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What Happens after Five Years?: The Long-Term Effects of a Four-Session Acceptance and Commitment Therapy Delivered by Student Therapists for Depressive Symptoms

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What Happens after Five Years?: The Long-Term Effects of a Four-Session Acceptance and Commitment Therapy Delivered by Student Therapists for Depressive Symptoms

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Abstract

Brief interventions can be viable treatment options worth consideration in addressing the growing need for treatments of subclinical and clinical depressive symptoms. However, there is uncertainty regarding the long-term benefits of these interventions. The aim was to examine the long-term (5-year) effects of a 4-session Acceptance and Commitment Therapy (ACT) intervention for low mood delivered by novice therapists in order to see whether lasting effects could be achieved cost-effectively with four intervention sessions. Originally, 57 self-referred clients were randomized into two groups: an intervention group and a waiting-list control group which received treatment later. The groups were combined both at the 6-month (n = 48) and the 5-year (n = 35) follow-up measurements to examine intervention effects. The results indicate a good effect size for depressive symptoms (the Beck Depression Inventory (BDI): d = 1.45 (CI 1.10 – 1.80) through the five-year study period. All in all, approximately 40% of the participants reported minimal to no depressive symptoms based on the primary outcome measure, the BDI (scores 0-9), both at post- and 5-year follow-up measurements.

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Keywords: acceptance and commitment therapy (ACT), depressive symptoms, brief intervention, novice therapist, long-term efficacy

Depressive symptoms, either clinical or subsyndromal, are often the reason people seek psychological services (Smit et al., 2006), and mood related symptoms impair functioning and affect well-being in terms of both clinically diagnosed depression (Kessler, Chiu, Demler, & Walters, 2005) and those suffering at the subclinical level (Goldney, Fisher, Dal Grande, & Taylor, 2004; Horwath, Johnson, Klerman, & Weissman, 1992; Judd, Paulus, Wells, & Rapaport, 1996). Meta-analyses indicate that psychological interventions and psychotherapy are effective for both clinical and subclinical depression (Barth et al., 2013; Cuijpers, van Straten, van Schaik, & Andersson, 2009; Cuijpers et al., 2014; Linde et al., 2015), and treatments based on the cognitive-behavioral therapy (CBT) model are among the most studied and reviewed as empirically supported (Cuijpers et al., 2013; Hollon & Ponniah, 2010). They could be regarded as the first-line option for treatment (Hollon, 2016). As depressive symptoms are strongly associated with clinical depression or major depressive episode, effective treatments should be developed and implemented early (Horwath et al., 1992). Depressive symptoms are often encountered in low-level settings which may limit the possibility to offer standard-length psychotherapy (Bijl & Ravelli, 2000; Nieuwsma et al., 2012), and a significant part of those seeking help are new cases advocating for easy and rapid access to treatment to prevent symptoms from worsening (Smit et al., 2006).

Brief psychological interventions may be more readily implemented in low level settings and could offer a viable possibility to an easier access to psychological help in order to diminish suffering (Churchill et al., 2001; Nieuwsma et al., 2012). We argue that those interventions could be a viable alternative to meet the service needs, especially among clients with mild psychological symptoms. Psychological flexibility (Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004; Kashdan & Rottenberg, 2010) could offer an insight on how to promote psychological health and decrease distress. Psychological flexibility is a core concept in Acceptance and Commitment Therapy (ACT; Hayes et al., 2004; Hayes, Strosahl, & Wilson, 2011), a recent development in the CBT tradition, focusing on acceptance and valued living. Earlier research focusing on acceptance- and value-based interventions has shown promising, positive results regarding a wide variety of psychological and health-related suffering (A-Tjak et al., 2015; Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Powers,

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Zum Vörde Sive Vörding, & Emmelkamp, 2009; Ruiz, 2010), even in a time-limited (3–10 sessions) intervention setting (Hayes et al., 2006; Kohtala, Lappalainen, Savonen, Timo, & Tolvanen, 2015; Lappalainen et al., 2007; Lappalainen et al., 2014; Lappalainen, Langrial, Oinas-Kukkonen, Tolvanen, & Lappalainen, 2015). Psychological flexibility is targeted in ACT interventions and mediational data suggests that it is likely to be influencing the positive outcomes, yet the results seem to be somewhat mixed and follow-ups were often at 6 months or less with some exceptions (e.g. Ciarrochi, Bilich, & Godsel, 2010).

We developed a 4-session, semi-structured, individual-oriented ACT-based intervention for self-reported depressive symptoms. An earlier report on our brief intervention (Kohtala et al., 2015) declared it to have had a positive impact on the well-being of the participants: after the intervention, decreases in depressive symptoms and increases in psychological flexibility were found to have been greater than in the parallel waiting-list control group, and these effects were maintained in the intervention group across a 6-month follow-up period.

