



The role of psychological flexibility in a self-help acceptance and commitment therapy intervention for psychological distress in a randomized controlled trial



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ABSTRACT

This study examined the role of psychological flexibility, as a risk factor and as a process of change, in a self-help Acceptance and Commitment Therapy (ACT) intervention for adults with mild to moderate depression and anxiety. Participants were randomized to the self-help programme with e-mail support ($n = 250$), or to a waiting list control group ($n = 126$). All participants completed measures before and after the intervention to assess depression, anxiety and psychological flexibility. Participants in the experimental condition also completed these measures during the intervention (after three and six weeks) and at a three-month follow-up. With multilevel modelling, it was shown that the effects of the intervention on psychological distress were stronger for participants with higher levels of psychological flexibility. Furthermore, our study showed that improved psychological flexibility mediated the effects of the ACT intervention. With a cross-lagged panel design, it was shown that especially improvements in psychological flexibility in the last three sessions of the intervention were important for further reductions in anxiety. To conclude, our study showed the importance of targeting psychological flexibility during an ACT intervention for a reduction in depressive and anxiety symptoms.

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Introduction

There is growing empirical support for Acceptance and Commitment Therapy (ACT) for the treatment of a variety of mental illnesses (Powers, Zum Vörde Sive Vörding, & Emmelkamp, 2009). ACT is a behaviour therapy that is mainly focused on increasing psychological flexibility. Psychological flexibility is a competence that includes two mutually dependent processes: acceptance of

experiences and value-based behaviour (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). A psychologically flexible person is willing to remain in contact with unwanted private experiences, rather than trying to avoid, alter or control them. When this struggle and attempt to control or avoid these unwanted private experiences is relinquished, an individual can shift his/her energy to long-term desired qualities or values in life, even in the presence of unwanted private events. A person can then be in contact with present experiences and choose or persist in behaviour that is in line with important values and goals (Ciarrochi, Billich, & Godsell, 2010; Hayes et al., 2006). Several studies have shown that an ACT treatment can improve psychological flexibility and reduce mental illnesses, such as depression (e.g., Bohlmeijer, Fledderus, Rokx, & Pieterse, 2011; Forman, Herbert, Moitra, Yeomans, & Geller, 2007), social anxiety (e.g., Dalrymple & Herbert, 2007) and stress (e.g., Brinkborg, Michanek, Hesser, & Berglund, 2011).

Recently there is a growing interest in which role psychological flexibility plays in relation to psychological distress. At this moment

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there are two hypotheses about this role in the current literature (Ciarrochi et al., 2010). The first hypothesis is that psychological inflexibility is a precursor or a risk factor for a wide variety of mental illnesses (Biglan, Hayes, & Pistorello, 2008; Ciarrochi et al., 2010). Although many cross-sectional studies confirm that psychological inflexibility is related to diverse psychopathology (see for reviews Chawla & Ostafin, 2007; Hayes et al., 2006) only a few studies have examined whether higher levels of psychological flexibility lead to long-term beneficial effects for mental health (e.g., Bond et al., 2011; Plumb, Orsillo, & Luterek, 2004; Shalcross, Troy, Boland, & Mauss, 2010). For example, Bond et al. (2011) showed that higher levels of psychological flexibility predicted less psychological distress and less occasions of full-day work absence one year later in a sample of employees of a retail bank ($n = 583$). In an experimental study with a female community sample, it was shown that only lower levels of psychological flexibility predicted depressive symptoms in the face of elevated life stress four months later (Shalcross, Troy, Boland, & Mauss, 2010). In contrast, individuals with higher levels of psychological flexibility did not exhibit higher levels of depressive symptoms (Shalcross et al., 2010).

The second hypothesis is that psychological flexibility is an important process of change during an ACT treatment for improved mental health (Hayes et al., 2006). Various studies provided evidence for a relationship between changes over time in psychological flexibility on changes over time in the observed outcomes in ACT or acceptance-based treatments for social anxiety (Dalrymple & Herbert, 2007; Kocovski, Fleming, & Rector, 2009), generalized anxiety (Hayes, Orsillo, & Roemer, 2010), borderline personality disorder (Gratz & Gunderson, 2006) and depression (Fledderus, Bohlmeijer, Smit, & Westerhof, 2010; Forman et al., 2007; Lappalainen et al., 2007) on the observed outcomes. A few of these studies provided preliminary evidence that changes in the observed outcomes were preceded by changes in psychological flexibility. In the study of Hayes et al. (2010), it was found in a sample of 43 patients that during an acceptance-based behaviour treatment for generalized anxiety, changes in acceptance and value-based actions during treatment predicted changes in anxiety after the treatment. Two other studies with samples of 42 and 19 patients showed that during an ACT treatment for social anxiety, changes in social anxiety symptoms from mid- to post-treatment were preceded by changes in psychological flexibility from baseline to mid-treatment, even after controlling for earlier changes in social anxiety from baseline to mid-treatment (Dalrymple & Herbert, 2007; Kocovski et al., 2009).

