers to as 'self-respect.' Assertive behavior, using this definition, can be thought of as the product of respect for the rights of others, and respect for the rights of oneself. This definition is non-normative and 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.) (Mitamura, 2018).

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 by the wayside 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, Vagos & Pereira (2019) showing a negative relationship between mental distress in general and assertiveness, and Antúnez (2020), highlighting a link between circadian typology and different constructs related to mental health, among them levels of 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 trans-diagnostic 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. iCBT has been proven effective both in guided and unguided applications (i.e., with or without therapist support), though guided iCBT tends to produce slightly larger effects (Baumeister et al., 2014). iCBT has also 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 healthy assertiveness, Respekt^2 ('Respect Squared'), based on the Michel & Fursland (2008) modules, through a randomized controlled trial. The research questions are:

- What are the effects on assertiveness of guided and unguided participation in Respekt^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, (2) Unguided self-help, and (3) a ten-week Waitlist control. A sample size of 210 participants (70 per group) was decided on through an a priori power calculation according to guidelines for linear models outlined in Cohen (1988), assuming a between-group effect size of Cohen's d of 0.80 on the Adaptive and Aggressive Assertiveness Scales (AAA-S; Thompson & Berenbaum, 2011), power 0.90, alpha 0.05, and a 15% drop-out rate per week, with a duration of the intervention of 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 an online screening. The online screening included self-report measures of anxiety, depression, and assertiveness, as well as questions regarding socio-demographics, experiences of psychological treatment, any current medication, and motivation for participation. See Table 1 for a summary of socio-demographic characteristics collected Pre-treatment.

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

Following 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 random.org (Haahr, 2018) and sealedenvelope.com (Sealed Envelope Ltd., 2021).

Measures

Data were collected using the below measures at four time-points: week 0 (pre-treatment), week 4 (midway through the intervention), week 8 (post-treatment), and at a one-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).

Table 1: Socio-demographic baseline characteristics of participants.

	Waitlist $n = 68$	Unguided $n = 67$	Guided $n = 70$	Total $n = 205$
Age (years)				
M (SD)	41 (8)	41 (9)	44 (10)	42 (9)
Sex (%)				
Female	91	79	93	88
Civil status (%)				
Single	37	36	29	34
Partner	19	25	17	20
Married	37	28	49	38
Other	7	10	6	8
Highest educational level (%)				
Other	3	1	1	2
Middle school	1	0	0	0
High school/college	10	9	7	9
Vocational training	7	4	7	6
Currently at university	7	15	10	11
University degree	71	70	74	72
Occupation (%)				
Other	9	6	7	7
Student	7	12	6	8
Employed	74	76	76	75
Unemployed	4	4	0	3
Retired	0	0	4	1
Parental leave	0	0	4	1
Sick leave	6	1	3	3
Use of psychotropic medications (%)				
No	76	70	67	71
Yes, previously	7	9	17	11
Yes, currently	16	21	16	18
Previous psychological treatment (%)				
No	38	40	39	39
Yes	62	60	61	61

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 was previously prone to non-assertive behavior, 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, to achieve 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 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, involving homework feedback, encouragement, validation, psychoeducation, and answers to any questions. Therapists were allocated 15 minutes of work, per participant and week.

Therapists

Both therapists working with participants in the guided condition were final-year clinical psychology students at Stockholm University. 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.