However, more research is needed to investigate both the effectiveness of very brief psychological interventions and especially their long-term effectiveness, since the maintenance of treatment outcomes is an important factor when assessing interventions to be implemented and disseminated in health care systems. Follow-ups lasting longer than 12 months are rare in psychotherapy research, with a few exceptions. In CBT literature, several CBT-based interventions with long follow-ups have been reported to show promising yet fading results concerning relapse prevention (Fava, Rafanelli, Grandi, Canestrari, & Morphy, 1998; Fava et al., 2004; Paykel et al., 2005). Regarding depressive symptoms, research on long-term effectiveness has yielded some cases with good maintenance of treatment outcomes (Andersson et al., 2013; Stagl et al., 2015; Wiles et al., 2016), but research on individual brief interventions with long-term follow-up periods is scarce. Follow-ups beyond the 12-month mark are also rare in ACT as well as in other types of cognitive-behavioral therapies, and the results have been mixed. With respect to the ACT literature, Zettle and Rains (1989) were among the first to report positive results in the treatment of depression yet with only a two-month follow-up. More recently, two studies have examined different modalities of brief ACT interventions (face-to-face and Internet-delivered) for depressive symptoms with an 18-month follow-up (Folke, Parling, & Melin, 2012; Lappalainen et al., 2014). Those interventions included individual or group sessions, and reported significant improvements in depressive symptoms, general health and quality of life. Treatment gains were maintained across the 18-month follow-up periods. While there is evidence for the treatment effectiveness of such brief ACT interventions with follow-ups, the longer-term impact is unknown.

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Given the scarcity of long-term follow-up data on brief ACT interventions for depressive symptoms, our aim was to gain preliminary long-term data on the effectiveness of a brief ACT intervention for depressive and other psychological symptoms, as well as on psychological flexibility and mindfulness skills. The current study is a follow-up investigation to our earlier study (Kohtala et al., 2015), in which a pre-post comparison with a waiting-list control group was conducted covering a 6-month follow-up period (without the waiting-list comparison group). The current study evaluates the maintenance of that intervention's effects after a period of 5 years. Our primary intention was to study the long-term effectiveness of that brief ACT intervention provided by novice therapists, which had a non-diagnosed population seeking help for low mood. Studies, for example by Forand, Evans, Haglin, and Fishman (2011), Hiltunen, Kocys, and Perrin-Wallqvist (2013), and Öst, Karlstedt, and Widén (2012), suggest that treatments provided by trainees can be effective. Furthermore, we argue that it is also important to investigate the effectiveness of low-cost interventions for the benefit of clients with milder symptoms of depression in order to decrease the possibility of major depressive episodes (Cuijpers et al., 2014; Horwath et al., 1992).

Method

Participants

The participants were recruited via a newspaper advertisement stating that a university research project studying the efficacy of a brief intervention conducted by psychology students was seeking participants experiencing depressed mood. Originally, 71 participants contacted the project. Eleven were excluded because inclusion criteria were not met or they wished to discontinue (see Figure 1 showing the flow of participants). The criteria for inclusion were as follows: 1) subjective depressive symptoms or depressed mood (diagnosis not necessary); 2) no other concurrent psychological treatment; 3) no reported schizophrenia; 4) no reported alcoholism; 5) no reported severe sensory or brain injury; and 6) no reported neurological disorder. We anticipated an imbalanced gender distribution as depression is roughly twice as common in women as in men (Leach, Christensen, Mackinnon, Windsor, & Butterworth, 2008), and research suggests that women are more likely to seek psychological help than men (Smith et al., 2013). Thus, the remaining 60 participants were randomized into two groups by gender. From those 60 participants, two participants quit before the pre-intervention measurement and one dropped out just before the intervention started, leaving 57 participants organized into two overarching groups: 1) the ACT intervention group (n = 28), and 2) the waiting-list control group (n = 29) (i.e., WLC group, whose participants were informed that they would receive treatment approximately five weeks later). In secondary analyses later, the original ACT group is referred to as Group 1 and the waiting-list

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control group (WLC) as Group 2. The waiting list controls also had one additional measurement before the start of the intervention (serving as their pre-treatment measurement). All in all, three participants decided to discontinue the intervention and one participant from the WLC group did not begin their intervention after the waiting phase. Their mean BDI score was 11 (*SD* = 9.83; *range* = 2–20). Reasons for dropping out are not available. In addition, two participants who completed the intervention were not reached to participate in the post-measurement. Altogether 51 participants were analyzed at post-measurement.

Figure 1. Flow of the participants

All 57 (28 + 29) participants were Caucasian (45 female, 79%, and 12 male, 21%; one participant did not provide background information). Their mean age at the beginning of the research was 46.2 years (*SD* = 11.9, *range* = 17–71). Over 68% of the participants were reporting moderate to severe symptoms of depression[1].Table 1 presents the participants' background information and variables at both the pre-intervention and 5-year follow-up measurement points. More detailed pre-intervention socio-demographic data, by group (original ACT vs. waiting-list control), have been presented elsewhere (Kohtala et al., 2015).

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Procedure

The data analyzed covered two waves (Spring 2008 and 2009) of a four-session (weekly 60-minute sessions over a period of four weeks), individual-oriented ACT intervention for the treatment of self-reported depressive symptoms. More elaborate descriptions of the intervention protocol, the research design, and the intervention's effectiveness have been reported elsewhere (Kohtala et al., 2015) and can be obtained from the corresponding author.

