

## Articles

# ACT Workshop for Parents of Children with Developmental Disabilities<sup>1) 2)</sup>

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The purpose of this research was to show the effectiveness of Acceptance and Commitment Therapy (ACT) Workshops (WSs) for parents of children with developmental disabilities. Twenty-seven parents of children with developmental disabilities attended ACT WSs. The parents were divided into three groups, and the WSs were then conducted in these groups using common ACT exercises and metaphors from Hayes et al., (1999). Five measures were used to assess the WSs' effectiveness and the process of change they brought about: two self-report instruments (BDI-II and GHQ-28) were used to examine the outcome of the WSs, and three questionnaires (AAQ-II, JIBT-R, and LOC) were used to evaluate the process of change. Measurements were taken four times (phase 1: three weeks before the WSs, phase 2: one week before the WSs, phase 3 one week after the WSs, and phase 4: three months after the WSs). ANOVAs were used to assess process and outcome effects. The tests revealed that almost all of the measures did not show any significant change between phase 1 and phase 2. Significant improvements from phases 2-4 were indicated by BDI-II and GHQ-28 but not by the three process measures. The  $r$  effect size calculation revealed that the WSs had medium to large effect size for both outcome measures. These results confirmed that the WSs were effective for parents of children with developmental disabilities. In almost all cases no change in JIBT-R and LOC scores was seen across all of the assessment points, so it does not seem that there was any change in the content of the participants thoughts after the WS. Moreover, no change was found in AAQ-II, so it remains uncertain whether the WS contributed to promotion of acceptance and value-based life. This study used only one process measure to assess the ACT process. Some other measures, for example mindfulness measures and cognitive fusion measures are required to further evaluate the effectiveness of the WS process.

**Key Words** : ACT, parents of children with disabilities, group intervention, clinical significance, effect size

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## Introduction

Numerous researchers have focused on the mental health of parents of children with developmental disabilities. Mothers of children with autism have been found to be more likely to experience stress compared with mothers of children with intellectual disabilities (without autism) and mothers of typically developing children (Olsson & Hwang, 2008; Yirmiya & Shaked, 2004).

There are two reasons we provide mental health programs to the parents of children with developmental disabilities. One is that BPT (Behavioral Parent Training) may be more effective if a mental health program is provided to the parents in advance. The other is that an improvement in parents' mental health can contribute to an increase in their use of social support services.

BPT and cognitive behavior therapy (CBT) has been used to support the parents of children with disabilities (Sakai & Sugiyama, 1996; Kamiyama & Noro, 2010). The primary purpose of BPT was to teach parenting skills rather than to address parents' mental health problems. It was hoped that the improvement of parenting skills through BPT would contribute toward the improvement of parents' mental health.

Singer et al. (2007) conducted a meta-analysis of research regarding the mental health of parents of children with disabilities and examined the effects of intervention on parents. They selected 17 articles that satisfied their inclusion criteria and classified them according to three intervention methods: BPT, CBT, and multiple component intervention (MCI). In

MCI, BPT and CBT were combined along with other forms of support. Singer et al. (2007) examined whether MCI was more effective than either BPT or CBT alone, and found that the effect size was .25 for BPT, .34 for CBT, and .90 for MCI.

BPT and CBT were more effective when they were associated with other support services. Some researchers have found that those parents with significant stress levels received less benefits from BPT (Baker, Landen, & Kashima, 1991; Brinker, Seifer, & Sameroff, 1994). In this case, BPT included skills such as rewarding their children and teaching new behaviors in small steps. Some parents felt irritated and angered when their child did not complete the presented tasks, which in turn resulted in preventing parents from completing the tasks at hand in future situations. Therefore, dealing with mental health issues was designated as a prerequisite for BPT (Hastings & Beck, 2004).

It is important for parents' well being to make use of social supports. Some parents felt that they would be judged as neglectful if they left their children at daycare services or other similar support services. These parents would in turn hesitate to use social support services.

