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**Title:** Early Sudden Gains in an Acceptance and Values-based Intervention : Effects on Treatment Outcome for Depression and Psychological Flexibility

**Year:** 2018

**Version:** Accepted version (Final draft)

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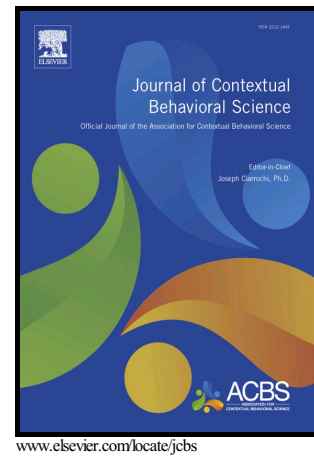
Keinonen, K., Kyllönen, H., Astikainen, P., & Lappalainen, R. (2018). Early Sudden Gains in an Acceptance and Values-based Intervention : Effects on Treatment Outcome for Depression and Psychological Flexibility. *Journal of Contextual Behavioral Science*, 10, 24-30.

<https://doi.org/10.1016/j.jcbs.2018.07.010>

# Author's Accepted Manuscript

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PII: S2212-1447(18)30122-4  
DOI: <https://doi.org/10.1016/j.jcbs.2018.07.010>  
Reference: JCBS248

To appear in: *Journal of Contextual Behavioral Science*

Received date: 14 August 2017  
Revised date: 11 June 2018  
Accepted date: 20 July 2018

Cite this article as: Katariina Keinonen, Heidi Kyllönen, Piia Astikainen and Raimo Lappalainen, Early Sudden Gains in an Acceptance and Values-based Intervention: Effects on Treatment Outcome for Depression and Psychological Flexibility, *Journal of Contextual Behavioral Science*, <https://doi.org/10.1016/j.jcbs.2018.07.010>

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Early Sudden Gains in an Acceptance and Values-based Intervention: Effects on Treatment  
Outcome for Depression and Psychological Flexibility

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Abstract

**Objective:** The aim of this study was to explore early temporal patterns of change in a treatment delivered by novice therapists. We examined if early sudden gains (ESGs) in a six-session acceptance and values-based intervention would produce superior treatment outcomes

when compared to slower improvements. **Method:** The temporal patterns of change of 56 clients diagnosed with depression were analyzed. ESGs were defined as reaching the status of recovered or improved in the Reliable Change Index (RCI) (Jacobson & Truax, 1991) classification after two sessions. The group with ESGs was then compared to participants without ESGs for differences in treatment outcome on measures of symptomatology and measures of therapeutic processes. **Results:** The results reflected significant differences between the groups in treatment outcomes. The ESG group (23.2% of participants) showed superior results both on the level of depressive symptomatology and psychological flexibility. Participants with ESGs also reported more hopefulness and less-believable depression-related thoughts after two sessions. **Conclusions:** The results suggest that the early, clinically significant change is associated with superior treatment results both on the level of reduced symptom severity and therapeutic processes.

**Keywords:** early change, sudden gain, depression, novice therapists, acceptance and commitment therapy

Early Sudden Gains in an Acceptance and Values-Based Intervention: Effects on  
Treatment Outcome for Depression and Psychological Flexibility

Sudden gains (SGs) and abrupt reductions in symptom severity between consecutive sessions have been shown to occur in various treatment settings, resulting in superior posttreatment and follow-up outcomes that are not associated with severity of symptoms at baseline (e.g., Hunnicutt-Ferguson, Hoxha, & Gollan, 2012; Lemmens, DeRubeis, Arntz, Peeters, & Huibers, 2016). A relatively high percentage (approximately 30% to 40%) of participants with depression experience SGs (e.g., Hunnicutt-Ferguson et al., 2012; Tang, DeRubeis, Hollon, Amsterdam, & Shelton, 2007). SGs have also been identified in the treatment of posttraumatic stress disorder, social phobia, panic disorder, generalized anxiety, severe health anxiety, and eating disorders (Keller, Feeny, & Zoellner, 2014; Hofmann, Schulz, Meuret, Moscovitch, & Suvak, 2006; Clerkin, Teachman, & Smith-Janik, 2008; Norton, Klenck, & Barrera, 2010; Hedman et al., 2014; Cavallini & Spangler, 2013, respectively).

SGs can represent a mean change of 10 to 13 points on the Beck Depression Inventory (BDI) (Beck & Steer, 1987; e.g., Tang et al., 2007). The effect size (ES) of SGs on outcomes has been reported to be moderate in meta-analysis in posttreatment and during follow-up when follow-up periods were pooled (for follow-up periods,  $M = 4.44$  months; Hedges'  $g = 0.62$  and  $0.56$ , respectively; Aderka, Nickerson, Bøe, & Hofmann, 2012). SGs also predicted lower rates of relapse and symptom recurrence in depressed patients during a 24-month follow-up (Tang et al., 2007).