Both groups which had received treatment were contacted six months and again five years after their intervention had ended. Self-report measures (presented later) were completed before the intervention as well as six months and again five years after it. Both at the 6-month and 5-year follow-up points, all of the 57 participants who had started the intervention/waiting-phase were contacted by letter a month before informing them about the upcoming measurement and providing the clinic's contact information. Those who did not make contact on their own were proactively

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contacted a week later. Altogether 48 participants were reached and agreed to participate at the 6-month follow-up measurement, and 35 at the 5-year follow-up measurement. The 5-year follow-up assessment included an interview either on the phone or face-to-face based on each participant's preference. A packet of self-report inventories and a background information form were sent to the participants prior to the follow-up interview to be completed beforehand. The inventories and questionnaires used were the same as for the measurements during the intervention phase and at the 6-month follow-up assessment. All in all, 22 participants (39%) dropped out during the 5-year follow-up period (Figure 1). From the sample of 35 participants (61%), 26 had participated in all of the previous measurements: pre-, post-, and 6-month follow-up measurements. Fifteen participants agreed to an audio-recorded interview. A small reimbursement was offered to all participants to compensate them for their time.

In examining the background variables (documented at the beginning of the intervention, see Table 1), the following differences were found between the participants who dropped out before the 5-year follow-up measurement (n = 22) and those who continued (n = 35). The two groups differed in terms of age ($t(55) = 2.39$, $p = .020$), the participants who continued were significantly older. However, when examining depression symptoms (the Beck Depression Inventory), those who dropped out and those who had participated in the 5-year follow-up did not significantly differ from each other both at pre- and post-measurement nor in terms of changes in depression during the intervention period.

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Intervention

According to its protocol, the intervention consisted of four sessions that were acceptance- and value-based, semi-structured, yet individually oriented. The therapists were female Master's degree level psychology students (n = 20). The total time used for training and supervising the novice therapists was approximately 23 hours, consisting of training on the ACT model and methods, and mandatory group supervision provided weekly during the intervention phase. During the supervision, each session was planned and prepared under the guidance of an experienced ACT therapist. A case formulation model (*the FACCM model*; Haynes & O'Brien, 2000) was used to conceptualize client issues and to guide the formulation of treatment aims in co-operation with the client and their values. The key guidelines of the intervention were the following: (1) clarification of values, (2) individual activation for changes based on client-defined values, and (3) dealing with different emotional and verbal barriers. In addition, at least one ACT metaphor or experiential exercise (such as the *Observer* exercise (Hayes et al., 2011)) was designated to be used during each session, using a Finnish handbook on ACT (Lappalainen et al., 2004). A more elaborate training

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and intervention description can be found elsewhere (Kohtala et al., 2015) and is also available from the corresponding author (A.K.).

Client measures

To measure self-perceived depressive symptoms, the *Beck Depression Inventory* (BDI) was used. It is a 21-item questionnaire measuring the severity of diagnostic depression symptoms (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Its reliability and internal consistency have been found to be high (Beck et al., 1961), and the convergent validity between the BDI and the BDI-II (Beck, Steer, & Brown, 1996) have been reported as high, ranging from .82 to .94 (Wang & Gorenstein, 2013). When planning the research study, the BDI-II was not available. Psychological symptoms were measured using the *Symptom Checklist-90* (SCL-90; Derogatis, Lipman, & Covi, 1973), which is a broad self-report checklist validated in regard to the Finnish population (Holi, Sammallahti, & Aalberg, 1998). For example, in a community sample the internal consistency ranged between .79 and .97, and in a patient sample between .77 and .90. In the current study, the SCL-90 scores are reported as *General Severity Index* (GSI) scores (calculated by dividing the SCL-90 score by the number of questions). Social functioning and coping with daily life was measured with the *Social Adaptation Self-Evaluation Scale* (SASS) (Bosc, Dubini, & Polin, 1997), which has the Cronbach's alpha coefficient of .74. Self-confidence, mood and life satisfaction were measured using three descriptive *Visual Analog Scales (VAS scales)* with a 0–100 range (Ojanen & Seppälä, 1997; Ojanen, 2001). The *Acceptance and Action Questionnaire – 2* (AAQ-2, earlier version), which is a 10-item self-report survey using a 7-point Likert-type scale, was used to measure the intertwined ACT subcomponents influencing what is defined as *psychological flexibility* (Ciarrochi et al., 2010). From now on, we use *psychological flexibility* to address the findings from the AAQ-2. The version used in this study was the 10-item scale, which had been translated into Finnish. That version has been reduced in the past to include only seven items and has the mean alpha coefficient of .84 (Bond et al., 2011). The correlation between the 7- and 10-item versions is $r = .96$, and, according to Bond et al. (2011), the earlier version of the AAQ-2 is valid for research purposes. In the present study, higher scores on the AAQ-2 indicate more flexibility, meaning items 2 to 5 and 7 to 9 were reverse-scored. Mindfulness skills were evaluated using *the Kentucky Inventory of Mindfulness Skills* (KIMS), which is a 39-item self-report inventory that measures four components of mindfulness skills: observing, describing, acting with awareness, and accepting without judgment (Baer, Smith, & Allen, 2004).