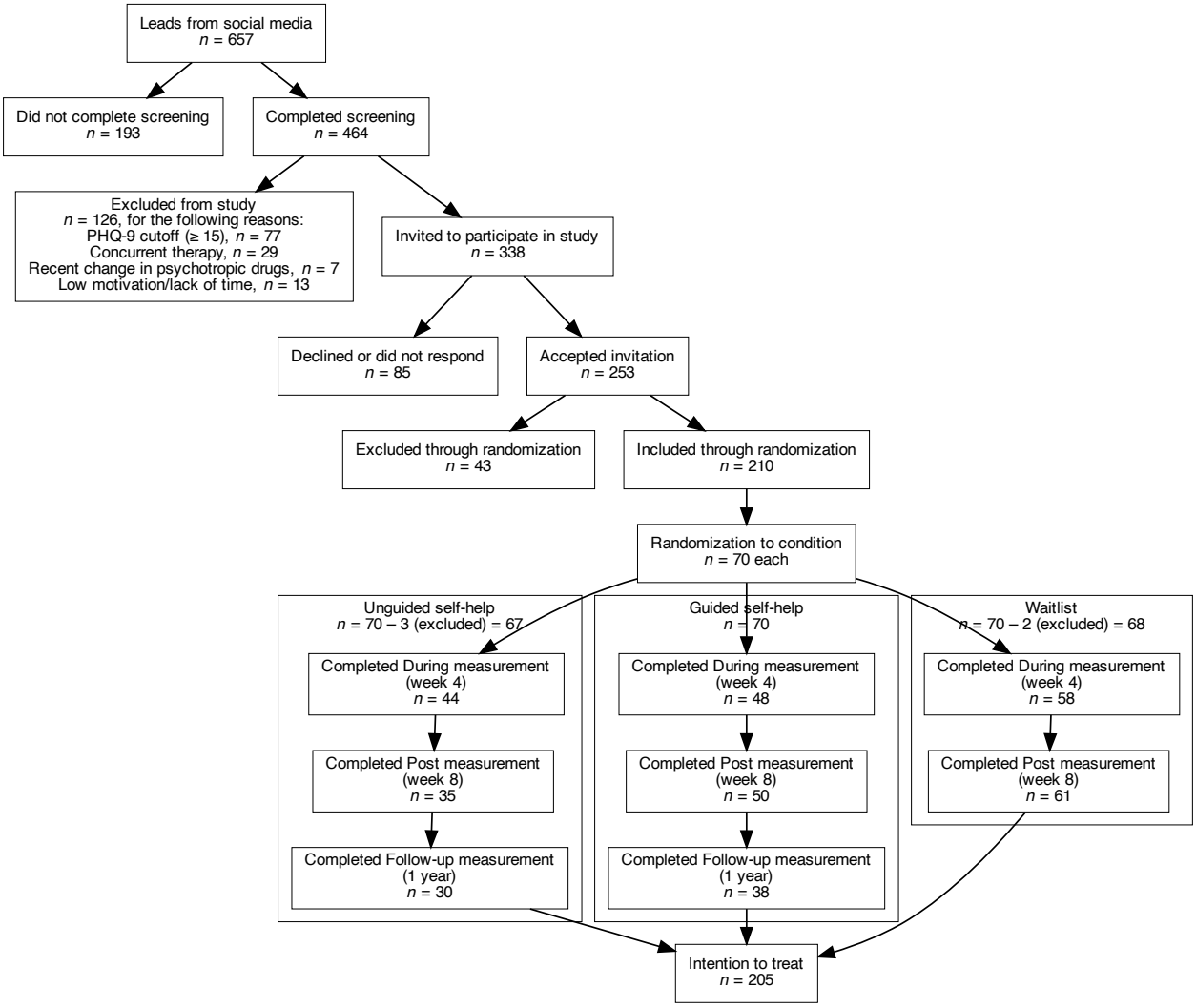

Figure 1: A total of 210 participants were included in the study through randomization; they were further randomized into groups Unguided self-help, Guided self-help, and Waitlist, with 70 participants each.

Analysis

All data were organized in one dataset and analyzed using R 4.2.0, with packages lmerTest (Kuznetsova et al., 2020), emmeans (Lenth, 2020), ggeffects (Lüdecke, 2018), performance (Lüdecke et al., 2022), and clinicalsignificance (Claus, 2022). All syntax is available at https://github.com/hmep/r2fu/, together with anonymized data.

A linear mixed-effects model was fitted to estimate fixed effects of group, time, and group-time interaction, and random effects of participant (specifying a random intercept to control for individual differences), 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. Significance of all post-hoc tests were decided with Bonferroni-corrected p-values. The proportions of participants showing

reliable change and reaching clinical significance were determined following Jacobson & Truax (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 values were filled in with the value from the previous time point.