Interestingly, SGs can occur very early. Several studies have found that SGs are most likely to happen within the first three sessions (Dour, Chorpita, Lee, & Weisz, 2013; Hunnicutt-Ferguson et al., 2012; Masterson et al., 2014). Altogether, these results suggest

that a relatively large proportion of clients may benefit during the first few sessions and that these sudden improvements predict outcomes during and after interventions.

To the best of our knowledge, SGs have not been reported in acceptance and value-based treatments or in treatments using novice therapists. This presents a need for further studies investigating SGs in process-based interventions such as Acceptance and Commitment Therapy (ACT), especially when treatment is delivered by non-experts. Further, there are no studies focusing on processes of change associated with SGs in acceptance and value-based treatments. Our aim was to (a) determine how many participants diagnosed with major depressive disorder would experience early sudden gains (ESGs) in a six-session ACT intervention delivered by psychology students, (b) examine if demographic variables were associated with ESGs, and (c) analyze if ESGs were associated with treatment outcomes in a brief six-session intervention. We also explored (d) whether ESGs with depression symptoms were associated with changes in psychological flexibility, believability of depressive thoughts, and hopefulness. This could help us to understand the processes or mechanisms associated with fast improvement using psychological treatments.

## Method

### Design

The data were drawn from a randomized, controlled trial to evaluate the efficacy of ACT delivered by student therapists. The main outcome results and a full description of the study design are reported in Xxx et al. (2017) (omitted from masked manuscript).

### Participants

Volunteer participants were recruited using an advertisement placed in a local newspaper. A diagnosis of major depressive disorder as defined in the *International*

*Classification of Diseases, 10<sup>th</sup> edition* (ICD-10; World Health Organization, 1992) was required from all participants in order to take part in the study. The diagnosis was determined by a physician during a structured interview (see Figures 1 and 2). The same physician carried out all the screening interviews. Exclusion criteria were (a) psychiatric diagnosis other than depression, (b) neurological diagnosis, (c) misuse of alcohol or drugs, and (d) on-going psychological treatment. Participants were randomized into an experimental and a control group. Only the experimental group was included in this study. Thus, the participants in the current study ( $n = 56$ ) fulfilled the diagnostic criteria of the ICD-10 either for depressive episode (F32, F32.1,  $n = 27$ ), recurrent depressive episode (F33, F33.1,  $n = 25$ ), or chronic depression (F34.1,  $n = 4$ ).

Participant flow is shown in Figure 1. Four participants were excluded from current analysis. The analysis included 56 participants of whom 77% were women, 54% were married or cohabiting, and 50% were employed at the time of the intervention. All participants were Caucasian. Mean participant age was 49.2 years ( $SD = 11.74$ , range = 19 to 65).

Figure 1. Flow of participants.

### **Therapists and the Intervention**

The study therapists were master's students of psychology ( $n = 37$ ) with no prior clinical experience. Training consisted of four full-day lectures (32 hours) on constructing a case formulation model and learning the principles and methods of ACT. The student therapists received 2 hours of group supervision weekly for total of 10 hours from a licensed psychologist and an expert in ACT.

The intervention comprised six hour-long weekly sessions. Since the focus of this paper was to investigate the ESGs, the impact of the intervention was studied after the first two sessions. Consequently, the protocol for these two sessions will be presented in detail below.

The first two sessions were highly structured, while the last four sessions were semistructured. The first session included an interview to establish understanding for a case formulation model (Haynes & O'Brien, 2000). During the interview, an individual problem list was constructed, and the problems were specified further if necessary. The therapist was instructed to describe the problems in behavioral terms and to discover how problems were connected to each other. At the end of the session, the therapist explained and presented a mindfulness exercise (i.e., focusing on breathing) and a home assignment on values. For the homework assignment, the client was instructed to fill in a form asking to specify her/his values (i.e., "Write down on this form things that personally matters to you"), and the client was instructed to complete the Valued Living Questionnaire (VLQ; Wilson, Sandoz, Kitchens, & Roberts, 2010). Between session 1 and 2, each therapist attended a group supervision and constructed the case formulation model in cooperation with the supervisor. The second session included presentation and discussion of the case formulation model. After reviewing the case formulation model, the client was asked to describe personal values and to specify value-based actions that she/he was willing to take. The client was presented an individually chosen metaphor, "The observer" exercise (Hayes, Strosahl, & Wilson, 1999) and a mindfulness exercise (i.e., "Follow your breath"; Hayes et al., 1999). For a homework assignment, the client was instructed to take value-based actions and practice mindfulness for 5 to 10 minutes per day. The remaining four sessions used the following structure: Each session started with a review of the homework assignment, the client was presented with a metaphor, one to three experiential exercises were conducted, and then a mindfulness



exercise was implemented. At the end of the session, value-based actions were discussed and defined.