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The same assessment tools as in the earlier stages of the project were used in the 5-year follow-up. An interview consisting of ten open questions was conducted at the 5-year follow-up point, and some of the results are presented later to give supplementary information in addition to the quantitative data as we consider follow-ups this long to be a rarity in intervention research. There were questions concerning overall well-being and any major or minor life changes during the five years (e.g., *How has your well-being changed since the intervention ended, during the past five years?*). The participants were asked about the brief intervention and its perceived effects, whether they still used the principles learned during the intervention (e.g., *Has something from it stayed with you?*), and possible changes related to their thoughts and emotions (e.g., *Has your stance toward your thoughts and feelings changed somehow? Do you associate these possible changes to the brief intervention in any way?*). In addition, the participants were asked whether or not they had taken part in any other psychological or psychiatric treatments during the 5-year follow-up period.

Data analyses

Data analyses were carried out using the SPSS software program (version 22.0) and the latent variable Mplus program (version 7; Muthén & Muthén, 2012). Differences between the intervention groups at the start of the intervention were tested using chi-square and *t*-tests. All 57 of the randomized participants were included in the intent-to-treat analysis studying the effects of the intervention at the 5-year follow-up mark. We used *hierarchical linear modeling* (HLM), which uses a *full information maximum likelihood* (FIML) estimation that allowed all randomized participants to be included in the analysis. The missing data is presumed to be "missing at random" (MAR). We examined *within-group* changes at crucial stages of the study period, taking pre- and post-intervention measurements followed up with measurements six months and five years after the intervention. To analyze the overall change across the measurement points, three new parameters measuring changes were defined: 1) change from pre-to-post, 2) change from post to 6-month follow-up, and 3) change from 6-month to 5-year follow-up. These parameters were tested simultaneously, using the Wald test. Mean values and standard deviations (SD) were calculated using FIML estimation to correct the means of missing values. Effect sizes (ES) were calculated using the Mplus and are reported as Cohen's *d*, and the within-group effect sizes were calculated as follows, both for the whole study period and the 5-year follow-up period: the mean change from the pre-intervention to 5-year follow-up measurement was divided by the combined (pooled) pre-intervention and 5-year follow-up measurements' SD, and the mean change from the post-intervention to 5-year follow-up measurement was divided by the combined post-intervention and 5-year follow-up measurements' SD (Feske & Chambless, 1995; Morris & DeShon, 2002). A

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within-group effect size of 0.5 was considered small, 0.8 medium, and 1.1 large (Roth & Fonagy, 1996; Öst, 2006).

Results

Outcomes at the 5-year follow-up mark

Means, standard deviations (SD), 95% confidence intervals (CI), and within-group effect sizes (ES) (Cohen's *d*) are presented in Table 2. Six participants (11%) had a pre-treatment BDI score below 10 which is considered the limit for minimal depression, yet they were all included in the analyses due to inclusion criteria of subjective feelings of depression. Severe depressive symptoms (BDI score over 30) were reported by 14 (25%) participants at the pre-measurement. The 95% confidence intervals indicated that there were various statistically significant changes from the pre-intervention to 5-year follow-up mark in all outcome measures. For example, the confidence intervals of the BDI ranged from 19.88 to 25.00 at the pre-intervention measurement point and from 7.23 to 11.80 at the 5-year follow-up mark. The period after the 4-session intervention (assessed for changes from the post-intervention to 6-month follow-up point as well as from the 6-month to 5-year follow-up point) was analyzed with the purpose of investigating the maintenance of the treatment effects. With the exception of the SASS (social adaptation), there were significant trends indicating positive changes during the follow-up period. The results show a significant within-group main effect for time (post to 5-year follow-up) on depressive symptoms (BDI: estimate = –4.05, $p = .005$), psychological symptoms (SCL-90-GSI: estimate = –0.16, $p = .006$), psychological flexibility (AAQ-2: estimate = 5.14, $p = .009$), mood (Visual Analog Scale (VAS) for Mood: estimate = 6.93, $p = .014$), life satisfaction (VAS for Life Satisfaction: estimate = 8.55, $p = .006$), and self-confidence (VAS for Self-confidence: estimate = 7.28, $p = .027$). Within-group (pre to 5-year follow-up) effect sizes (Cohen's *d*) varied from 0.77 to 1.52 (small to large): large effect sizes were found regarding depressive symptoms (BDI, $d = 1.45$), mood (VAS for Mood, $d = 1.52$), life satisfaction (VAS for Life Satisfaction, $d = 1.34$), and psychological flexibility (AAQ-2, $d = 1.21$). These results and the mean scores (Table 2) indicate that positive changes in well-being took place throughout the whole study period.

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The sample was also analyzed by group based on the original intervention order: Group 1 and Group 2. The results indicate that the groups differed from each other in terms of changes during the intervention (the Wald test estimates ranging from –5.93 to 13.96, $p = .000–.030$), except for mindfulness skills (KIMS: estimate 2.10, $p = .681$). In terms of life satisfaction, there was also a between-group difference during the post to 6-month follow-up (VAS for Life Satisfaction: estimate 4.84, $p = .000$). Those significant differences were in favor of Group 1, indicating better intervention outcomes for those receiving the treatment without a waiting time. However, those differences thinned out during the longer follow-up period (the Wald test estimates 6-month to 5-year follow-up ranging from –9.96 to 2.90, $p = .118–.820$). These results indicate that even though there were between-group differences during the intervention favoring the earlier treatment start of Group 1, the differences in well-being vanished during the years to follow.