If parents coped with their own thoughts, feelings and rules, they could use social supports more, and better advocate for their needs to be met by society.

Both BPT and CBT are broadly recognized as evidence-supported therapies that can be renewed successively. CBT includes recently developed mindfulness training such as mindfulness psychotherapy, dialectic behavior

therapy (DBT), and Acceptance and Commitment Therapy (ACT). These therapies are known as third-generation CBTs (Hayes, 2004).

ACT is listed as evidence-based psychotherapy for many types of diseases such as depression, obsessive compulsive disorder (OCD), and post-traumatic stress syndrome (PTSD). ACT is intimately linked to Relational Frame Theory (RFT) (Hayes, et al., 2001), which is an approach to basic research on human language and cognition. RFT suggests that experiencing thoughts and emotions in a different manner is a more effective means of changing the effects of thoughts on human behavior than attempting to change the content of problematic thoughts or reduce their frequency. There are many similarities between conventional CBT and ACT, but there is also an important distinction between them. While CBT therapists attempt to change the contents of the client's thoughts, ACT therapists endeavor to change the contexts and function of thoughts in order to promote a psychological flexibility that can contribute toward expanding behavioral repertoires (Luoma, Hayes, & Walser, 2007).

Blackledge and Hayes (2006) conducted an ACT WSp for parents of children with developmental disabilities. A total of 20 parents attended the 14-hour WS and answered self-rating measures that included the Beck Depression Inventory (BDI-II), the General Health Questionnaire (GHQ-28), Global Severity Index (GSI), and the Acceptance and Action Questionnaire (AAQ). The AAQ (Hayes et al., 2004) measures experiential avoidance, acceptance, and action. There are several versions of the AAQ, which is scored on a

seven-point Likert scale. Higher AAQ scores indicate more experiential avoidance. The measurements were repeated a total of four times: three weeks before, one week before, one week after, and three months after the WS. At the follow-up session held three months after the WS, all of the measures showed positive changes and improvements.

The results of this study also showed that there was no significant difference in scores between the first pre-test measurement (conducted three weeks before the WS) and the second pre-test measurement (conducted one week before the WS). They compared the pre-test data with the post-test data after the WS. All participants did not have psychological problems. Since Blackledge and Hayes (2006) did not only indicate the number of participants with psychological problems but also the number of participants showing improvement at the ideal level, the clinical significance (Jacobson, Roberts, Berns, & McGlinchey, 1999) was uncertain. Kazdin (1999) asserts that, "Clinical significance focuses on the importance or applied value of the change in everyday life" (p.338).

This study examines the effect of the ACT WS on the mental health of parents of children with developmental disabilities by utilizing the same procedure as Blackledge and Hayes (2006). This study analyses the data according to statistical significance, effect size, and clinical significance.

There are two hypotheses and one prediction in this study. The first hypothesis is that ACT WSs will improve the mental health of parents of children with developmental disabilities. The scores of BDI-II and GHQ-28 are expected to

decrease post-test. The second hypothesis is that the psychological flexibility measured by AAQ-II will contribute to improvements in mental health. AAQ-II scores are expected to increase post-test. The prediction is that the irrational beliefs measured by JIBT-R and LOC will not change between pre-test and post-test. The Japanese Irrational Belief Test-Revised (JIBT-R; Fukui, 2003) was used to assess underlined irrational beliefs while the Locus of Control (LOC; Kanbara, Higuchi, & Simizu, 1982) assessed the perceptions of overall self-management effectiveness. This prediction is related to the fact that ACT therapists help their clients to try to change the context but not the content of their thoughts. ACT is based on an RFT interpretation of human language. Put simply, RFT suggests that human beings can extend the contents of their thoughts endlessly and efforts to change these contents will not be successful. Therefore, ACT therapists introduce experiential exercises to stop their clients' from attempting to change the contents of their thoughts and to help them accept their negative thoughts.

