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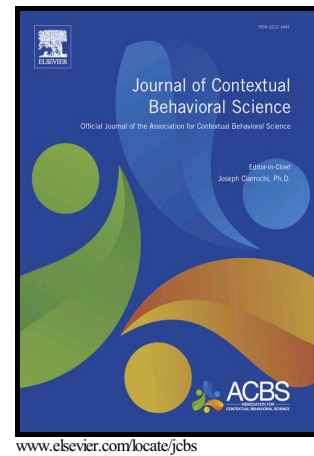
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## Acceptance and Commitment Therapy Using Finnish Sign Language: Training Counselors in Signed ACT for the Deaf – A Pilot Study

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Abstract:

This study evaluated the implementation of Acceptance and Commitment Therapy in Finnish Sign Language in a rehabilitation center for deaf people. Sixteen (16) clients and nine (9) staff members participated in this pilot study. Staff members received a brief training in Acceptance and Commitment Therapy (ACT) including 16 hours lectures, 15 hours supervision, and studying material. Each staff member treated 1-2 clients during 8 -10 sessions. As part of the study, several ACT metaphors and exercises were translated into Finnish Sign Language. The study indicated that counselors with limited knowledge of psychological interventions were able to deliver an ACT intervention using Finnish Sign Language after a relatively brief training. The intervention was well accepted by both the clients and the counselors, and showed encouraging effects on clients' wellbeing. The study highlighted a need of valid assessment methods for clients who use sign language. This study provides an example how ACT -based interventions could be provided to minority groups.

Keywords

Acceptance and Commitment Therapy (ACT); deaf; Finnish Sign Language; training

### Introduction

In Finland, there are approximately 4,000–5,000 people who are deaf and use Finnish Sign Language (FinSL) as a means to communicate (The Finnish Association of the Deaf, 2017). It has been shown that the sign language deaf people use is a natural language (e.g., Padden & Humphries, 1988; Stokoe, 1960). It has a unique structure and vocabulary (signs) and takes a visual and gestural approach. Since 1960, there has been a growing interest in understanding sign languages and deaf culture, all over the world. In fact, every country has one or several sign languages (see, e.g., Sacks, 1989; Pfau, Steinbach, & Woll, 2012). There are also variations of certain sign languages. For example, a person who has become deaf later in life might develop his/her own version of a spoken language or just use some signs to support spoken language (Lauren, 2006).

Most deaf children (95%) are born to hearing parents (Mitchell & Karchmer, 2005; Spencer & Marschark, 2010). As a result, in many cases parents of deaf children have first learned a sign language themselves to then mediate these skills to their child. Especially in recent decades, skills in sign language have been increasingly supported by practices in kindergartens and schools (Stredler-Brown, 2010). Several decades ago in Finland, for example, FinSL was forbidden at

schools and only allowed to support the spoken language of the majority of the population (in this case, Finnish or Swedish; Rainó, 2000; Salmi & Laakso, 2005). Likewise in other languages, context affects a child's ability to gain good language skills (e.g., family and school). There is some evidence suggesting that although the sign language of deaf children fostered by hearing parents may not be as rich as that fostered by deaf parents, deaf children of hearing parents communicate quite fluently by the age of five (Takala & Lehtomäki, 2002; Takkinen, Jokinen, & Sandholm, 1999) and this is especially true for deaf children who have also communicated with deaf adults. However, some deaf children may have additional handicaps, such as dysphasia, cerebral palsy (CP) or visual problems, and these handicaps can have an effect on learning language skills (Lindfors, 2005; Sinkkonen, 1994).

In Finland, a study by Lindfors (2005) reported a slightly higher number of psychological symptoms among a deaf population in comparison to the general population. The most common psychological symptoms were loneliness, depression and anxiety symptoms, which were estimated to be found in one out of four respondents (Lindfors, 2005). Also, the need for conversation regarding personal concerns was significantly higher among people who used FinSL than among the general population (Lindfors, 2005). Depression, anxiety, personality disorders, substance abuse, schizophrenia, bipolar disorder and psychotic behavior were reportedly the most common problems among deaf and deaf-blind individuals or people with severe hearing impairment of those treated at, for example, a psychiatric clinic in Southern Finland, according to Ryyänen and Kostamo (1998). Additional diagnoses usually included epilepsy, intellectual disability, developmental disability, dysphasia and other linguistic disorders (Ryyänen & Kostamo, 1998). Staff training is essential when arranging rehabilitation and mental health care services for different special groups (Glickman, 2009; Gutman, 2002; Peoples, 2002). One of the challenges for service providers working with deaf people is to find a mutual language. It is important that clients can receive the information they need through a language that they can understand. This poses a