### **Treatment Integrity**

After receiving permission during the first session, all following sessions were video-recorded. Two randomly selected sessions with each therapist were coded using the coding manual provided by Plumb and Vilardaga (2010) to describe overall ACT competence and adherence. Twenty-one percent ( $n = 74$ ) of all experimental group sessions ( $n = 360$ ) were coded. The sample was balanced to include equal amounts of sessions 2 through 5 to represent overall competency and adherence throughout the intervention. All coded sessions were coded by a licensed psychologist familiar with ACT, while 3 external raters coded 33 randomly selected sessions (45%). Interrater reliability was good (0.80 to 0.84). Overall adherence and competence in ACT were acceptable given the short training and lack of clinical experience among the student therapists. Mean scores for all coded sessions ( $n = 74$ ) on a 1 to 5 scale for adherence were  $M = 3.24$  ( $SD = 0.87$ , 95% CI [3.04, 3.45]) and for competence were  $M = 3.31$  ( $SD = 0.99$ , 95% CI [3.09, 3.55]). Scores for the coded second sessions ( $n = 15$ ) for adherence were  $M = 3.60$  ( $SD = 1.06$ , 95% CI [2.99, 3.81]) and for competence were  $M = 3.40$  ( $SD = 0.74$ , 95% CI [3.02, 4.18]). There were no significant differences in competence and adherence ratings among sessions 2 through 6 (i.e., the overall rating levels were stable during the intervention). These values can be compared to the ratings observed for experienced ACT therapists. For example, mean value of 4.4 for adherence and 3.9 for competence on the same 1-to-5 scale has been reported (Twohig, Hayes, & Masuda, 2006). In the current study, the observations made during the second session showed the adherence level as CI = 2.99 to 3.81. This suggests that the therapists spent at least half of the sessions attending to at least one of the ACT processes (level 3). Competence levels were seen at CI = 3.02 to 4.18, indicating that the therapists were at least

sometimes (level 3) or moderately (level 4) addressing needs and treatment targets and that processes were applied either superficially (level 3) or clearly (level 4).

## Measures

Changes after two sessions were evaluated with four measures: depression with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 2004), believability of depressive thoughts with the Automatic Thoughts Questionnaire (ATQ-B; Hollon & Kendall, 1980), hopefulness with the Adult State Hope Scale (ASHS; Snyder, 2000), and psychological flexibility with the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011). Pretreatment took place during the 2 weeks prior to the first session. Measures were repeated before the third session, 2 to 4 weeks after premeasurement ( $M = 23.50$ ,  $SD = 7.79$  days). Posttreatment measures were administered after the last session, 5 to 7 weeks after premeasurement ( $M = 46.36$ ,  $SD = 8.79$  days). The BDI-II is a self-report measure of severity of depressive symptoms containing 21 items ( $\alpha = 0.81$ , indicating good internal consistency). The BDI-II is scores range from 0 to 63, with higher scores indicating more severe symptoms. Each item includes four statements with increasing severity of symptoms (e.g., 0 = "I do not feel sad," 1 = "I feel sad," 2 = "I am sad all the time and I can't snap out of it," and 3 = "I am so sad or unhappy that I can't stand it"). The ATQ-B is a self-report measure of believability of depressive thoughts containing 30 items ( $\alpha = 0.97$ , indicating excellent internal consistency). Scores range from 30 to 150, with higher scores indicating more believable thoughts. The items measure thoughts associated with depression (e.g., "I'm worthless"), and each item is scored for believability on a range of 1 to 5. The ASHS is measure of short-term hopefulness containing 6 items ( $\alpha = .79$ , indicating good internal consistency). Scores range from 6 to 48, with higher scores representing higher hopefulness. Each item is a statement on the perceived ability to progress toward one's personal goals and on being able to identify ways to obtain those goals (e.g., "I can think of many ways to reach

my current goals”). The AAQ-II is a self-report measure of psychological flexibility containing 10 items ( $\alpha = .66$ , indicating acceptable internal consistency). Scores range from 10 to 70, with higher scores indicating higher psychological flexibility in this study, though generally AAQ-II is scored so that higher scores indicate inflexibility. The items include statements describing acceptance and experiential avoidance (e.g., “I worry about not being able to control my worries and feelings”).

### **Defining ESGs**

ESG status was based on changes in BDI-II after two sessions and defined as attainment of improved or recovered status in the RCI classification. The two-session cutoff for ESGs was based on the fact that the first two sessions were highly structured. The RCI calculates whether participants changed to such an extent that the change is unlikely to be due to measurement unreliability (i.e., improved) and whether they also pass the weighted midpoint (cutoff  $C = 14.94$ ) between the means of the clinical sample and normal population (i.e., recovered). For the normal population, descriptive values reported by Beck and colleagues (2004) were used in the current analysis of the BDI-II ( $M = 7.65$ ,  $SD = 5.90$ ). Participants not classified as improved or recovered after two sessions were given the status of non-early sudden gain (N-ESG).