At the 5-year follow-up point, 34% (12 of 35) of the participants had received some type of psychological treatment during the follow-up period. According to the interviews with the participants, such treatment was mainly short-term (2–10 sessions) and only two therapies were extensive (one lasted 12 months, and the other was comprised of 50 sessions). We investigated the possibility that the additional treatment received during the follow-up had an impact on the changes in outcome variables. No statistically significant interaction effects were found either from pre-to-post or from post- to 5-year follow-up measurement when we compared who had received additional treatment to those who had not. This suggests that there were no differences in the patterns of change between these two groups. However, there were significant between-group differences at the 5-year follow-up in terms of depressive symptoms (BDI: estimate 6.18, $p = .016$), life satisfaction (VAS for Life Satisfaction: estimate –13.70, $p = .019$), psychological flexibility (AAQ-2: estimate –8.04, $p = .012$), and mindfulness skills (KIMS: estimate –14.84, $p = .005$). The mean scores indicate that the group without any additional treatment during the 5-year follow-up period had better scores at the end of the follow-up period. The groups also differed at the pre-intervention point concerning psychological flexibility (AAQ-2: estimate –7.53, $p = .026$) and social functioning (SASS: estimate –5.83, $p = .035$): the scores indicate higher psychological flexibility and social functioning prior to the intervention among those not having received psychological treatment during the follow-up. Psychotropic medication use was also examined: 80% (28 of 35) had not used medication during the 5-year follow-up period, and a mere 6% (2 of 35) used medication at the time of the 5-year follow-up measurement. One of them had used medication also during the intervention phase.

Based on the BDI scores, the number of participants reporting minimal depressive symptom scores (BDI score of 0-9) was calculated during post-, 6-month and 5-year follow-up

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measurements. At post-measurement, 20 participants reported BDI scores lower than 10 (35-39%, the first percentage is the amount of participants divided by the number of participants at the pre-measurement (n = 57) and the second percentage uses the number of participants at that particular measurement point as a divisor). Similar amounts of participants and percentages were 25 (44-52%) for 6-month follow-up and 20 (35-57%) for the 5-year follow-up. The smaller percentages regard the lost participants more as failed treatment attempts and the latter higher percentages report results only from those participating at that particular measurement. Five (9-10%, calculated as mentioned above) participants indicated severe depression (BDI scores over 30) at post-measurement, one (2%) participant at 6-month follow-up and zero at 5-year follow-up measurement.

Participant experiences

The analytical results of the data from the 5-year follow-up interviews revealed that 57% of the participants (20 of 35) had experienced improvements in their well-being during the 5-year follow-up period, 26% (9 of 35) had not experienced well-being changes, and merely 11% (4 of 35) had experienced self-reported deterioration. Of the 5-year follow-up participants, 6% (2 of 35) were unable to clearly determine such changes due to fluctuations in their well-being. As much as 60% (12 of 20) of those who experienced improvements reported that they felt that those changes were connected to the ACT intervention. Responses regarding those changes conveyed an accepting and defused attitude toward private events; for example, “I’ve been able to influence my own well-being: I don't get stuck in feelings, I see them as separate things” and, “A lot has changed in my life, but I've gotten better at handling those changes: no fighting with past matters”. Nearly two-thirds (60%; 21 of 35) of the participants utilized methods learned during the intervention later in life. Participant responses also conveyed negative experiences regarding the intervention, and those responses reflected dissatisfaction with the duration of the intervention. Perhaps related to the brevity of the intervention, there were comments concerning forgetting; for example, “Early on, I used the methods more, now I’ve forgotten a lot.”

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Discussion

Main findings

The primary aim of the current study was to examine the long-term impact and outcomes of a brief, student-administered ACT intervention on a sample of self-referred participants experiencing self-reported depressive symptoms. This research has found statistically significant decreases in depressive symptoms and increases in psychological flexibility and well-being both directly and five years after the intervention relative to participants’ pre-intervention levels of functioning and

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symptoms. Maintenance of outcomes was detected even at the 5-year mark relative to participants' immediate post-intervention as well as 6-month follow-up results. The effect sizes for the whole study period (pre- to 5-year follow-up measurement) were large, for example, with regard to depressive symptoms (d = 1.45) and psychological flexibility (d = 1.21). These effect sizes compare well to within-group effect size findings in other long-term follow-up studies in ACT literature (e.g., Cohen's d = 0.59–0.77 in Folke et al., 2012; Hedges' g = 0.96–2.08 in Lappalainen et al., 2014; Cohen's d = 0.28–0.85 in Vowles, McCracken, & Zhao O'Brien, 2011). However, when drawing conclusions regarding the findings in this study, we need to keep in mind that studies using smaller samples tend to report larger effects than studies using larger samples (Kühberger, Fritz, & Scherndl, 2014). It is recommended that effect sizes (ES) be supplemented with confidence intervals (CI), since the width of the intervals provides more information on how accurate the estimation of the impact is (Kühberger et al., 2014). In the current study, the 95% within-group confidence interval from pre-measurement to 5-year follow-up Cohen's d for BDI was 1.10–1.81, and the confidence interval from post-measurement to 5-year follow-up d for BDI was 0.19–0.76. Thus, these relatively wide confidence intervals indicate that the relatively large within-group effect sizes should be taken with caution, because the confidence intervals probably overestimate the size of the effect (see, e.g., Kühberger et al., 2014).