challenge for health care professionals who provide psychological interventions. As far as we know, only a limited number of psychologists and psychotherapists use sign language or some kind of sign mode. For example, in Finland, less than ten psychologists or psychotherapists use FinSL in their practice (The Association for Sign Language Psychotherapists, 2017). These have all passed an intermediate-level FinSL test or have grown up in a signing environment with deaf parents. In addition, there is a large variation in sign language skills among clients, who range from fluent sign language users to those who use a limited version of sign language or modes. These variations are probably a result of exposure to various modes of communication practices at an early age, especially at home or in school. According to Lindfors (2005), some clients may have further difficulties, such as dysphasia, and other disabilities including poor eyesight, cerebral palsy (CP), or mental retardation. According to Glickman (2009), a major problem for deaf people with communication difficulties is a lack of access to fluent models of fully accessible language. He refers to this particular group as the traditionally underserved.

According to Long, Long, and Ouellette (1993), this term refers to a person who cannot communicate effectively through speech, speech reading or sign language, and whose English language skills are at or below the third-grade level. In addition, they need assistance to maintain their employment, housing or friendships due to inability in taking another person's perspective or actively initiate relationships (Duffy, 1999). As outlined by Glickman (2009), clients with language and learning difficulties require more extensive treatment as they are prone to have associated neurological, emotional and behavioral challenges. Further, they are vulnerable to misdiagnosis and inappropriate treatments. It is a challenge for professional caregivers for the deaf, but they are academically and linguistically competent as well as motivated to provide ethical and high-quality care (Gutman, 2002; Peoples, 2002). For example, in discussing the history of mental health care, Glickman (2009) highlights that deaf people with language difficulties are classed as "low functioning" in that regard. However, Gutman (2002) describes a transformation of ethics from

medical paternalistic practices to respecting autonomy and engaging in cooperative decision making, in the recent years.

Acceptance and Commitment Therapy (ACT) emphasizes personal values and acts, while respecting autonomy and cooperation in accordance with one's values (Hayes, 1999, 2004; Hayes et al., 2006). A unique feature of ACT is that it does not view human suffering as an abnormality, thereby making it a less stigmatizing approach (Strosahl & Robinson, 2009). Therefore, ACT can be a suitable intervention model with deaf people as well as with other special groups. In addition to values and value-based actions, ACT uses metaphors and experiential exercises aimed at teaching people psychologically flexible behavioral strategies. Yet, there is little knowledge on using ACT with deaf people as well as in regard to teaching acceptance-, mindfulness- and value-based skills to deaf people using sign language.

The ACT literature has grown rapidly in recent times and several studies have shown the effectiveness of ACT procedures (e.g., Bluett, et al., 2014; Hayes et al., 2006; Ruiz, 2010). For example, evidence has supported the effectiveness of ACT for the treatment of work-related stress (Bond & Bunce, 2003), psychoses (Bach & Hayes, 2002; Gaudiano & Herbert, 2006), depression (Zettle & Hayes, 1986; Zettle & Rains, 1989), trichotillomania (Woods, Wetterneck & Flessner, 2006), epilepsy (Lundgren et al., 2006), obsessive-compulsive disorder (Twohig, Hayes, & Masuda, 2006), and social anxiety disorder (Dalrymple & Herbert, 2007). Also, research indicates that stress management interventions based on ACT strategies have a positive impact on employees' psychological health, well-being and stress management skills (Bond & Bunce, 2000; Bond & Hayes, 2002; Bond & Bunce, 2003; Donaldson-Feilder & Bond, 2004).

Strosahl and Robinson (2009) state that the reason to share ACT with service providers is to empower their efforts in order to deliver beneficial services and share common values. Exposure to ACT principles can assist them in developing and maintaining patience, acceptance, flexibility and an egalitarian stance needed to explore, encourage, educate, and promote healing. This way, they

are more likely to be effective, experience satisfaction in their work, and be more resilient to fatigue (Strosahl & Robinson, 2009). It has therefore been recommended that counseling and guidance professionals should consider including acceptance-based methods in their interventions (Donaldson-Feilder & Bond, 2004). If professional health care providers have stigmatizing beliefs about their clients, acceptance-based methods could also help the providers to better manage their feelings and thoughts (Hayes et al. 2004). We were interested in applying an ACT-oriented intervention for persons using FinSL and to investigate whether this approach could be successfully applied by counselors.