ACT therapists use metaphors and experiential exercises. Clients are shown through experience how their behaviors engaged in with the aim of avoiding negative thoughts and feelings do not work, and they are thus encouraged to cease employing these avoidance behaviors (Creative hopelessness; Hayes, Strosahl, & Wilson, 1999). Clients also learn through experience that our behaviors are strongly affected by verbal rules, and that the power of verbal rules is dependent on context and can alter even in cases in which there is no change in the content of thoughts.

Word repeating is a common exercise in ACT therapy. The client repeatedly says aloud a word or phrase, for example, "not enough", which he or she had been avoiding. Through this exercise, the client experiences the word that used to come with negative feelings being heard as simply a sequence of syllables. The function which comes with feelings depends on the contexts. Some exercises and metaphors are also used to establish and maintain distance from the literal meanings of words.

If ACT works well, the participants are thus expected to become able to keep a certain distance from the literal meanings of words (their contents). This suggests that if an ACT WS is completed successfully JIBT-R and LOC, which measure the contents of thoughts, will not change.

## Methods

### Participants

Participants were recruited through the website of the local developmental support center. A total of 27 parents (25 mothers and two fathers) of children with developmental disabilities (PDD, Autism, Asperger Syndrome, and ADHD) attended the ACT WS. Participants' mean age was 38.9 years with a standard deviation of 4.8 years (ranging from 30 to 47 years). The parents were divided into three groups (Groups 1, 2, and 3) on the basis of their child's age to promote sharing their experiences. Table 1 indicates the demographic data of each group. Each of the participants provided written consent.

**Table 1 demographics in three groups**

	Parent's Age			Child's Age	
	n	Mean	SD	Mean	SD
Group1	10	41.80	4.08	5.60	1.78
Group2	8	38.25	4.89	5.63	2.13
Group3	9	36.22	2.86	6.11	2.37
All	27	38.89	4.53	5.78	2.03

**WS**

The WSs were conducted in three groups: two days, 10 hours, weekly. The first author facilitated Group 1 and 2 while the second author facilitated Group 3. The WS for Group 2 was held one month after the completion of the WS for Group 1. The WS for Group 3 was also held one month after the completion the WS for Group 2. Common ACT exercises and metaphors from Hayes, Strosahl, and Wilson (1999) were used in the WS. Throughout the WS, participants learned about the six core processes of ACT by practicing the experiential exercises and metaphors (Hayes, Luoma., Bond, Akihiko Masuda, & Lillis, 2006). Table 2 shows the content of the six core processes; Table 3 includes the list of exercises and metaphors used during the WSs. Several exercises and metaphors were modified to better suit the Japanese language. The materials, exercises, and metaphors used in each group remained the same.

**Measures**

Five measures were used to assess the effectiveness and the process of change facilitated by the WSs: two self-reported instruments (the BDI-II and the GHQ-28) were used to examine the outcome of the WSs, and three questionnaires (AAQ-II, JIBT-R, and LOC) were used to show the process of change.

**Table 2 The six core processes**

Core processes	
Acceptance	Defusion is an attempt to change the function of the private events (Hayes, et al., 2006)
Defusion	Acceptance involves the passive awareness of the private events without trying to change their contents (Hayes, et al., 2006)
Self as context	The ongoing self-w\awareness or the sense of self where one notices ongoing processes (Back, Moran, 2008, p.10)
Contact the present moment/perspective taking	The ongoing non-judgmental contact with the present moment (Hayes, et al., 2006)
Committed action	Committed action is behaving in the service of chosen values (Back, Moran, 2008, p.9)
Value	Values are verbally constructed global outcomes or chosen life directions (Hayes, et al., 1999)

The AAQ-II (Kishita et al., 2008) is a nine-item questionnaire that utilizes a seven-point scale. It assesses experiential avoidance, cognitive fusion, and difficulty in acting. Lower AAQ-II scores indicate greater experiential avoidance. The measurements were repeated four times: Phase 1 - three weeks before the WS; Phase 2 - one week before the WS; Phase 3 - one week after the WS, and Phase 4 - three months after the WS.