### **Statistical Analysis**

Following identification of ESGs, the initial differences in pretreatment level and in changes in depressive symptomatology between the groups were analyzed by one-way ANOVAs. Possible associations with the demographic variables and ESGs were explored using cross-tabulation with Fisher’s exact test. Strength of associations between ESGs and the demographic variables were evaluated with Cramer’s  $V$  values. First, differences between the ESG and N-ESG groups in the changes on the process measures (i.e., hopefulness,

believability of depressive thoughts, and psychological flexibility) during the first two sessions were analyzed with a repeated-measures MANOVA. Differences in the pattern of change over the whole six-session intervention were then similarly analyzed using a repeated-measures MANOVA. As for the assumptions of the MANOVA analysis, the assumption of normality was met based on visual inspection of the Normal Q-Q Plots. However, there were 11 outlier observations identified among the four dependent variables on three measurement points. Most outliers were identified on the distribution of scores on the ATQ. The outliers were manually transferred to the end of the distribution by replacing outliers with nearest values from non-outliers. The analyses were then run on the raw data and on data with transferred outliers. The outliers did not affect interpretation of the results; the raw data are presented for descriptive values in Figure 3 and in Appendix 1. Also, the assumption of equality of variances was violated for individual measures (premeasurement BDI-II and ATQ and postmeasurement BDI-II and ASHS), which indicates a need for caution when interpreting results. To compensate for the violation, Welch corrected F-values and significance are reported for these measures in the additional one-way ANOVA table (see Appendix 1). The magnitude of the differences was evaluated by reporting the effect size (Hedges'  $g$ ) for each comparison. In addition, corrected  $d$ -values (i.e., premeasurement differences accounted for; Klauer, 2001) were reported where applicable. For ES,  $d \geq 0.20$  was considered small,  $d \geq 0.5$  moderate, and  $d \geq 0.8$  large (Cohen, 1988).

## Results

### 1. Participants showing ESGs

Based on changes in the BDI-II, the RCI-classification identified 13 participants (23.2%) as either improved ( $n = 2$ , 3.6%) or recovered ( $n = 11$ , 19.6%) after two sessions; these participants were given the status of ESG. The majority of participants ( $n = 43$ , 76.8%)

were classified as N-ESG. Of these participants, 75% ( $n = 42$ ) remained unchanged and 1.8% ( $n = 1$ ) had deteriorated. The difference in BDI-II between the ESG and N-ESG groups was large ( $d > 1.1$ ; see Figure 3). No statistical differences between the groups were found in their pretreatment levels of depression.

## 2. ESGs and Demographic Variables

The number of ESG participants diagnosed with mild depression by the independent physician and participants who were unemployed was significantly higher than expected, and the number of participants with recurrent depression and who were retired was lower than expected (diagnosis subclass,  $p = .006$ , Cramer's  $V = 0.49$ ; and work status,  $p = .017$ , Cramer's  $V = 0.45$ ; see Figure 2). No other demographic variables were associated with ESG.

Figure 2. Demographic variables (observed and expected)

## 3. ESGs and Process Measures after Two Sessions

There was a significant multivariate effect reflecting a difference between the ESG and N-ESG groups in changes on the three process measures ( $F(3,52) = 4.71$ ,  $p = 0.006$ ). Thus, defusion (ATQ-B), hopefulness (ASHS), and psychological flexibility (AAQ-II) changed differently in the ESG and N-ESG groups during the two first sessions (see Figure 3). Univariate tests showed the differences were statistically significant for changes in hopefulness ( $F(1,54) = 8.27$ ,  $p = 0.006$ ) and for believability of depressive thoughts ( $F(1,54) = 5.97$ ,  $p = 0.018$ ). ES for the difference in the change score was moderate for believability of depressive thoughts (between-group  $d = 0.52$ ) and large for hopefulness ( $d = 0.80$ ; see Figure 3 and Appendix 1). The univariate effect was not significant for psychological flexibility. However, the between-group ES was close to moderate ( $d = 0.48$ ) in favor of ESG. There were no statistically significant differences in any of the process measures at pretreatment.