The overall aim of the study was to provide a brief value- and acceptance-based intervention with the intention of improving the well-being of deaf and deaf-blind clients. We set out to investigate: (1) whether it was possible for the staff of a rehabilitation center with no prior ACT experience to provide an ACT-based intervention in Finnish Sign Language; (2) whether the clients and the staff would approve of the ACT-based intervention approach; and (3) whether counselors with no prior ACT experience could successfully improve the well-being of the deaf and/or deaf-blind clients in the rehabilitation center using the brief ACT-based intervention in Finnish Sign Language. In order to examine the acceptability, usefulness and effectiveness of this approach, we trained staff of a housing service center in the ACT-based methods and strategies.

## **Method**

### **Procedure**

At the time of our research, about 250 persons attended the housing and sheltered work services of the Service Foundation for the Deaf (see [www.kuurojenpalvelusaatio.fi](http://www.kuurojenpalvelusaatio.fi)). These clients wanted to live and work in a community where Finnish Sign Language (FinSL) is used. The reason for seeking these services can be to overcome communication problems, loneliness and isolation, or a lack of other appropriate service providers. Clients might have additional disabilities, such as poor

vision, physical incapacities or psychological limitations. Service providers in the service centers use FinSL and are trained to understand deaf people. Some of the staff members are deaf FinSL users themselves.

The study was conducted at the Sampola Service Centre, which is owned by the Finnish Service Foundation for the Deaf. The center provides supported housing services, workshops and other work activities using FSL for deaf and deaf-blind people. The staff members attended a lecture presenting and describing the ACT model. After this introductory lecture, upon their request, we decided to test the ACT intervention model (Hayes, 1999, 2006) at the center. The procedure is described in detail as follows.

### **Participants**

At the time of our research, about 50 people attended the housing and sheltered work services at the Sampola Service Centre. Staff members selected 20 clients for potential participation in the research study. The criteria for the selection were (1) satisfactory FinSL skills and (2) a need for psychological intervention as evaluated by the counselors. The selection was determined by the counselors, who were in contact with the participants on a daily basis. At the time of the study, no reliable measures were available at the center to determine the selection otherwise. Of the twenty clients originally selected, four refused to participate. Three of these clients had practical reasons, since they were living outside the center. One participant was not able to take part because of his poor mental condition. Consequently, 16 clients (men,  $n = 9$ , 56%; women,  $n = 7$ , 44%) attended the trial. All the participants were FinSL users. Their mean age was 43.8 years ( $SD = 9.13$ ; min. 22 to max. 60). All except two were working at the Sampola Service Centre (88%), and about half were living at the center ( $n = 9$ , 56%). Ten (63%) of the participants were single. Seven (44%) participants had previous psychiatric diagnoses (Schizophrenia,  $n = 3$ ; Psychotic Disorder,  $n = 2$ ; Bipolar Disorder,  $n = 1$ ; Delusional Disorder,  $n = 1$ ) and were on medication, but none were



receiving psychotherapy or psychological treatment at the time. However, we could not evaluate whether or not the diagnoses were still appropriate. There were no changes in the clients' medication during the study. All of the clients had the equivalent of an elementary school education. Out of the 16 clients, 6 used FinSL as their primary means of communication, and 10 used written Finnish to some extent.

Overall, 9 voluntary counselors participated in the study (8 females, 1 male). All of the counselors were working at the Service Foundation for the Deaf. Their duties were to guide clients in household duties and work assignments as well as in social security and financial issues. The mean age of the counselors was 43.9 years ( $SD = 9.12$ ; min. 27 to max. 58), and they had been working with deaf or deaf-blind clients for an average of 10.8 years ( $SD = 6.67$ ; min. 3 to max. 20). The education level of the counselors ranged from elementary school ( $n = 1$ ) and college ( $n = 5$ ) to university degree ( $n = 3$ ). None had prior psychotherapy training. The staff who attended the trial had passed the same test as used for FinSL interpreters.

## Measurements

The participants were assessed before and after the intervention, and again after a 6-month follow-up period. The time span between pre- and post-intervention measurements was four months, and between post-intervention and follow-up measurements six months. At the time of the study, there were no assessment tools available at the center to describe the psychological well-being of the clients. We decided to measure depression using the Beck Depression Inventory (BDI), because depression was reported by Lindfors (2005) to be a common psychological symptom among the Finnish deaf population. In addition, we were interested in describing the overall psychological symptoms of the clients and used the Symptom Checklist-90 (SCL-90) for this purpose. The number of assessment measures had to be limited because they were presented to the clients using video recordings (see below).