In addition, intention-to-treat (ITT) analyses were also conducted (N = 27). Two participants did not send the data regarding the JIBT-R and the LOC after the WS and in phase 4. Therefore, the data of the remaining 25 participants were used to analyze these two measures. The missing data was replaced with data from the phase before the missing data. That is, when the missing data was found in the post-test, data from the second pre-test was carried forward and replaced. The missing data in phase 4 was replaced with the data from the

Table 3 Metaphors and Exercises

	acceptance	defusion	self as context	contact the present moment/perspective taking	committed action	value
<b>Exercise &amp; Metaphor</b>	○	○				
Creative hopelessness	○	○				
The shrinking room metaphor	○	○				
What's are the numbers? Reason giving exercise (original)		○				
Blanded bag metaphor (Tani, 2008)		○				
Do you love me? metaphor (Tani, 2008)	○					
Struggling in quicksand	○					
Magic vine metaphor("Harry Potter")	○					
The hungry Tiger	○					
Your Suffering Inventory	○	○				
Incense stick metaphor (Tani, 2010)		○				
The passengers on the Bus metaphor			○	○		
Be where you are		○				
Chinese handcuffs metaphor(modified)			○	○		
Eat mindfully			○	○		
Taking your mind for a walk exercise		○	○			
The mind train exercise					○	○
Funeral exercise (what's do you want your life to stand for?)					○	○
Value compass (Dahl & Lundgren, 2006)						

post-test.

## Results

After an ANOVA was used to test for group differences in the parents' and children's ages, a significant statistical difference was found between groups concerning parent age ( $F(2,24) = 4.767, p = .018$ ). A subsequent post-hoc analysis (Bonferroni method) showed that the age of the parents in Group 1 was higher than in Group 3 ( $p = .017$ ). There was no significant difference between the groups concerning the children's ages. An ANOVA was also conducted to examine the difference

between the groups in all of the measures before the WSs. The findings revealed that there was no statistical difference among all of the measures except for the score of "self-expectation," which was a subcategory of the JIBT-R in the second pre-test. This "self-expectation" data significantly differed among groups ( $F(2,22) = 5.148, p = .015$ ), and the subsequent post-hoc analysis (Bonferroni method) showed that the scores of Group 3 were greater than those of Group 2 ( $p = .018$ ).

To examine the phase differences for each group before and after the WSs, repeated ANOVAs (General Liner Model) were used for all of the measures for three of the phases

(Phases 2, 3, and 4). Figures 1 and 2 show the means and standard deviation for each of the measures. For the BDI-II scores, a significant difference in the phases was found in Groups 1 ( $F(2,18) = 8.052, p = .003$ ) and 3 ( $F(2, 16) = 9.311, p = .002$ ). For the GHQ-28 scores, there was a significant statistical difference in Group 1 ( $F(2,18) = 8.129, p = .003$ ). Among all participants, a significant difference was found for both the BDI-II ( $F(2, 52) = 10.923, p = .0001$ ) and the GHQ-28 ( $F(2, 52) = 8.462, p = .001$ ). Furthermore, a subsequent pairwise analysis found that the post-WS and the phase 4 scores were lower than the pre-WS scores in the BDI-II and GHQ-28.

There was no statistical difference found on other measures except for “inner-hopelessness” on the JIBT-R in Group 2 ( $F(2, 12) = 5.200, p = .024$ ). Pairwise comparisons revealed that the post-WS scores were lower than the pre-WS

scores.

All participants’ scores showed no significant difference except for “dependence” ( $F(2,48) = 3.737, p = .031$ ) and “inner hopelessness” ( $F(2,48) = 3.367, p = .047$ ) in the JIBT-R. Post-WS scores on both measures were lower compared to the pre-WS scores.