#### 4. ESGs and Effect on Treatment Outcome

There was a significant multivariate effect suggesting differences between the ESG and N-ESG groups in the pattern change during the intervention, from pretreatment to posttreatment, when all outcome measures were included in the analysis ( $F(8,46) = 7.69, p < 0.001$ ). With regard to the univariate analysis, the sphericity assumption was not met for depression, believability of depressive thoughts, or psychological flexibility. Greenhouse-Geisser correction was used to correct the degrees of freedom for these variables. From pretreatment to posttreatment, there were significant differences between the groups in changes of depressive symptoms (BDI-II:  $F(1.45, 76.76) = 13.63, p < 0.001$ ), psychological flexibility (AAQ-II:  $F(1.64, 86.84) = 3.53, p = 0.042$ ), and hopefulness (ASHS:  $F(2,106) = 4.04, p = 0.022$ ). Differences in changes in believability of depressive thoughts (ATQ-B) were not statistically significant ( $p = 0.052$ ; see also Figure 3). An additional one-way ANOVA analysis showed that the ESG group experienced larger decreases in depression symptoms (Hedges'  $g = 0.90$ ) and increases in psychological flexibility during the intervention (Hedges'  $g = 0.69$ ).

#### Discussion

The present results showed that roughly 25% of participants diagnosed with a major depressive disorder experienced fast, clinically significant improvement during the first two sessions of a brief ACT intervention delivered by psychology students. After two sessions, the mean change in the symptoms of depression scores (BDI-II) within the ESG group was 13.31 compared to 3.14 of the N-ESG group (ES,  $g > 0.80$ ). Participants with ESGs also reported a larger decrease in believability of depressive thoughts and larger increase in hopefulness during the two first sessions when compared to N-ESG participants. The

outcome of the six-session intervention was superior for the ESG group on both the levels of depressive symptomatology and psychological flexibility.

ESGs were associated with a diagnosis based on the ICD-10 screening interview. Most ESG participants were diagnosed with mild depression. This suggests that diagnostic criteria may provide information on which participants with depression are more likely to show ESGs. This is particularly interesting considering that there were no differences between the groups in self-reported symptomatology as assessed by the BDI-II. More research is needed to clarify whether different types of diagnoses predict ESGs. Also, the ESG group contained no retired participants. No other demographic variables were associated with ESGs.

The results are consistent with previous research suggesting that approximately 30% of participants may show fast improvement within the first two to three sessions (Hunnicut-Ferguson et al., 2012; Dour et al., 2013). This study indicates that such results also occurred when the intervention was implemented by inexperienced therapists. The present results are also consistent with previous findings that rapid changes are associated with superior treatment results (e.g., meta-analysis; Aderka et al., 2012; Lemmens et al., 2016).

Interestingly, ESGs as determined by clinically significant change in depressive symptoms were associated with a larger decrease in believability of depressive thoughts and a larger increase in hopefulness during the first two sessions of the intervention. Although there was no significant difference between the groups in psychological flexibility after the two sessions, the ESG group reported moderately ( $d = 0.48$ ) higher psychological flexibility after 2 weeks and significantly larger change at posttreatment. The direction of the changes as seen in the ATQ-B during the two first sessions was similar to that observed in the AAQ-II and ASHS. That is, believability of depressive thoughts decreased, while psychological flexibility

and hopefulness increased. However, between sessions 3 through 6, ATQ-B showed a different direction of change when compared to AAQ-II and ASHS (see Figure 3). Overall, there is a need for more research aimed at identifying the specific processes of change that may explain why a relatively large group of clients show rapid benefit from psychological interventions.

Comparability between the present and previous findings on SG is limited by differences in approach. Whereas the previous research has been focusing mostly on identifying SG *at any point during treatment* (as defined in Tang & DeRubeis, 1999), our interest was in *early, clinically significant* changes based on RCI classification.

When drawing conclusions from the current study, the following limitations must be observed. First, the results clearly need replication with a larger sample. Second, women and retirees were overrepresented. Third, the treatment was implemented by novice therapists. Furthermore, the observed association of ESGs with processes of change is not evidence of causal relationships. Interpretation of the statistical analysis is further limited by the violation of the assumption of equal variances on some variables.

The present study along with earlier findings on SGs supports the provision of short interventions for clients with mild to moderate depression. Outcomes observed after two to three sessions could be used as criteria to determine further need of treatment.

To conclude, the results provide evidence for ESGs among 25% of the clients who received ACT-based interventions for depression. This study also suggests that psychological flexibility, especially believability of depressive thoughts and hopefulness during the first two sessions could be associated with ESGs. Further research on ESGs from psychological interventions could increase understanding of individual differences in treatment effects.

### **Acknowledgments**



Omitted from masked review.