Results

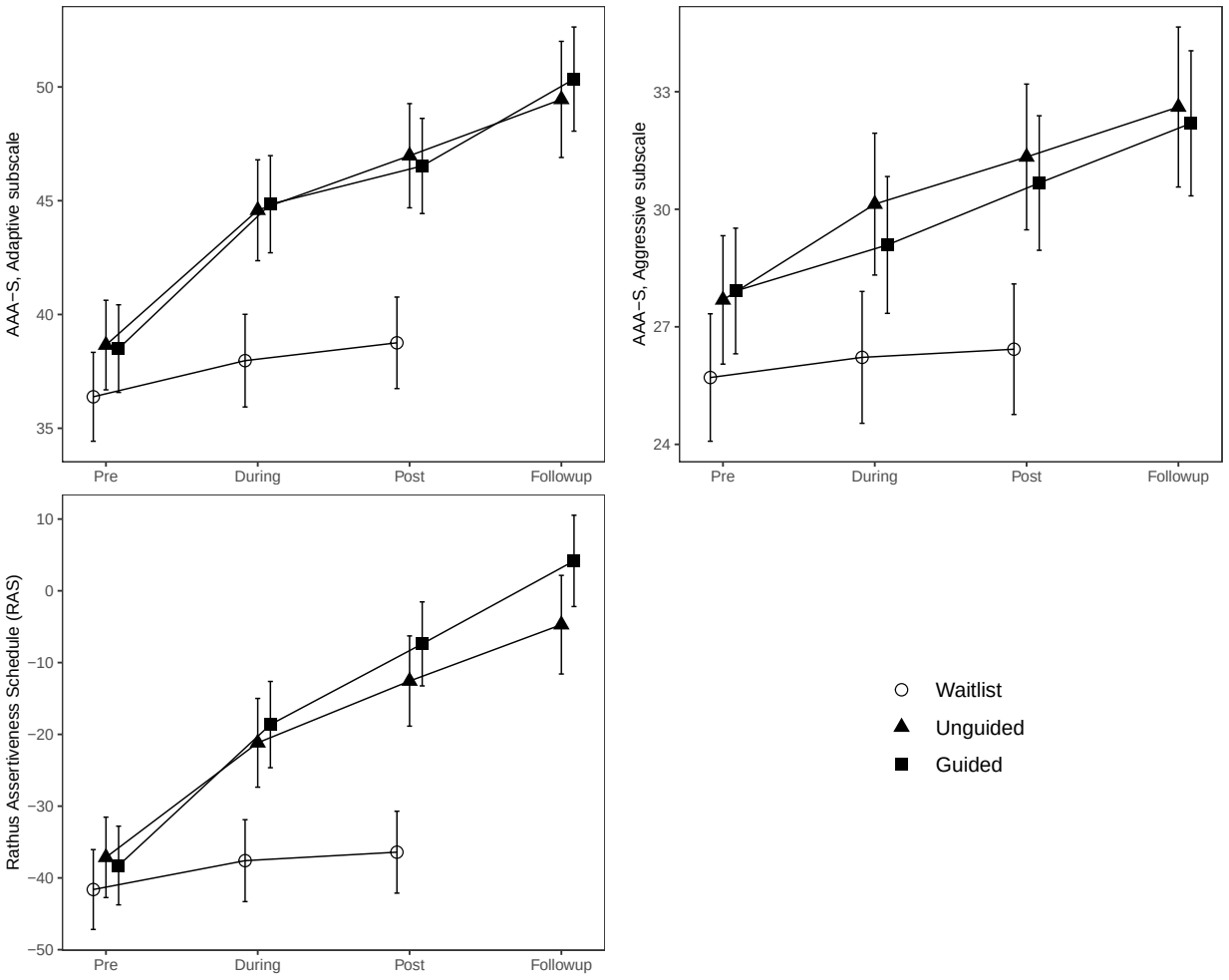

Figure 2: Plots of estimated fixed effects for two of the primary transdiagnostic scales used to measure skillful, assertive behaviors. Participants' estimated means for all three measures exhibit increasing levels of assertiveness during the course of treatment in the Unguided self-help and Guided self-help groups, with negligable 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 means recovered slightly, although not significantly, between the Pre and Post time points, for all measures.