A 4-session ACT intervention conducted by psychology students, novices in therapeutic methods who underwent a brief training in ACT, appears to be effective for self-referred clients reporting mild to moderate feelings of depression and low mood. Earlier studies on the long-term effectiveness of brief CBT/ACT interventions have reported rather good short-term (six months to two years) results (e.g., Folke et al., 2012; Lappalainen et al., 2007, 2014; Stice, Rohde, Gau, & Wade, 2010). In our earlier studies utilizing this and similar brief ACT models, we have observed that the current model delivered either face-to-face or via a web app produced significant changes in mood and psychological well-being that were maintained for up to at least 18 months (Kohtala et al., 2015; Lappalainen et al., 2007, 2014; Lappalainen et al., 2015; Räsänen, Lappalainen, Muotka, Tolvanen, & Lappalainen, 2016). For example, Lappalainen et al. (2014) observed a large within-group effect size (BDI-II, g = 1.17) after a six-week face-to-face intervention delivered by psychology students, and the effect of the intervention was maintained up to the measured 18-month follow-up mark (g = 1.59). In the current study, the within-group effect size for depressive symptoms (BDI) was d = 1.46 (change from post to 5-year follow-up, d = 0.48), which is in line with results reported by Lappalainen et al. (2014). Despite the limitations, the results of the current study add to the research literature by extending the follow-up period.

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Limitations

Several limitations need to be addressed. First, 39% of the individuals in the original sample could not be contacted to be invited to participate in the 5-year follow-up, and it should be kept in mind that the results might have been different with the complete sample. The small sample size and the biased gender distribution limit the generalizability of the results. Secondly, the follow-up sample also included those individuals having had additional psychological treatment (one-third) or medication (one-fifth) during the follow-up, a subgroup commonly removed from the analyses. Even though the group with additional psychological treatment had significantly higher levels of depressive symptoms at the 5-year follow-up mark, a similar pattern of outcomes (decreases in depressive symptoms) was detected between the groups. For some individuals, either more or less depressed, the brief intervention might have acted as a catalyst to seek out more psychological help they might have needed but had been lacking due to various reasons.

Thirdly, we are not able to exclude other possible variables that may have had an effect on the well-being and outcomes during this long follow-up. It is also possible that the same changes that were observed during the 5-year study period could have occurred without any intervention due to spontaneous recovery/remission (Whiteford et al., 2013). The percentages below the BDI threshold of 10 points at post-, 6-month and 5-year follow-up measurements were 35-39%, 44-52% and 35-57%, respectively, compared to 23% (3 months), 32% (6 months) and 53% (12 months) from the spontaneous recovery research by Whiteford et al. (2013). The course of depressive symptoms might have fluctuated during the research period as depression is often cyclic by nature and phases of higher mood might have occurred during the measurement periods. However, it is unlikely that those phases would have coincided for most of the participants during all of the follow-up measurements. To address the issue of confounding factors and the possibility of spontaneous recovery more thoroughly, the follow-up could have been conducted using multiple measurement periods rather than two. In addition, different measurement tools such as standardized interviews might have given more precise information. A disadvantage for using a waiting-list control group instead of an active control is not being able to focus the treatment effects specifically on the ACT intervention, and it may be possible that another type of intervention or general therapeutic attention could have resulted in similar outcomes. This should be tested in future studies comparing long-term effectiveness of brief interventions with different frameworks. It could also be questioned whether the novice student therapists actually applied the ACT model as such, according to the protocol. Even though the sessions in this study were not recorded, we have access to coded video material from a similar brief-treatment model for depression by novice therapists (Keinonen, Kyllönen, Astikainen, & Lappalainen, 2016; Kyllönen, Muotka, Puolakanaho, Astikainen, &

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Lappalainen, 2016) which used a validated *ACT Adherence Scale* (Twohig et al., 2010; Twohig & Crosby, 2010). Concerning that similar ACT model, the overall adherence to the project manual and the overall competence of the ACT delivery reflected a satisfactory level of competence (M = 3.35 and M = 3.29, respectively, Keinonen et al., 2016; Kyllönen et al., 2016), yet the ACT treatment was not administered in a very proficient way, which is, however, to be expected in cases with such brief training—this applies to our study as well. Nevertheless, it should be noted that the student therapists were supervised on a weekly basis by an experienced ACT therapist. Thus, they were not allowed to run a session without first presenting a plan of execution to be applied during the next session. As a rule, the supervisor instructed the student therapists to read the selected exercises presented during the sessions using a Finnish handbook on ACT (Lappalainen et al., 2004). This should be taken into account when generalizing the effects of the intervention. Nonetheless, based on our observations in this study and in previous ones, we claim that the students did apply the ACT methods satisfactorily, including several experiential exercises and metaphors. The overall results draw our attention to the possibility that for motivated individuals seeking help with mild to moderate levels of depressive symptoms, even a brief psychological intervention provided by non-experts (combined with regular supervision by an expert) can result in long-lasting benefits for a significant number of participants. Yet, further studies using improved methodologies and design need to confirm whether our findings are empirically true.