**Appendix 1. Descriptive values for raw data at pretreatment, after two sessions, posttreatment and for total change during the intervention for the ESG group and N-ESG group with post hoc one-way ANOVA F-values, significance and effect size (Hedges' g) and corrected effect size ( $d_{corr}$ ).**

Measure Time	ESG n = 13		N-ESG n = 42		$F_{1,53}$	$p$	Hedges' g / $d_{corr}$ <sup>b</sup>
	M (SD)	95 % CI	M (SD)	95 % CI			
<b>BDI-II</b>							
Pre	23.54 (5.14)	[20.43, 26.65]	23.30 (7.30)	[21.06, 25.55]	0.01	.914	.03
After 2	10.23 (3.35)	[8.21, 12.25]	20.16 (7.82)	[17.76, 22.57]	43.23 <sup>c</sup>	<.001	-1.38/-1.44
Post	5.08 (3.88)	[2.73, 7.42]	11.72 (8.63)	[9.07, 14.38]	15.27 <sup>c</sup>	<.001	-.84/-.89
Change	18.46 (5.85)	[14.92, 22.00]	11.58 (8.00)	[9.12, 14.04]	8.23	.006	.90
<b>AAQ-2</b>							
Pre	38.54 (12.45)	[31.02, 46.06]	38.30 (9.68)	[35.32, 41.28]	0.01	.943	.02
After 2	43.69 (9.12)	[38.18, 49.21]	39.00 (9.46)	[36.09, 41.91]	2.49	.120	.49/.48
Post	53.62 (8.73)	[48.34, 58.89]	45.19 (12.33)	[41.35, 49.03]	5.22 <sup>a</sup>	.026	.72/.70
Change	-15.08 (14.40)	[-23.78, -6.37]	-6.88 (10.89)	[-10.27, -3.49]	4.81 <sup>a</sup>	.033	-.69
<b>ATQ-B</b>							
Pre	65.62 (20.68)	[53.12, 78.11]	74.28 (26.42)	[66.15, 82.41]	1.18	.283	-.34
After 2	49.69 (14.16)	[41.14, 58.25]	67.95 (22.72)	[60.96, 74.95]	12.16 <sup>c</sup>	.001	-.85/-.52
Post	59.69 (40.87)	[34.99, 84.39]	56.58 (26.74)	[48.35, 64.81]	0.10	.748	.10/.45
Change	5.92 (38.48)	[-17.33, 29.18]	17.70 (22.93)	[10.64, 24.76]	1.88	.177	-.43
<b>ASHS</b>							
Pre	22.31 (8.35)	[17.26, 27.35]	23.70 (7.98)	[21.24, 26.15]	0.30	.588	-.17
After 2	34.00 (9.34)	[28.36, 39.64]	28.42 (8.69)	[25.75, 31.09]	3.98	.051	.62/.80
Post	37.46 (5.78)	[33.97, 40.96]	34.05 (9.81)	[31.03, 37.06]	2.43 <sup>c</sup>	.129	.37/.55
Change	-15.15 (8.63)	[-20.37, -9.94]	-10.35 (8.92)	[-13.09, -7.60]	2.94	.092	-.53

Note: BDI-II = Beck Depression Inventory – II; AAQ-2 = Acceptance and Action Questionnaire – 2; ATQ-B = Automatic Thoughts Questionnaire – Believability; ASHS = Adult State Hope Scale. Negative values represent an increase in total score. <sup>a</sup> = Due to a missing post-treatment AAQ-2 measurement  $n = 55$ ,  $df = 1,53$ . <sup>b</sup> = Corrected effect size was calculated as suggested by Klauer (2001); different group sizes and pretreatment differences were controlled for. <sup>c</sup> = Welch correction was used for the F-values for variables that did not meet the assumption of equality of variances.