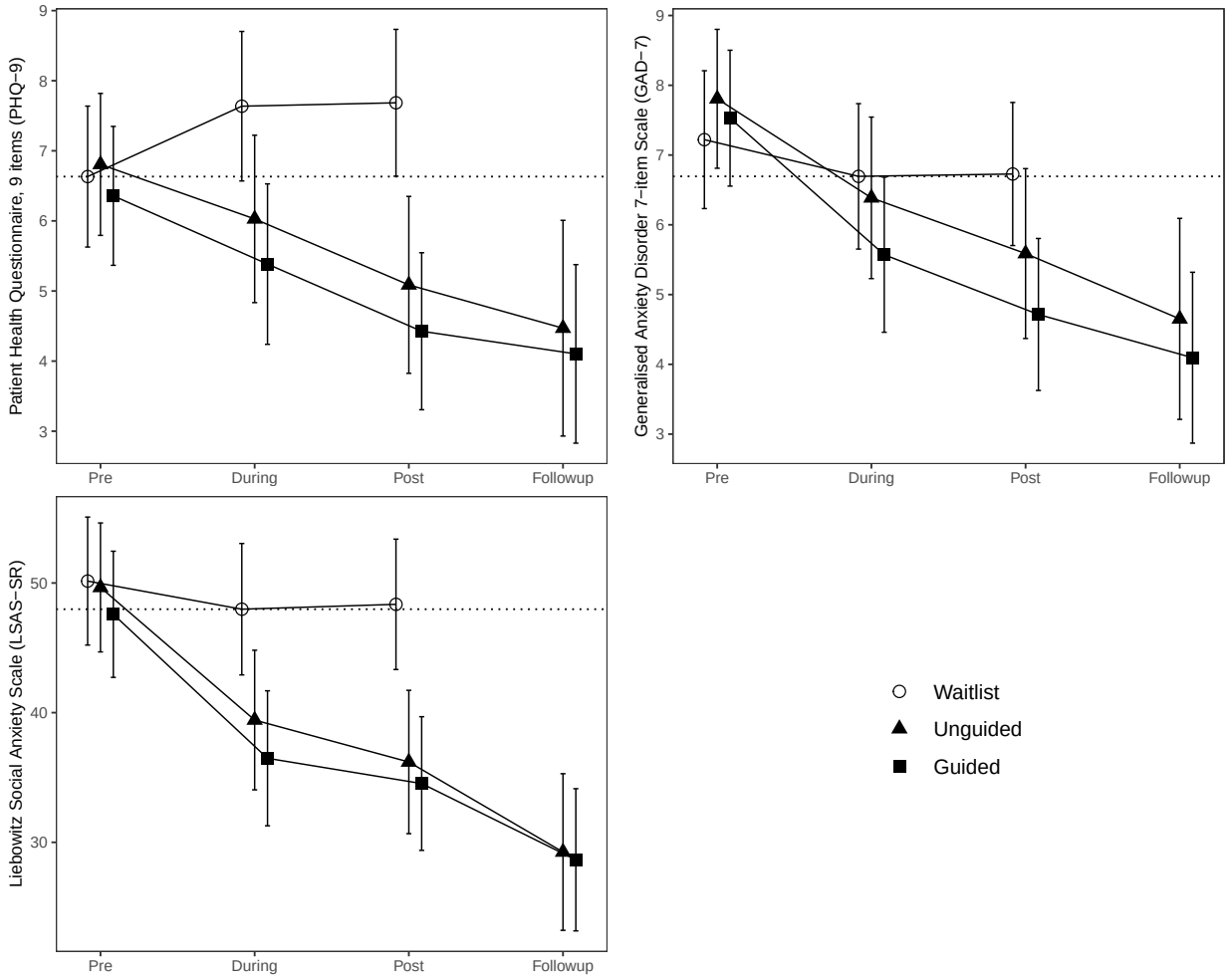

Figure 3: Plots of estimated fixed effects for secondary syndromal outcome measures. Participation in the Unguided self-help and Guided self-help conditions lead to significant symptom alleviation between the Pre and Post as well as between Pre and 1-year Follow-up time points for depression and social anxiety, as captured with their respective measures. As with the transdiagnostic measures of assertive behaviors, the differences between the Post and Follow-up time points were statistically inappreciable for all three measures, in both treatment groups. The Waitlist control group did not significantly change between any time points for either measure. However, to stay on the conservative side and to counteract even the slightest nocebo effect of the Waitlist condition, the most conservative estimate for the Waitlist control condition was used in each Follow-up between-group comparison; see dotted line for a visual representation of the selected time points.

Table 2: 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						
Unguided self-help, Pre vs. Post	1.01 [.76, 1.26]***	.53 [.31, .75]***	1.05 [.82, 1.28]***	.41 [.10, .71]	.53 [.25, .82]*	.65 [.45, .84]***
Unguided self-help, Pre vs. Follow-up	1.31 [1.02, 1.60]***	.72 [.47, .97]***	1.39 [1.12, 1.65]***	.55 [.18, .92]	.76 [.42, 1.10]***	.98 [.75, 1.21]***
Unguided self-help, Post vs. Follow-up	.30 [.00, .60]	.19 [−.08, .45]	.34 [.07, .60]	.15 [−.25, .54]	.23 [−.14, .59]	.33 [.10, .57]
Guided self-help, Pre vs. Post	.98 [.75, 1.20]***	.40 [.21, .60]**	1.32 [1.11, 1.53]***	.46 [.18, .73]	.68 [.42, .93]***	.63 [.46, .80]***
Guided self-help, Pre vs. Follow-up	1.44 [1.18, 1.70]***	.63 [.40, .85]***	1.81 [1.57, 2.05]***	.53 [.23, .84]*	.83 [.53, 1.12]***	.91 [.71, 1.11]***
Guided self-help, Post vs. Follow-up	.46 [.21, .72]*	.22 [−.00, .45]	.49 [.26, .73]**	.08 [−.24, .40]	.15 [−.15, .45]	.28 [.09, .48]
Waitlist, Pre vs. Post	.29 [.09, .49]	.11 [−.07, .29]	.22 [.03, .41]	−.25 [−.50, .01]	.12 [−.12, .36]	.09 [−.07, .24]
Between-group effect sizes						
Unguided self-help at Post vs. Waitlist at Post	1.00 [.62, 1.38]***	.72 [.35, 1.09]**	1.02 [.65, 1.39]***	.61 [.22, 1.01]	.27 [−.11, .66]	.59 [.22, .95]
Unguided self-help at Follow-up vs. Waitlist at Post	1.30 [.90, 1.71]***	.90 [.51, 1.29]***	1.35 [.96, 1.75]***	.76 [.32, 1.20]*	.50 [.07, .93]	.92 [.54, 1.30]***
Unguided self-help at Follow-up vs. Waitlist at †	(idem)	(idem)	(idem)	.51 [.07, .95]	.49 [.06, .92]	.90 [.52, 1.29]***
Guided self-help at Post vs. Waitlist at Post	.95 [.59, 1.30]***	.62 [.27, .97]*	1.24 [.88, 1.60]***	.77 [.40, 1.14]**	.48 [.12, .85]	.67 [.32, 1.02]*
Guided self-help at Follow-up vs. Waitlist at Post	1.41 [1.03, 1.79]***	.84 [.47, 1.21]***	1.73 [1.36, 2.11]***	.85 [.45, 1.24]**	.63 [.25, 1.02]	.95 [.58, 1.31]***
Guided self-help at Follow-up vs. Waitlist at †	(idem)	(idem)	(idem)	.60 [.21, .98]	.63 [.24, 1.02]	.93 [.57, 1.30]***
Guided self-help at Post vs. Unguided at Post	−.05 [−.43, .32]	−.10 [−.47, .27]	.22 [−.15, .59]	.16 [−.24, .56]	.21 [−.18, .60]	.08 [−.29, .45]
Guided self-help at Follow-up vs. Unguided at Follow-up	.11 [−.31, .53]	−.06 [−.46, .34]	.38 [−.02, .78]	.09 [−.39, .56]	.13 [−.32, .59]	.03 [−.37, .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 sampled time points and conditions.