### Symptom measures

Depression was assessed with the Beck Depression Inventory (BDI) and overall symptoms with the Symptom Checklist-90 (SCL-90), lower scores indicating fewer symptoms. The BDI is a widely used self-report questionnaire with 21 items measuring the severity of depression (Beck et al., 1961). Scores between 0–9 indicate minimal depression, between 10–18 mild depression, between 19–29 moderate depression, and between 30–63 severe depression. SCL-90 is a broad self-report checklist of psychopathological symptoms and has been validated in regard to the Finnish population (Derogatis & Cleary, 1977; Holi, Sammallahti, & Aalberg, 1998; Holi, 2003). In this study, the scores from the SCL-90 are reported using the General Severity Index (GSI). The GSI (SCL-90-GSI) is calculated by dividing a client's scores (from 0 as 'none' to 4 as 'extreme') by the number of questions (90). The SCL-90 consists of the following primary symptom dimensions: somatization, obsessive-compulsiveness, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoia ideation, and psychoticism. Each of the nine symptom dimensions is comprised of 6–13 items. The score of each dimension is the mean of the scores of all its items. However, according to Holi (2003), SCL-90 subscale scores should not be used as a basis for a patient's diagnostic description.

### Process measures

Psychological flexibility and experiential avoidance were measured using the Acceptance and Action Questionnaire – II (AAQ-II), a 10-item questionnaire that involves both the ability to accept difficult thoughts and feelings as well as to engage in valued activity in their presence. The questionnaire uses a 7-point Likert-type scale, where high scores indicate high psychological flexibility (range 0–70; Hayes et al., 2006). The AAQ-II started out as a 10-item scale, but was reduced to a 7-item scale in 2011 with the Cronbach alpha  $\alpha = 0.84$  (Bond et al., 2011). The 7- and

10-item versions correlated at  $r = .96$ , and consequently the version of the AAQ-II used earlier in this study should be valid for research purposes (Bond et al., 2011).

#### Translation of the measures

The measures (SCL-90, BDI, and AAQ-II) were translated into Finnish Sign Language in cooperation with a licensed psychotherapist with thirty years experience in using FinSL and a group of native deaf signers, as well as a professional interpreter. The final translations were discussed and evaluated by this expert group before they were recorded on video. A deaf native signer signing the final translation was recorded on video. The SCL-90, BDI and AAQ-II were presented to the clients using these video recordings. The clients filled out the questionnaires while watching the recordings, and the counselors helped them when necessary.

#### Other measures

At the end of the intervention, both the clients and counselors were asked to report their experiences in the intervention using a semi-structured questionnaire. Most questions presented to the clients were open-ended. The clients were asked to comment on the materials and methods used (e.g., if the material was understandable), what exercises they engaged in during the session and whether they were still using them, what they found to be difficult or easy, what their general learning experience was (“What have you learned?”), whether they would be willing to participate in similar interventions in the future (yes/no), whether they would recommend the intervention to others (yes/no), as well as leaving room for open-ended comments about the overall experience. The questionnaire given to the staff included both Likert-type questions and open-ended questions. The counselors were asked to give their feedback regarding the training, supervision and materials provided (“Was the provision of training/supervision/materials sufficient?”), and were asked how many times they had participated in the study group, what was easy or difficult, whether they see a

need for similar interventions in the future (yes/no), whether they acquired any skills, whether they had developed new exercises that were congruent with the ACT model, whether the intervention had an impact on their clients (none/small/moderate/large or very large impact), whether they had experienced some negative or positive emotional reactions during the project (e.g., tension, anxiety, excitement, satisfaction); and they were given open-ended questions (e.g., “Do you think this project is useful for you? If so, how?”). Further, the counselors were asked to report the number and type of exercises they had used with each of their clients.

### **Intervention**

The counselors attended a two-day (16 hours) workshop presenting the background, model and methods of ACT. The trainer had more than 10 years experience in ACT. Most counselors had previous training in the formulation of the Functional Analytic Clinical Case Model (FACCM). The researchers had used similar brief training procedures earlier. These earlier experiences have shown that students have been able to apply the ACT model successfully after receiving an equivalent training (e.g., Lappalainen et al., 2007; Lappalainen et al., 2014; Lappalainen et al., 2015; Räsänen et al., 2016). Thus, we repeated the training procedure that had worked successfully earlier. In our equivalent study (Kyllönen et al., manuscript), we investigated the adherence to the ACT protocol after a comparable training in accordance with the coding manual authored by Plumb & Vilardaga (2010). In these studies, the competence in ACT was at a satisfying level (on a scale from 1 to 5,  $M = 3,29$ ,  $SD = 0,94$ ). The workshop was interpreted in Finnish Sign Language. This was done because several of the counselors used FinSL as their main language. The presentation of a *Functional Analytic Clinical Case Diagram* (FACCD) or model and the practice of constructing it by using imaginary cases were also included in the training workshop (see Haynes & O’Brien, 1990; Haynes and O’Brien, 2000, Haynes & Williams, 2003; Petermann & Müller, 2001; Haynes, O’Brien, & Kaholokula, 2011). The case formulation model was used to help the counselors obtain an overview of the clients’ concerns and problems, and to tailor the intervention individually for the clients. The