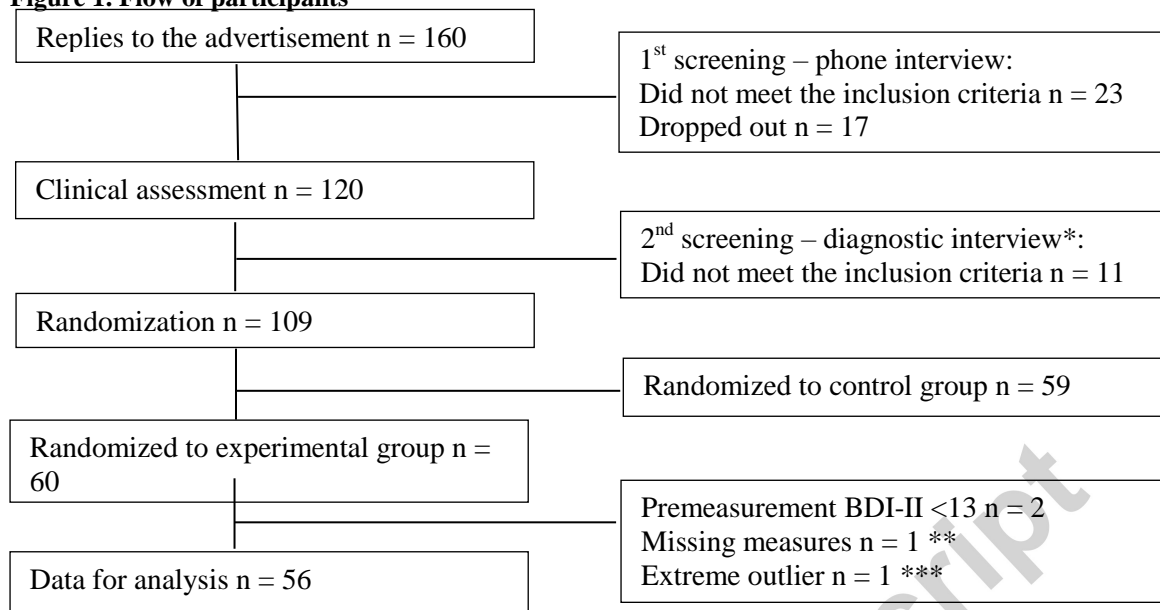
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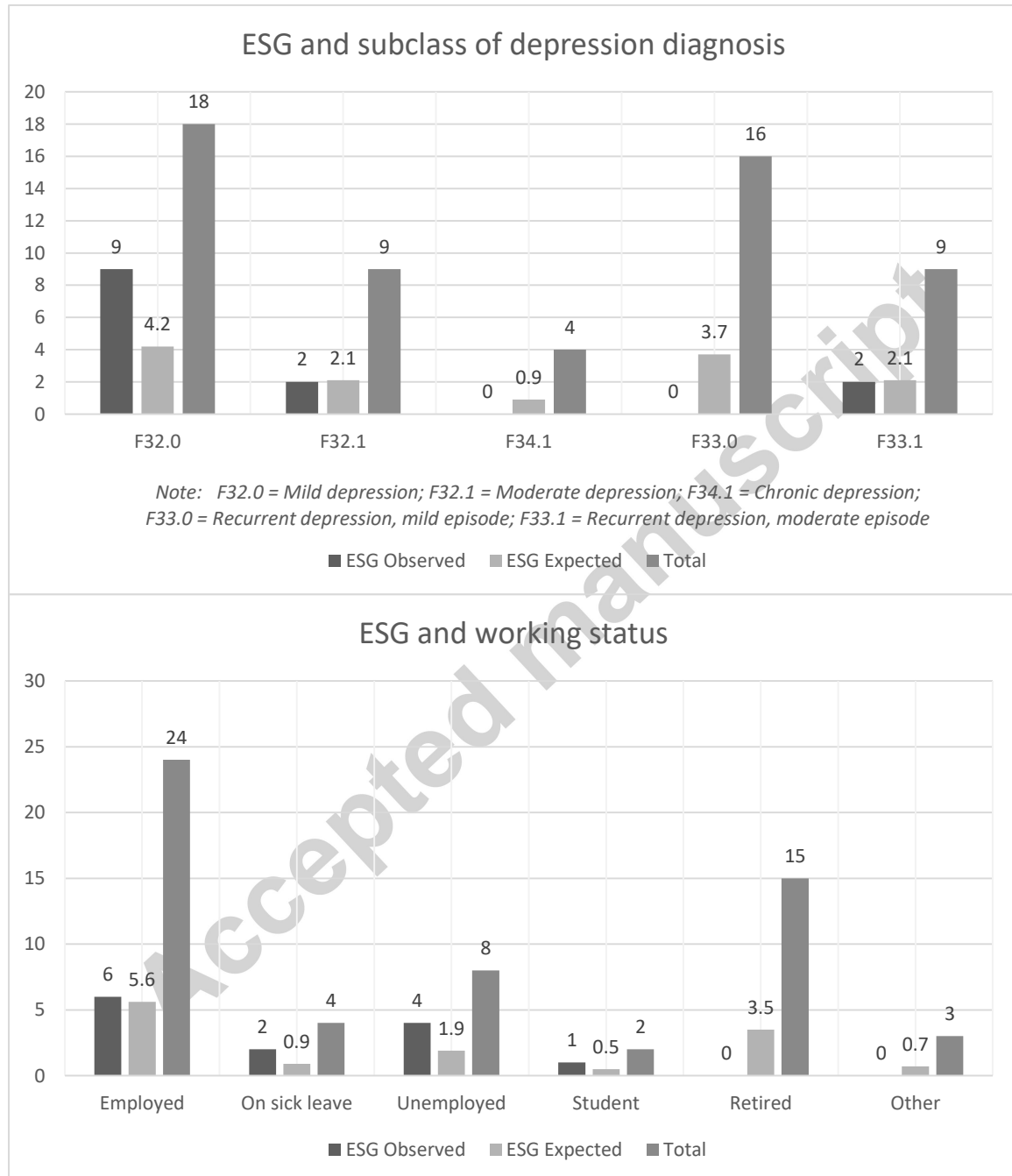
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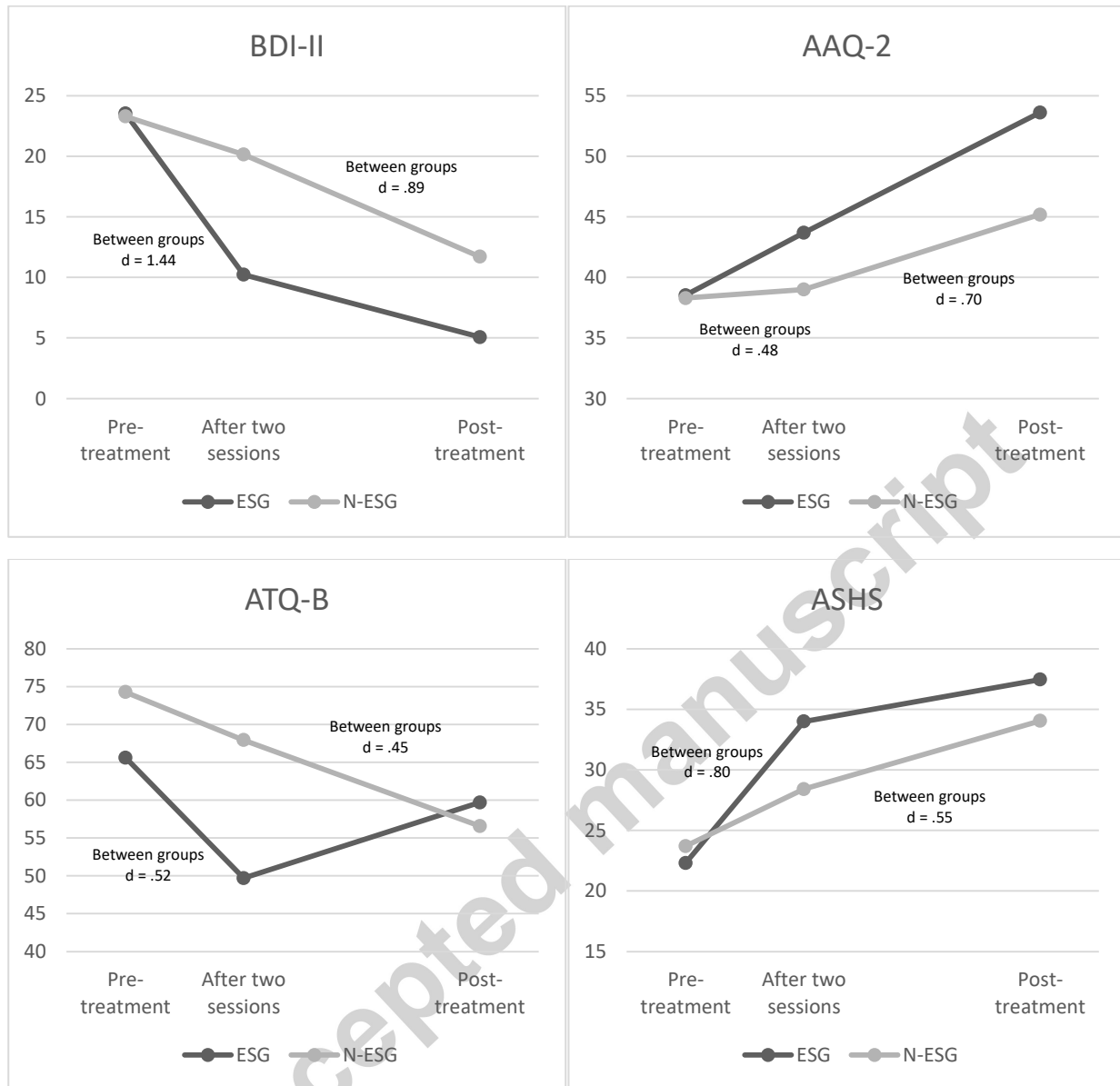
**Figure 1. Flow of participants**

Note: \* = Screening interview carried out by a physician. \*\* = Baseline BDI-II missing. \*\*\* = BDI-II change during two sessions 40 to 2 points.

**Figure 2. Frequency of subclass of depression diagnosis (upper panel) and working status (lower panel). Observed and expected number of participants with ESG, and total number of participants in each category is reported (e.g. F32.0 n=9 for the ESG group and n=18 for all participants).**



**Figure 3.** Level of depression (BDI-II), psychological flexibility (AAQ-2), believability of depressive thoughts (ATQ-B) and hopefulness (ASHS) at pretreatment, after two sessions and posttreatment with between group effect size after two sessions and after six sessions.





Early Sudden Gains in an Acceptance and Values-based Intervention: Effects on Treatment Outcome for Depression and Psychological Flexibility

**Highlights**

C.a. ¼ of participants with MDD improve significantly after just two sessions.

Early sudden gainers experience better treatment outcomes in a 6-session ACT intervention.

The better outcome is reflected on symptoms and psychological flexibility.

Early sudden gains are associated with a diagnosis of mild depression.

Early sudden gains may help to understand and predict therapeutic change.

Accepted manuscript