Treatment efficacy, primary and secondary measures

Mixed models including groups Unguided self-help, Guided self-help, and Waitlist at time-points Pre, During and Post revealed time × group interaction effects for all three measures of assertiveness: The Adaptive subscale of AAA-S, $F(4, 311.87) = 8.2$, $p < .001$, the Aggressive subscale of AAA-S, $F(4, 308.68) = 2.95$, $p = .020$, and the RAS, $F(4, 316.44) = 19.54$, $p < .001$. These interactions show that the random assignment to group conditions did have an effect over time on assertive behaviors. Similarily, mixed models for the syndromal symptoms revealed time × group interaction effects for all three measures of anxiety and depression: PHQ-9, $F(4, 320.11) = 4.55$, $p = .001$, GAD-7, $F(4, 315.58) = 2.81$, $p = .026$, and LSAS-SR, $F(4, 302.49) = 8.72$, $p < .001$. Estimated mean levels of depressive mood and generalized and social anxiety symptoms were significantly affected by participation in the intervention.

All subsequent post-hoc testing of marginal mean differences in pairwise comparisons included all groups and time-points.

Between-group effects on assertive behaviors

Follow-up testing revealed significant effects between both treatment groups and the Waitlist group for all three primary measures of assertiveness at Post, that is at the end of the 8-week Respekt[2] treatment program. It also revealed signigificant effects at Follow-up, that is 1 year after end of treatment, comparing against the Post time-point for the Waitlist condition. Table 2 summarizes significance tests of estimated marginal mean differences and effect sizes, including 95% confidence intervals (CI).

Comparing against Waitlist, the effect of the Unguided self-help condition on adaptive assertiveness using the AAA-S Adaptive primary measure was large at Post-treatment, $\Delta M = 8.2$, $t(381) = -5.29$, $p_{Bonf} < .001$, $ES = 1.00$, and even larger at 1-year Follow-up, $\Delta M = 10.7$, $t(439) = -6.45$, $p_{Bonf} < .001$, $ES = 1.30$. Large effects at Post were found also for aggressive assertiveness as measured with AAA-S Aggressive, $\Delta M = 4.9$, $t(345) = -3.85$, $p_{Bonf} = .008$, $ES = .72$, and at Follow-up, $\Delta M = 6.2$, $t(397) = -4.60$, $p_{Bonf} < .001$, $ES = .90$, as well as for 'compound' assertiveness assessed with the RAS, $\Delta M = 23.8$, $t(353) = -5.50$, $p_{Bonf} < .001$, $ES = 1.02$, and at Follow-up, $\Delta M = 31.7$, $t(402) = -6.96$, $p_{Bonf} < .001$, $ES = 1.35$.

Similarily, the effect of the Guided self-help condition on AAA-S Adaptive was large at Post-treatment, $\Delta M = 7.8$, $t(346) = -5.25$, $p_{Bonf} < .001$, $ES = .95$, at 1-year Follow-up having grown to $\Delta M = 11.6$, $t(393) = -7.46$, $p_{Bonf} < .001$, $ES = 1.41$. Large effects at Post were identified for AAA-S Aggressive, $\Delta M = 4.2$, $t(315) = -3.48$, $p_{Bonf} = .032$, $ES = .62$, and at Follow-up, $\Delta M = 5.8$, $t(355) = -4.54$, $p_{Bonf} < .001$, $ES = .84$, as well as for the RAS measure $\Delta M = 29.0$, $t(327) = -6.96$, $p_{Bonf} < .001$, $ES = 1.24$ at Post, and $\Delta M = 40.6$, $t(371) = -9.31$, $p_{Bonf} < .001$, $ES = 1.73$ at Follow-up.

Comparing the Unguided self-help and the Guided self-help treatment conditions, there was no significant difference neither at Post nor at Follow-up, revealing that participants working through the intervention on their own fared just as well as those who were supported by a therapist.