model was already being used in the center for the purpose of rehabilitation documentation. FACCD (Lappalainen, Miettinen, & Lehtonen, 2007; Haynes & O'Brien, 2000) is a graphic approach for describing problematic behaviors of clients, the relations between behavioral problems, and the importance of those relations. FACCD helps describe a given client's current problems in a graphical form. Further, the workshop included lectures on general principles and core processes of ACT, as well as experiential exercises. Counselors used the Finnish Acceptance and Commitment Therapy manual (Lappalainen et al., 2004), and the Finnish translation of the ACT self-help manual (Hayes & Smith, 2008) throughout the intervention trial. The Finnish ACT manual describes the main assumptions underlying ACT, outlines the core processes involved, and gives examples of how they can be applied during the intervention. It includes 32 metaphors and 18 exercises that could be used during the intervention. Counselors received group supervision every second week during the treatment, and each session lasted for approximately 3 hours. The supervisor was an experienced psychotherapist familiar with the ACT procedures. All counselors took part in the supervision sessions. In addition, the counselors organized a weekly study group in order to acquire more competence in applying the ACT model. The Finnish ACT book (Lappalainen et al., 2004) and ACT self-help book (Hayes & Smith, 2008) served as study material.

At the start of the project, the following two ACT exercises were translated into Finnish Sign Language and recorded as such on video for presentation purposes: "The Observer" and "Putting Emotions in Front of You." Correspondingly, seven metaphors were also translated and recorded in the same way: "The House," "The Bird House (a variant of 'The House' metaphor)," "The Tug-of-War with a Monster," "The Man in the Hole," "The Quicksand," "The Hungry Tiger," and "The Jelly Donuts." The same FinSL experts who translated the measurements and DVD also produced the translations of the exercises and metaphors. The exercises and metaphors were presented to the clients using both the video recordings and the material provided by the trainers (the Finnish Acceptance and Commitment Therapy manuals, Lappalainen et al., 2004; and the Finnish

translation of the ACT self-help manual, Hayes & Smith, 2008). The clients also had the possibility of using the ACT-based DVD at a time of their own convenience.

The intervention lasted three months. The counselors were instructed to have one 60-minute weekly session with the clients. The counselors were first instructed to make a case formulation model for the clients (FACCD; Haynes, O'Brien, & Kaholokula, 2011), followed by a value analysis of ACT. The value work was done as follows. First, examples of different domains or areas usually included in the value analysis were presented to the clients (e.g., family members, work, education). Second, the clients were asked to select the domains that might be of importance to them, and to describe their own values in these domains. Third, they were asked or prompted to define actions related to personally important values. Fourth, these actions, specified in cooperation with the counselors, were used when homework assignments were given to the clients. In addition to the work with values, the counselors were instructed to apply and support different ACT principles and methods presented in the manuals (see Results). The number of sessions with the clients varied from 7 to 11. Each session lasted from 20 to 90 minutes ( $m = 65$  min.), depending on the clients' ability to work with the intervention procedures. The counselors also ran an ACT study group during the intervention. The study group held five meetings and the members were instructed to study the ACT manuals (described above) and to discuss the material with other counselors taking part in the project.

#### Procedures for data analysis

The actual use of the ACT methods by the counselors was reported by describing the number and types of exercises used during the intervention. The total scores of the BDI, SCL-90 and AAQ-II, as well as the SCL-90 subscales (somatization, obsessive-compulsiveness, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism), were calculated using the SPSS software program (mean and standard deviation). We used a repeated measure

design (SPSS: General Linear Model) to study whether within-group changes were statistically significant. Of the 16 clients who agreed to participate in the study, two refused to participate in the follow-up measurement. The follow-up values of these clients were replaced by their post-intervention values. The correlations between the total number of exercises/metaphors with the changes in BDI, SCL-90 and AAQ during the intervention were calculated using Pearson correlation coefficients. The magnitude of the treatment effects was studied using within-group effect sizes at post-intervention and 6-month follow-up measurement points (ES; Cohen's  $d$ ). They were calculated as follows. The within-group ES was calculated for both the post-intervention and follow-up measurements by dividing the mean change by the combined (pooled) standard deviation ( $SD$ ) (Feske & Chambless, 1995; Morris & DeShon, 2002). Because of a relatively small sample size, the possible bias of Cohen's  $d$  was corrected by an unbiased estimate of Hedges'  $g$  (Hedges, 1981; Hedges & Olkin, 1985). A within-group ES of 0.5 was considered small, 0.8 medium, and 1.1 large (Roth & Fonagy, 1996; Öst, 2006)