In sum, these studies provide preliminary evidence for these two hypotheses, namely that psychological flexibility might be a protective factor for mental health and a process of change during an ACT-treatment. However, the hypothesis of that psychological inflexibility is a risk factor which is only examined with cross-sectional data or with one time-point later in time. Furthermore, the role of psychological flexibility as a process of change during an ACT treatment is examined in small samples and with not many time measurements during and after the treatment. By adding more measurements during and after the intervention and using a larger sample it will be possible to study more precisely how psychological flexibility and psychological symptoms are related during an intervention and which phase is the most important in predicting these symptoms.

Therefore, in the current study we examined the role of psychological flexibility, as a risk factor and as a process of change, during and after a guided self-help ACT intervention on the effects of the levels of anxiety and depression in a large sample with multiple measurements. This intervention was offered to adults with mild to moderate psychological distress ($n = 250$) and evaluated in

a randomized controlled trial with a waiting list control group ($n = 126$). All the participants (both the experimental and waiting list control group) filled in questionnaires at baseline and at post-intervention that assessed depression, anxiety and psychological flexibility. The participants who received the self-help ACT intervention also assessed these measures two times during the intervention and at a three-month follow-up. The effects are described in an earlier study (Fledderus, Bohlmeijer, Pieterse, & Schreurs, 2012). In short, compared with a waiting list, high effect sizes were found after the intervention on depression (Cohen's $d = 0.89$), anxiety (Cohen's $d = 0.86$) and psychological flexibility (Cohen's $d = 0.70$).

In the current study, we first looked more in depth to the relationship between psychological flexibility and psychological distress (anxiety and depression) over time by using multilevel analysis. For this analysis, we included all the data from the five measurements points from the participants that received the self-help intervention. With all these measurement points over time, we modelled the effect of psychological flexibility on psychological distress over time and an interaction effect between psychological flexibility and time on psychological distress. Based on earlier research (Bond et al., 2011; Shalcross et al., 2010), we expected that psychological flexibility has a relationship with psychological distress over time and that higher levels of psychological flexibility over time will influence positively the magnitude of the effect of the intervention on psychological distress.

Furthermore, we examined whether psychological flexibility is a process of change in the intervention. Therefore, we first examined whether the effects on depression and anxiety after the intervention were mediated by improvements of psychological flexibility during the intervention. Therefore, we performed mediational analyses according to the procedures outlined by Preacher and Hayes (2008) by using the baseline and post-intervention measurements of the intervention and waiting list group. Second, we examined if changes of psychological flexibility occurred during (at the begin, middle or end) the intervention and whether these changes predicted later outcomes of depression and anxiety using a cross-lagged panel design. With this design, we checked whether changes in psychological flexibility lead to a decline in clinical symptoms, rather than vice versa, which is an important condition for establishing mediation (Kazdin, 2007). Based on earlier research (e.g., Fledderus et al., 2010; Forman et al., 2007; Lappalainen et al., 2007), it is expected that psychological flexibility would mediate the effects of the intervention and that changes during the intervention on psychological flexibility would associate with later reductions in psychological distress, and not vice versa.

To conclude, in this study, we conducted in-depth analyses of the role of psychological flexibility and its relation with and effects on the levels of depression and anxiety in ACT intervention for adults with mild to moderate depression and anxiety.

Method

Participants

The data from this study are derived from a randomized controlled trial on the effects of a guided self-help ACT intervention on depression and anxiety and positive mental health (see Fledderus et al., 2012). In September 2009, participants were recruited through advertisements in Dutch newspapers. Inclusion criteria were an age of 18 years or older and mild to moderate depressive symptoms [>10 and <39 on the Center of Epidemiological Studies – depression scale (CES-D); Radloff, 1977] and anxiety symptoms [>3 and <15 on the Hospital Anxiety and Depression Scale-anxiety subscale (HADS-A); Zigmond & Snaith, 1983]. People with severe depressive symptomatology and/or anxiety (more than 1 standard deviation above the

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