Between-group effects on syndromal symptoms of anxiety and depression

In post-hoc testing, no effect on alleviation of depressive symptoms measured with PHQ-9 at the Post time-point was found comparing the Waitlist and the Unguided self-help groups. Tentative evidence was found for support by therapists benefiting depressed participants, in that the Waitlist versus Guided self-help comparison for PHQ-9 revealed a moderate to large sized effect at Post, $\Delta M = 3.3$, $t(435) = 4.16$, $p_{Bonf} = .002$, $ES = .77$. However, this effect dissipated when the Follow-up comparison was instead made against the most conservative value collected in the Waitlist group, in this case from the Pre time-point; see Figure 3 for a visual exploration of a possible nocebo effect, that is symptomatic worsening over time due to self-fulfilling expectations of low mood among participants waiting in line for treatment.

No between-group effects were found for GAD-7, comparing treatment groups against Waitlist. Also, there was no significant effect of the Unguided 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, $\Delta M = 18.7$, $t(364) = 4.66$, $p_{Bonf} < .001$, $ES = .90$ for the Unguided self-help group, comparing against the lowest value collected, that is at During, half-way through the intervention; see Figure 3 for identification of time point. For the Guided self-help group, a moderate effect was

Table 3: 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–Followup	Pre–Post	Pre–Followup
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.

found at Post, ΔM = 13.8, $t(286) = 3.76$, p_{Bonf} = .011, ES = .67, and a large effect at Follow-up, ΔM = 19.3, $t(321)$ = 5.07, p_{Bonf} < .001, ES = .93, this time comparing against the most conservative time-point, During, for the Waitlist.

Thus, the 8-week Respekt[2] intervention had no effect on either depression or generalized anxiety. However, it did have a pronounced effect on social anxiety. See table 2 for a summary of significant effects, including 95% CIs.

Notable within-group effects

As shown in table 2, participants in both treatment groups enjoyed sustained within-group effects on assertiveness at 1 year Follow-up when compared to the Pre-treatment measurement time point, measured with AAA-S Adaptive, AAA-S Aggressive and the RAS, revealing that assertive behaviors were still manifest well beyond the end of participation in the intervention. However, significant effects between the Post to Follow-up time-points were found only for two measures in the Guided self-help group, where AAA-S Adaptive and the RAS exhibited small to medium effects, ΔM = 3.8, $t(369) = -3.64$, p_{Bonf} = .017, ES = .46 and ΔM = 11.6, $t(380) = -4.20$, p_{Bonf} = .002, ES = .49 respectively. In the Unguided self-help group, there was no difference between Post and Follow-up time points for either measure, p = 1.000 and p = .731, evidencing that therapist support provided some benefit to participants' ability to generalize adaptive assertive behaviors beyond the duration of the intervention.

Among the secondary measures of syndromal symptoms, depression as captured with PHQ-9 had decreased significantly from Pre only in the Guided self-help group, and only at Follow-up, showing a medium effect, ΔM = 2.3, $t(394)$ = 3.42, p_{Bonf} = .038, ES = .53, implying that therapist support benefited depressed participants on a longer rather than shorter time scale.

Clinical significant change

Reliable recovery with regards to assertive behaviors Adding to the picture that assertive behaviors increased as a consequence of participation in the intervention, there was a significant difference between the groups at Post in the proportion of participants that had recovered clinically, that is had moved across the cutoff for reliable and clinically significant change, with respect to AAA-S Adaptive, $\chi^2(2) = 7.92$, p = .019 and the RAS, $\chi^2(2) = 14.92$, p < .001. At Follow-up, the proportions of the 'Recovered' category were also significantly different for AAA-S Adaptive, $\chi^2(2)$ = 12.35, p = .002, and for the RAS, $\chi^2(2) = 21.51$, p < .001. However, there was not difference in the proportions of recovered participants with regards to AAA-S Aggressive at either time-point.

Notably, a number of participants, n = 13 (19%), $Z(2) = -2.49$, p_{Bonf} = .038 in the Unguided self-help group enjoyed clinical recovery with regards to adaptive assertiveness measured with AAA-S Adaptive at Post, increasing to n = 15 (22%), $Z(2) = -2.74$, p_{Bonf} = .019 at Follow-up. In the Guided self-help group the number of recovered participants at Post was non-significantly different from that of the Waitlist, while significantly different at Followup, n = 18 (26%), $Z(2) = -3.28$, p_{Bonf} = .003. For assertiveness assessed with the RAS, the corresponding numbers (and percentages) were n = 17 (25%), $Z(2) = -3.07$, p_{Bonf} = .007 for the Unguided self-help condition and n = 20 (29%), $Z(2) = -3.57$, p_{Bonf} = .001 for the Guided self-help condition at Post, increasing to n = 21 (31%), $Z(2) = -3.66$, p_{Bonf} < .001 and n = 25 (36%), $Z(2) = -4.30$, p_{Bonf} < .001 respectively at Follow-up.

Thus, the clinical significance findings are mostly in agreement with the statistical analysis of change, confirming that adaptive expressions of assertiveness in both treatment groups increased Pre to Post, and beyond, while deviating with regards to aggressive expressions.