## Results

According to the BDI, at the beginning of the intervention all clients except one (94%,  $n = 15$ ) reported at least mild depression symptoms (BDI higher than 9), and 69% ( $n = 11$ ) reported at least a moderate level of depression symptoms. The mean of the SCL-90 GSI score observed in this study ( $m = 1.37$ ,  $SD = 0.57$ , Table 1) was close to the level observed in the Finnish psychiatric outpatient population ( $m = 1.56$ ,  $SD = 0.61$ ; Holi, Sammallahti, & Aalberg, 1998). This suggests that the investigated clients reported a proportionately high number of psychological symptoms.

### Application of the ACT procedures

During the sessions, the counselors practiced value-oriented development with all clients at the beginning of the intervention. On average, the participants completed six different exercises (min. 3

and max. 10 different exercises per client) during the intervention. Half of the clients ( $n = 8$ ) received more than five different ACT experiential exercises or metaphors. The two most frequently used exercises were the video-recorded exercises “The Observer,” practiced with eight clients (50%), and the “Putting Emotions in Front of You” exercise, practiced with seven clients (44%). Other exercises included “The Mind Train,” “The Passengers on the Bus,” “Naming Objects,” as well as different kinds of mindfulness exercises (for example, the “Follow your Breathing” exercise), and describing an emotion on paper and putting it in one’s pocket. Moreover, additional value-oriented work was applied with some clients (such as “Six months time to live”, and “What kind of a person would you like to be in ten years”). The following metaphors were the most frequently used: “The House” ( $n = 13$ ), “The Bird House” ( $n = 9$ ), “The Tug-of-War with a Monster” ( $n = 11$ ), “The Hungry Tiger” ( $n = 7$ ), “The Man in the Hole” ( $n = 6$ ), and “The Jelly Donuts” ( $n = 3$ ).

#### Experiences of the counselors

According to the counselors’ evaluation of the clients’ well-being, all except one of the participants ( $n = 15$ ) had benefitted from the intervention. Several counselors expressed their wish for similar interventions to be undertaken in the future (reflected in the following comment, “We were lucky when we got this opportunity”). All counselors reported that the intervention had a positive impact on their practices. Most of them reported that the intervention also had a positive influence on their level of satisfaction at work. They further reported that they had acquired new tools and changed their work habits, and that their relationships with the clients had improved. The study group organized by the counselors was reportedly very useful. However, about half of the counselors also reported that the intervention was very demanding (5 of 9). According to the counselors, the ACT concepts were rather hard to explain and communicate to the clients, because the concepts were new to both. Hence, they requested more DVD material in Finnish Sign Language. Some of the



clients also perceived the assessment procedure to be time-consuming as well as challenging (for some clients, the BDI and SCL-90 assessments required more than two hours, and in some cases necessitated a separate session). Further, some of the clients found it difficult to understand the rating scales, such as the BDI scale for the four-level classification.

#### Clients' experiences with the intervention

At the end of the intervention, all of the 16 participants wanted to recommend the intervention to others. A high majority of the participants (94%,  $n = 15$ ) reported that it was easier for them to focus on what was important in their personal lives, and that the intervention had improved their ability to recognize emotional reactions (100%,  $n = 16$ ). They further reported that after the intervention, they were able to influence their lives, think differently, focus on their well-being, and think positively about themselves. It was also reported that even when they had negative feelings, they could continue to be active (described by one client as follows, "I can take a walk despite feeling depressed and though it's raining"). Some clients stated that after the intervention, they applied the metaphors (such as The Tug-of-War with a Monster, The House, The Quicksand) and mindfulness exercises to handle any unpleasant feelings or thoughts (described by one client as follows: "I try to do mindfulness exercises when I feel that I begin to get nervous"). Overall, 14 out of 16 (88%) clients were willing to continue applying what was learned in the ACT-based intervention in the future. Those who expressed their intention to continue applying what was learned in the intervention ( $n = 14$ ) reported that the intervention had helped them to reflect on their personal issues; it had increased their coping skills and they felt that life was better.