A statistical significance was revealed by the ANOVAs and the r-effect sizes are shown in Table 4. The post-WS BDI-II score was lower for all of the groups: 0.71 for Group 1, large effect size (ES); 0.43 for Group 2, medium ES; 0.83 for Group 3, large ES; and 0.6 for all, large ES. The post-WS GHQ-28 score was also lower for all of the groups: 0.73 for Group 1, large ES; 0.47 for Group 2, medium ES; 0.47 for Group 3, medium ES; and 0.58 for all, large ES.

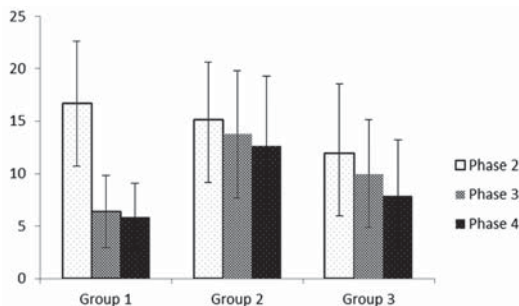


Figure 1 Mean scores of BDI-II

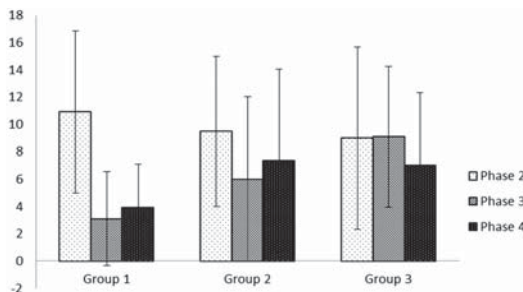


Figure 2 Mean scores of GHQ-28

Table 4 the statistically significance and effect sizes

	BDI-II				
	n	df	F	sig	r Effect size
Group 1	10	2	8.052	***	0.71
Group 2	8	2	1.163	n.s.	0.43
Group 3	9	2	9.311	***	0.83
All	27	2	10.923	***	0.6

	GHQ-28				
	n	df	F	sig	r Effect size
Group 1	10	2	8.129	***	0.73
Group 2	8	2	3.102	*	0.47
Group 3	9	2	1.399	n.s.	0.47
All	27	2	8.462	***	0.58

\*  $p < .1$  \*\*\*  $p < .01$

An estimation of ES was included in this paper; however, it did not show significant information regarding the change in treatment from person to person (Kazdin, 1999; Jacobson et al., 1999). Therefore, the clinical significance of the treatment effect, defined as recovering to normal functioning, was considered as the alternative index of the treatment effect (Campbell, 2005; Jacobson et al., 1999). To

show the clinical difference, one method utilized cutoff points. Two outcome measures (BDI-II and GHQ-28) were used in this study. The cutoff point of the BDI-II was 14 (Kojima and Kokawa, 2003) while that of the GHQ-28 was six (Nakagawa and Daibou, 1985). A total of 12 participants scored above or equal to the cutoff point for the BDI-II before the WS while six participants (50%) decreased to normal levels after the WS (phase 3). A total of nine participants (45%) scored above or equal to the cutoff point for the GHQ-28 before the WS, which recovered to normal levels after the WS.

### Discussion

The change in the scores of the two outcome measures (BDI-II and GHQ-28) indicated that the participants' mental health improved after the WSs (Table 4). Effect sizes were above medium in all of the groups. Fifty percent of the participants scored above average while the cutoff score in the BDI-II improved to the normal level. Forty-five percent of participants in the GHQ-28 recovered. However, group differences were found. In group 1, the changes in the BDI-II and GHQ-28 scores were significant. The effect sizes were large. In group 2, the BDI-II scores did not change significantly. However, the decrease in GHQ-28 scores was marginally significant. "Dependence" and "inner-hopelessness" on the JIBT-R decreased significantly post-test. In group 3, while the BDI-II scores decreased significantly, the change in the GHQ-28 scores was not significant.