Reliable recovery with regards to syndromal symptoms As for the syndromal symptoms, the proportions of those of social phobia as captured with LSAS-SR was significantly different between groups at Post, $\chi^2(2) = 7.54$, p = .023. However, there was no difference between groups at Post with regards to PHQ-9 or GAD-7. At Follow-up, the difference in proportions of recovery between conditions was significant for PHQ-9, $\chi^2(2) = 11.87$, p = .003, and LSAS-SR, $\chi^2(2) = 14.2$, p < .001, but not for GAD-7.

Clinical recovery measured with PHQ-9 Pre to Post indicate that the intervention, compared to Waitlist, was effective in moving a number of participants out of depression in the Guided self-help group, n = 16 (23%), $Z(2) = -3.10$, p_{Bonf} = .006, but not so in Unguided self-help group, pointing to that interaction with therapists contributes to faster recovery for depressed participants. In addition, a significant number of participants in the Unguided self-help group recovered from symptoms of social anxiety as captured with LSAS-SR, n = 11 (16%), $Z(2) = -2.43$, p_{Bonf} = .045 at Post, increasing to n = 14 (21%), $Z(2) = -2.80$, p_{Bonf} = .015 at Follow-up. In the Guided self-help condition, there was no significant number of recovered participants compared to Waitlist at Post, but n = 18 (26%), $Z(2) = -3.59$, p_{Bonf} = .001 at Follow-up. These clinical findings pick up that symptoms of social anxiety continued to subside in the year following treatment, to the point that some participants had recovered. Combined with the clinically relevant recovery for assertive behaviors measured with AAA-S Adaptive and RAS, this could be a sign of generalization of assertive behaviors having continued to occur after the end of treatment, facilitating extinction of autonomous anxiety responses and/or reducing avoidance and escape behaviors from them.

Table 3 gives a summary of numbers and proportions of clinical recovery in the different groups, and the significance, if any, of pairwise tests of those proportions against those of the Waitlist.

Reliable deterioration and harm Checking for any signs of reliable harm, the most severe form of deterioration, a significant difference between groups in clinical significant change was found for the AAA-S Aggressive measure, $\chi^2(2) = 6.1$, p = .047, as n = 3 participants (4%) had reached below the threshold for the category 'Harmed' while waiting to enter into treatment (see Table 3). However, post hoc testing did not reveal any significant pairwise differences between any of the treatment groups and the Waitlist group, p_{Bonf} = .094 and p_{Bonf} = .100. No other instances of suspected reliable harm Pre to Post or Pre to Follow-up were identified for either measure. The next worst category in assessing reliable change is 'Deteriorated'; in order to identify any possible cases of reliable deterioration *and* reliable harm, these two categories were collapsed into the conservative ad hoc category 'Worsened' – gathering participants that had moved into either of these two categories. Using the 'Worsened' portmanteau category, and checking clinical change Pre to Post treatment, we observed a significant difference between groups for LSAS-SR, $\chi^2(2) = 9.13$, p = .010, meriting a follow-up pairwise comparison. It revealed that the number of participants in the Waitlist condition that had either reached 'Deteriorated' or 'Harmed,' going from Pre to Post treatment, was significant compared to the Guided self-help group, n = 7 (10%space%), $Z(2) = 2.94$, p_{Bonf} = .010. The same held true comparing Pre to Follow-up, $\chi^2(2) = 8.41$, p = .015, where these 7 individuals were significantly more than the number of worsened participants in both the Unguided self-help group, $Z(2) = 2.49$, p_{Bonf} = .038, and the Guided self-help group, $Z(2) = 2.54$, p_{Bonf} = .034. Finally, a difference between groups was found for PHQ-9, $\chi^2(2) = 7.86$, p = .020, with post hoc testing revealing a difference for the Guided self-help group, n = 12 (18%space%), $Z(2) = 2.80$, p_{Bonf} = .015. These findings reveal that the non-active Waitlist condition brought about adverse clinical change for 10% of participants with regards to social anxiety and 18% with regards to depression, highlighting the need to use caution comparing results for the treatment groups with those of the Waitlist condition, lest running the risk of artificially inflated effect sizes (especially for PHQ-9 for which estimated marginal means in fact increased over time; see Figure 3).

Discussion

This randomized control trial brings up-to-date empirical data about a trans-diagnostic intervention targeting assertiveness, Respekt^2, providing evidence for its effects on assertive behaviors and on symptoms of psychiatric disorders. Having been mostly ignored as a construct in clincical research since the 1990'ies, despite its rich history as the target in the very first behavioral therapies of the 1950'ies, and its current status as an important goal for exposure in third wave CBT variants such as DBT and ACT (Speed et al., 2018), this study brings much-needed data on assertiveness as a viable transdiagnostic stand-alone goal in psychological treatment.

The moderate to large between-group effects on assertiveness found in Respekt^2 at Post in the Unguided self-help condition, from ES = .72 to ES = 1.02 (with slightly but insignificantly larger effects in the Guided group), are comparable to those found in clinical trails of iCBT interventions for other trans-diagnostic behavioral targets such as procrastination (d = ??) (Rozental et al., 2015), and perfectionism (d = ??) (Rozental et al., 2017), showing that the 'assertiveness' construct can be used successfully as a target in behavior therapy, helping participants appreciate and self-report meaningful change in their daily lives. (Also, compare w/ frequencies or reliable change, e.g. Rozental et al., 2015.)