Finally, formal diagnostic interviews were not carried out as such, and it must be noted that these results may not directly apply to severe psychological disorders. However, studies focusing on individuals with lower levels of depressive symptoms, even those who may not fulfill diagnostic criteria, seem justifiable based on research concerning subclinical symptomatology (Goldney et al., 2004; Horwath, et al., 1992; Judd et al., 1996). Although we totally agree on the importance to study clearly defined clinical populations, we call for more discussion on whether the effectiveness of psychological interventions should be studied only with regard to participants fulfilling diagnostic criteria. This is especially true considering brief interventions provided by less-trained therapists and counselors often working in primary care in comparison to highly trained specialists working with more complicated cases involving more severe diagnoses. Further limitations concerning the intervention and design have been discussed elsewhere (Kohtala et al., 2015).

Clinical conclusions

In conclusion, the data suggest that our brief, 4-session ACT intervention produced positive treatment outcomes and maintenance of those effects to a significant portion of motivated individuals with mild to even severe self-reported depressive symptoms. We are not suggesting that

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everyone benefits from a brief treatment, but on average 40% (our percentage range was 35-57%) can be categorized as recovered (scores below 10 in the BDI) at the 5-year follow-up, indicating that a good number of participants benefits long-term as well. These percentages are somewhat higher compared to those of spontaneous remission (Whiteford et al., 2013) and the 4-session ACT intervention seemed to produce those changes more rapidly than spontaneous recovery might have. Spontaneous recovery also did not occur during the intervention period in the waiting-list control group. However, the relatively large effect sizes associated with small samples sizes may have caused an overestimation of the effects and this should also be taken into consideration (Kühberger et al., 2014). If replicated, the follow-up measurement should be more extensive and there should be several measurement points (e.g. yearly or at 6 month intervals) in order to gain more precise data on possible relapses, other treatments, and life and well-being changes. In addition, the follow-up interview could be more structured to offer insight and useful information concerning participant experiences, as those could help develop and mold interventions further. Our research, like that of others (e.g., Forand et al., 2011; Gloster et al., 2015; Öst et al., 2012), suggests that with a little training and ample supervision novice therapists can provide effective psychological interventions. These results add to earlier research involving novice therapists, and support the use and implementation of effective and evidence-based psychological interventions with time-limited training.

Brief interventions for treating symptoms of depression can be a cost-effective yet beneficial alternative to longer psychotherapy, at least for certain individuals. We argue that brief psychological interventions for low mood and depression should be studied more and implemented at lower level care, since mood problems and depressive symptoms often may lead to clinical and severe episodes of depression (Horwath et al., 1992). As a simplified example, the improvements participants gained through the four weeks in our ACT-based intervention were quite comparable, in terms of a reduction in depressive symptoms, to a 5-year therapy based on psychoanalysis that involved four weekly sessions throughout the treatment (Knekt et al., 2011), specifically: ACT: mean BDI change of 13.4 points (*CI* for pre to 5-year difference = 10.40; 16.40, *d* =1.45 (*CI* = 1.10; 1.80); psychoanalysis: mean BDI change of 13.8 points (*CI* for pre to 5-year difference = 10.54; 17.06, *d* = 1.86 (*CI* = 1.33; 2.36). The study populations were reasonably comparable regarding participants' levels of depression symptoms (e.g., BDI at pre: ACT, *m* = 22.44, *SD* = 9.96, compared to psychoanalysis, *m* = 19.30, *SD* = 6.40); both populations were self-selected for the particular intervention and were carried out in the same Nordic country. We call for further studies with long follow-up periods to investigate for what types of clients brief interventions may be suitable as an alternative to longer lasting treatment.

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This study lacked the possibility to take a closer examination of crucial processes, mechanisms of change and behavioral patterns associated with positive long-term outcomes, and those elements should be studied more extensively to help identify more successful ways to develop treatment protocols, especially for brief interventions. Future research should examine change processes and try to identify treatment responders and non-responders also within longer time frames. Additionally, further research should focus on naturalistic settings and transdiagnostic populations to a greater extent in order to address the needs faced in the field more closely. More studies are needed to investigate whether building more psychological flexibility and learning to see life as an active pursuit of valued living even amidst a painful life or adverse private events might offer additional benefits compared to approaches paying attention more to symptom removal that have yielded mixed long-term effectiveness results (Fava et al., 1998; Stice et al., 2010). It could also be interesting to examine whether brief interventions act as a catalyst to seek out much needed additional help for some individuals, perhaps when their situation hasn't changed for years. In addition, those having received additional treatment after a brief intervention reported lower psychological flexibility and social functioning prior to the intervention compared to those not having received psychological treatment during the follow-up. The level of psychological flexibility and social functioning might predict the need for additional treatment after a very brief intervention, a notion which could also be elaborated on in future studies.

This study provides additional evidence for the potential effectiveness of brief psychological interventions, as also supported by earlier research (Folke et al., 2012; Kohtala et al., 2015; Lappalainen et al., 2007, 2014), especially regarding individuals with mild to moderate symptoms of depression.

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[1] Depression severity was calculated based on the BDI categories at pre-measurement as follows: 1) minimal depression = 10.5% (6 participants), 2) mild depression = 21% (12 participants), 3) moderate depression = 44% (25 participants), 4) severe depression = 24.5% (14 participants).