Several factors may contribute to these differences found within each group. One possibility is that the effect of the ACT WSs

might vary between participants. The effects of the ACT WSs might vary according to the extent to which participants use social services, their children's disability, and other family members' involvement in their children's care. Further research is needed to examine the effects of these factors on ACT WSs.

Another possibility concerns the effects of sharing experiences. Since the WSs were conducted in a group format, it is thought that support from those with similar experiences might create an active therapeutic effect (Hastings & Beck, 2008; Jacobson et al., 1999). The extent of sharing experiences may be different among groups. To examine this possibility, we should identify the extent to which participants shared experiences and investigate the relationship between this factor and the outcome measures.

These results partially confirm the first hypotheses.

A one-group pretest-posttest design using a nonequivalent dependent variable was used in this research. This research design can show the effects of independent variables (in this particular study the WSs). However, it did not reveal significant effectiveness compared to other interventions such as BPT or CBT.

Singer, Ethridge, and Aldana (2007) conducted a meta-analysis of group intervention research for parents of children with developmental disabilities. One BPT research using BDI-II as an outcome measure was included in their research. The weighted effect size was 0.16. Four CBT studies used BDI-II. Their effect sizes ranged from 0.20 to 0.63. The only CBT study that used GHQ as an outcome measure reported that the effect size was 0.44.



ACT aims to indirectly reduce aversive private events such as stress and anxiety (Ciarrochi, Bailey, & Hayes, 2008). Numerous studies have shown its effectiveness in the reduction of stress, depression, and anxiety (Powers, Zum Vörde Sive Vörding, & Emmelkamp, 2009). The effect size estimated in this study was 0.60 in BDI-II. The ACT WSs might be considered as effective as CBT in improving the mental health of parents of children with developmental disabilities.

The ACT WSs were expected to be effective. However, which processes contributed toward their therapeutic effects? Because approximately all of the scores of the JIBT-R and the LOC did not show a significant change in assessment points, the contents of thought can be considered not to have changed after the WSs. Moreover, no change was found in the AAQ-II. It is thus uncertain whether the WS contributed toward the acceptance of a so-called “value-based life”. These results confirm the prediction but not the second hypothesis. More RCT research using a control group or a TAU group is necessary to identify the effective components of such interventions.

The parents of children with developmental disabilities are expected to teach their children new behaviors and change problem behaviors. Learning behavioral parenting skills such as positive reinforcement, shaping, prompting and fading, and functional analysis can be extremely helpful to parents. These parenting skills are usually taught in BPT programs. However, BPT programs do not focus on the mental health of the parents.

ACT includes a foundation of behavior analysis and shares the discipline with BPT. Therefore,

implementing an ACT WS for parents as a precursor to BPT might improve the effectiveness of BPT programs. Value-based behaviors, which are expected to extend through ACT, would promote the utilization of many types of resources such as education, social support systems, and social networks. However, more clinical research on comprehensive support programs for parents that combine ACT, BPT, and other social support services is necessary.

The AAQ was developed as a measure to evaluate psychological flexibility and is often used as the ACT process measure. The AAQ-II did not show significant change before and after the WSs in this study. “Irrational belief” was measured by the JIBT-R and the LOC; it did not show significant change except for “inner hopelessness” in Group 2. However, the BDI-II and the GHQ-28 scores improved significantly and such improvements were maintained according to the three-month follow-up (Figures 1 and 2).

Blackledge and Hayes (2006) found that the AAQ scores did not change after the WSs. Blackledge and Hayes (2006) also found that the Automatic Thoughts Questionnaire-Believability (ATQ-B), which measures cognitive fusion, showed a significant difference before and after the WSs. They suggested that cognitive fusion (“believability” of thoughts) mediated outcomes (p. 14). This study did not use measures to assess cognitive fusion. Therefore, it is uncertain whether the ACT WSs undermined cognitive fusion. In this case, further research is required to evaluate the process of change created by the WSs.

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