Two clients, who did not continue with the intervention, stated that "thinking is hard," and "this was enough for me" (meaning "I do not need more"). The clients' experiences with the ACT exercises and metaphors (signed on DVD) were largely positive. On the other hand, new terms and concepts caused some problems. For example, some of the clients reported that sometimes they had to watch

the signed ACT-DVD several times before they understood the meaning of the exercise. Likewise, some of them experienced the assessment methods as challenging and needed individual support when completing the questionnaires. As a consequence, extra time was needed for the assessments.

Effects of the interventions as measured by the inventories

A significant effect for time was found in the SCL-90 subscales for somatization, interpersonal sensitivity, and anxiety (see Table 1). The pairwise comparison showed that the clients reported significantly reduced symptoms from the pre-intervention to 6-month follow-up measurements. A trend in the main effect was observed both for depressive symptoms (BDI;  $p = 0.068$ ) and the total score of psychological symptoms (SCL-90/GSI;  $p = 0.057$ ). There was a slight, nonsignificant increase in psychological flexibility from a score of 42 to 46. Table 1 shows that the pre to post and pre to follow-up within-group effect sizes were relatively small and varied from pre to post from 0.00 (phobic anxiety) to 0.67 (BDI), and from pre to follow-up from 0.08 (phobic anxiety) to 0.61 (interpersonal sensitivity). Although there were slight trends of larger changes among the clients with no severe diagnoses, no statistically significant differences were found. Further, the correlations of the total number of reported exercises and metaphors with changes in the BDI, SCL-90 and AAQ (BDI change,  $r = -0.10$ ; SCL-90 change,  $r = 0.30$ ; AAQ change,  $r = 0.09$ ) were low.

Individual change scores from the pre- to post-intervention measurements ( $n = 16$ ) and from the pre-intervention to the 6-month follow-up measurement ( $n = 14$ ) in the BDI, SCL-90-GSI and AAQ are presented in Figures 1–3. Individual scores indicated that there was a large variation between participants at the beginning of the intervention. Also, there was a large variation in how the intervention impacted the clients. In the BDI, 9 out of 16 participants (56%) showed a decrease in depression scores from pre to post (at least a score of 5), and about a third of them ( $n = 3$ ) reported an increase in symptoms during the follow-up period. In the SCL-90, 50% (8 of 16) showed a

decrease in symptoms (at least a score of 0,20) from pre to post, and 2 of them showed an increase during the follow-up. Further, 9 out of 16 (9 of 16, 56%) showed an increase in psychological flexibility during the intervention (scored higher than 5), and 4 of them ( $n = 4$ ) a decrease in flexibility skills during the follow-up. Thus, roughly half of the participants demonstrated positive changes during the active intervention period, but some of them were not able to maintain the changes after the intervention, during the follow-up period.

It should be noted that there were low correlations at the baseline between the BDI and SCL-90 ( $r = -0.19, p = 0.487, n = 16$ ) as well as between the BDI and AAQ-II ( $r = -0.13, p = 0.64, n = 16$ ) measurements at the beginning of the study. However, the correlation between the SCL-90 and AAQ-II was high ( $r = -0.73, p = 0.001, n = 16$ ). These low correlations between the BDI and SCL-90/AAQ-II are exceptional seen in relation to the correlations reported in other Finnish studies featuring clients with similar levels of depression symptoms. For example, in a study by Kohtala et al. (2013), the pre-intervention correlation between the BDI and SCL-90 was 0.70 and between the BDI and AAQ it was -0.55.

## Discussion

To the best of our knowledge, this is one of only a few acceptance-, mindfulness-, and value-based interventions conducted in sign language. The number of professional therapists able to provide psychological interventions in sign language is very limited. Therefore, we decided to train counselors in applying ACT procedures with the clients using Finnish Sign Language (FinSL). It is important to note that the study sample does not represent FinSL users as a whole, but a subgroup of persons experiencing some psychological concerns.

In this study, the counselors were instructed to select those clients from the center who had satisfactory FinSL skills and seemed to need psychological intervention. The majority of the selected clients experienced a significant number of personal problems. In practice, because of the limited services available in Finnish Sign Language, the only way to provide psychological interventions to the selected clients was to train the counselors, who could then apply the intervention methods. Therefore, we believe that this study provides a good example of how psychological interventions can be provided to special groups. Moreover, it describes possible difficulties associated with such interventions, especially when applying ACT in sign language. We hope that this study will encourage clinicians and researchers to provide psychological interventions for underserved populations and special groups.