The delayed 1-year Follow-up effects on social anxiety symptoms, ES = .90 and ES = .93 are also comparable to those found for treatments tailored to social anxiety [REF], as are those on depression [REF], ES = .75 and ES = .84, pointing to the usefulness of assertiveness as a trans-diagnostic target. These are in agreement with those for iCBT in general, where the average between-group effect size is g = .80 compared to controls (Andrews et al., 2018), which in turn is about the same as for face-to-face treatment (Carlbring et al., 2018). (Also, compare w/ frequencies or reliable change, e.g. Rozental et al., 2015.)

The intervention was insufficient in ameliorating symptoms of generalized anxiety, which can be understood as a disorder of attentional/cognitive and behavioral rigidity (Hayes, 2004). Most likely, the overall structure of the Respekt^2 intervention, with its emphasis on cheer-leading participants in designing and performing in-vivo behavioral experiments early on in treatment, was not adequate in addressing GAD symptoms where non-commitment to exposure often is an important first hurdle to overcome. (To be investigated.)

Thus, we found that Respekt^2 clearly reduced symptoms of social anxiety across both treatment conditions, and over time possibly reduced symptoms of depression, to a moderate degree, among participants that were guided by therapists. This demonstrates that assertiveness has a potential as a target in CBT and iCBT, in the treatment of both psychiatric syndromes and non-syndromal problems in living, calling for more research on the construct, and its application.

Limitations and future directions

The study design has a number of limitations that impairs the generalizibility of the findings to the population at large, of which the recruitment method is one of the most important. The recruitment was performed via advertising in social media, where the presentation of the ads by design was skewed to maximize click-throughs (and to provide maximal "bang for the buck" for the advertising budget) by the algorithms employed by the respective ad networks. We achieved distributions with regards to sex (X % female participants), previous participation in therapy (x %) and use of psychotrophic medicine (X %) that were probably far apart from the ones expected had the sampling been random. These distributions probably affected the effects in different ways. For instance, it is easy to imagine that for participants that had previously taken part in CBT, the R^2 intervention effectively acted as booster sessions providing opportunities for re-acquisition of assertiveness skills. Any findings using this sample need to be treated with caution before being confirmed with other samples in future studies. Likewise, since this sample was non-clinical, a trial using a purely clinical sample is also called for.

Another methodological drawback of the current study is that some of the measurement scales were recently translated into Swedish, without back-translation, somewhat impairing the ability to compare findings with norms found for the original english-speaking populations where the original scaled were validated. The Swedish adaptations of the RAS and AAA-S scales should to be quality controlled with back-translation prior to future usage, and if possible also validated for Swedish clinical and non-clinical populations.

It is also 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 (Furukawa et al., 2014), where participants' expectations contribute to their mood actually worsening, which in turn risks inflating between group effect sizes. To cancel 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. In a possible future study, researchers would be wise to use an active wait list condition, such as participation in a discussion forum, to mitigate the problem (Cuijpers et al., 2016).

In the current study, we found that participation in Respekt^2 did indeed increase assertive expressions, thereby reducing self-assessed social anxiety in a non-clinical sample. The intervention did not have an immediate effect on generalized anxiety or depression, although there was some within-group evidence for beneficial longer-term effects on depression. Building on this foundation, future studies could further investigate clinical populations, comparing the effects of Respekt^2 with manualized treatments commonly deployed in psychiatric settings for syndromes that are associated with lack of assertiveness, such as social phobia, generalized anxiety, emotional instability, schizophrenia, and depression. Apart from psychiatric syndromes, assertiveness has been linked to work-related stress, work–private life balance issues, and relationship problems (Speed et al., 2018). For future research, we propose investigations of links between unassertiveness and these non-clinical problems that nevertheless are associated with suffering and problems in living.

Healthy assertiveness as a transdiagnostic construct holds the potential to be a flexible target in a multitude of settings and with a multitude of populations. The authors of the current study would also like to test the effect of Respekt[2] on other positively formulated trans-diagnostic behavioral approach goals such as those captured the Valued Living Questionnaire (VLQ; Wilson et al., 2010) and the Acceptance and Action Questionnaire (AAQ-II; Lundgren & Parling (2017)). Further exploration of how the assertiveness relates to these and other constructs could illuminate what goals are best suited for what patient populations, in order to find the best targets to "short circuit" verbally expressed defenses and thus increase willingness to engage new learning as quickly as possible.

Any future replication or extended version of the current study should collect data at more time-points, allowing fitting of data not only to random intercepts (controlling for/capturing initial differences between subjects), but also to random slopes (controlling for/capturing different trajectories), and possibly also additional levels, i.e. to to quantify therapist factors.

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