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Table 1. *Background Information for Three Different Groups*

Baseline characteristic	Pre-intervention measurement (*n* = 56*)	Pre-intervention measurement for participants not included in the 5-year follow-up (*n* = 21*)	5-year follow-up measurement (*n* = 35)
Female/Male	45/12 (79% / 21%)	16/6 (73% / 27%)	29/6 (83% / 17%)
Employment			
Work life	24 (43%)	7 (33%)	17 (49%)
Outside of work life	13 (23%)	5 (24%)	8 (23%)
Unemployed	10 (18%)	3 (14%)	7 (20%)
Other	9 (16%)	6 (29%)	3 (8%)
Education			
Basic education	5 (9%)	2 (6%)	3 (9%)
Secondary degree	25 (45%)	14 (40%)	13 (37%)
Higher education	24 (43%)	18 (51%)	18 (51%)
Other	2 (3%)	1 (3%)	1 (3%)
Civil status			
In a relationship	27 (48%)	8 (38%)	21 (60%)
Unmarried	16 (29%)	10 (48%)	4 (11%)
Divorced	13 (23%)	3 (14%)	8 (23%)
Other	0 (0%)	0 (0%)	2 (6%)
Mental health diagnosis **			
No diagnosis	25 (45%)	20 (57%)	28 (80%)
Depression	25 (45%)	11 (31%)	4 (11%)
Depression and other	4 (7%)	3 (9%)	3 (9%)
Other than depression	2 (3%)	1 (3%)	0 (0%)
Psychotropic medication used	16 (29%)	9 (43%)	2 (6%)

* one participant refused to give background information
** diagnosed by a general doctor or a psychiatrist

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Table 2. *Mean Scores, Standard Deviations, and 95% Confidence Intervals (CI) for All Dependent Variables at Pre-, Post-, 6-month Follow-up, and 5-year Follow-up Measurement (Within-group Effect Sizes (ES) with 95% Confidence Intervals (CI) are also Presented)*

Measurement[a]	Pre *M* (*SD*) (*n* = 57) *CI*	Post *M* (*SD*) (*n* = 51) *CI*	6-month follow-up *M* (*SD*) (*n* = 48) *CI*	5-year follow-up *M (SD)* (*n* = 35) *CI*	ES (Cohen's *d*) and *CI*	
					Pre – 5-year	Post – 5-year
BDI	22.44 (9.86) 19.88 – 25.00	13.55 (9.76) 11.02 – 16.08	10.46 (9.94) 7.94 – 12.99	9.51 (7.86) * 7.23 – 11.80	1.45 1.10 – 1.80	0.46 0.18 – 0.73
SCL-90-GSI	1.15 (0.59) 0.99 – 1.30	0.77 (0.54) 0.63 – 0.92	0.67 (0.55) 0.52 – 0.81	0.62 (0.47) * 0.48 – 0.75	0.99 0.67 – 1.31	0.31 0.08 – 0.53
SASS	33.60 (6.95) 31.79 – 35.40	36.84 (6.85) 35.00 – 38.68	39.40 (8.76) 36.98 – 41.83	39.10 (7.33) n.s. 36.87 – 41.32	0.77 0.46 – 1.08	0.32 0.05 – 0.69
Mood	40.97 (15.81) 36.86 – 45.07	58.90 (20.34) 53.42 – 64.39	60.44 (20.89) 54.74 – 66.15	65.85 (16.83) * 60.83 – 70.88	1.52 1.10 – 1.95	0.37 0.09 – 0.66
Self-confidence	47.33 (19.16) 42.36 – 52.31	58.72 (20.95) 53.10 – 64.35	59.78 (22.95) 53.62 – 65.94	65.77 (21.58) * 59.49 – 72.06	0.90 0.59 – 1.22	0.33 0.02 – 0.65
Life satisfaction	47.30 (14.68) 43.49 – 51.11	59.39 (21.48) 53.67 – 65.11	63.48 (19.67) 58.04 – 68.91	68.01 (16.22) * 62.70 – 73.33	1.34 0.90 – 1.78	0.45 0.13 – 0.78
AAQ-2	38.68 (10.91) 35.85 – 41.52	46.86 (12.64) 43.48 – 50.24	48.54 (10.89) 45.57 – 51.50	51.49 (10.30) * 48.41 – 54.58	1.21 0.88 – 1.53	0.40 0.09 – 0.71
KIMS	116.88 (13.40) 112.31 – 121.45	122.22 (19.39) 115.55 – 128.90	125.90 (23.48) 117.58 – 134.23	128.68 (16.64) n.s. 122.50 – 134.86	0.78 0.42 – 1.14	0.36 0.03 – 0.68

pre = pre-intervention measurement; post = post-intervention measurement
[a]BDI = Beck Depression Inventory; SCL-90-GSI = Symptom Checklist-90: General Severity Index; SASS = Social Adaptation Self-Evaluation Scale; Mood = visual analog scale of 0–100 for mood; Self-confidence = visual analog scale of 0–100 for self-confidence; Life satisfaction = visual analog scale of 0–100 for life satisfaction; AAQ-2 = Acceptance and Action Questionnaire – 2; KIMS = Kentucky Inventory of Mindfulness Skills (*n* = 33)
p-values for post to 5-year follow-up: * = $p < .05$, ** $p < .01$, n.s. = not significant
Highlights:

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- Long-term outcomes of a brief intervention were assessed.
- Intervention was acceptance- and value-based for self-reported depressive symptoms.
- Outcomes were maintained for at least five years after the intervention ended.

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