Our findings suggest that it is possible to train counselors who use Finnish Sign Language to provide their clients with acceptance- and value-based interventions. The findings further indicate that such treatment can be provided with relatively few workshops that include written study and DVD material as well as supervision. All clients practiced several metaphors and experiential exercises during the intervention, demonstrating that rather complicated and challenging mindfulness- and acceptance-based exercises can be applied to Finnish Sign Language. Overall, the clients reported positive changes related to their quality of life as well as their skills to handle emotional reactions and thoughts even after the intervention. However, some counselors and clients reported that the new terms and concepts were challenging. These experiences could be due to the variation in Finnish Sign Language skills both among the counselors and clients. Thus, participants' and counselors' skill levels in sign language could have impacted the results. As pointed out by Glickman (2009), a characteristic feature for the traditionally underserved deaf population is language dysfluency in sign language. This problem is related to language deprivation linked to growing up in a nonsigning or inadequately signing environment. On the other hand, it is also possible that the reported difficulties were due to counselors' possible

inability to appropriately communicate conceptually accurate concepts, and/or due to some of the signed ACT-DVD materials not having been accurately translated, and/or due to the fact that some individuals facing language problems may suffer from commonly associated neurological, emotional and behavioral difficulties (Glickman, 2009). Nevertheless, it was interesting to observe that the ACT intervention improved clients' self-knowledge. As stated by one client, "It influenced my thinking, making it broader."

We propose that the conclusions drawn regarding the effects of the intervention should be considered with caution, and the results need to be repeated in other studies for greater reliability. This is due to some difficulties reported while using the assessment tools, and due to the fact that no control condition was included in the study design. We also acknowledge that the observed changes were relatively small. Based on the symptom measures, the results indicate that the ACT-based intervention had an effect on the following SCL-90 subscales: (1) symptoms of somatization reflecting distress arising from bodily perceptions; (2) interpersonal sensitivity including feelings of personal inadequacy in comparisons with others, as well as uneasiness and discomfort during interpersonal interactions; and (3) anxiety composed of symptoms such as nervousness and tension. Further, a trend of diminished depressive symptoms during the intervention was observed. We compared our study with two studies using a waiting list control group (with equivalent levels of symptoms at the beginning of the study) in order to see whether the changes in the present study bore more significance compared to when no treatment was offered. The within-group effect sizes (ES) from pre- to post-intervention measurements were used to compare the changes (using the three studies' pooled standard deviation in their pre-intervention measurements in order to make the comparisons comparable). The observed improvements in depression, psychological and physiological symptoms, as well as in psychological flexibility were slightly greater in the present study than typically seen in waiting list groups. In the present study, the within-group effect size

for the BDI was moderate ( $d = 0.64$ ), while these effect sizes were small regarding the waiting list group ( $d = 0.11$ , Kohtala et al., 2015;  $d = 0.36$ , Lappalainen et al., 2015). For the SCL-90 the ES from pre to post was  $d = 0.43$  compared to  $d = 0.25$  and  $d = 0.08$  in the studies by Kohtala et al. (2015) and also Lappalainen et al. (2015). Psychological flexibility (AAQ) has typically remained at the same level in the waiting list group ( $d = 0.08$ , Kohtala et al., 2015;  $d = 0.03$ , Lappalainen et al., 2015), while a small effect was observed ( $d = 0.29$ ) in the study group of the present study. These comparisons suggest that the ACT intervention provided by the counselors had a positive impact on clients' general well-being, but the changes were relatively small.

At the end of the intervention, a majority of the clients reported that the intervention had clarified their values, and the intervention also had several other beneficial effects. Yet, there was also a large individual variation in the effects of the intervention as measured by the questionnaires (BDI, SCL-90, and AAQ). Based on individual descriptions of the changes in the symptoms and process measures, it could be seen that roughly half of the participants demonstrated positive changes during the active intervention period. However, some of these clients showing beneficial changes were not able to maintain these changes after the intervention. Thus, an intervention including 7–11 sessions over a period of three months might be too short in order to produce favorable long-term changes among the majority of clients.

According to the feedback provided by the counselors as well as the clients, some of the assessment methods were experienced as difficult to comprehend. This observation raises questions about the validity and accuracy of the measurements. The correlations between the BDI and SCL-90 as well as between the BDI and the AAQ scales were exceptionally low. On the other hand, the correlation between the SCL-90 and AAQ was high, and comparable to other studies (e.g., Kohtala et al., 2015; Lappalainen et al., 2015). Furthermore, in general, it is a challenge in itself to find appropriate measurement instruments for the deaf. Measurement instruments

reflecting the well-being and quality of life of deaf people using sign language are extremely important. These instruments are needed in order to assess the well-being of such clients, and in order to accurately evaluate the effects of interventions aimed at increasing their well-being. In addition to measurement problems, there are several other issues that need to be observed when drawing conclusions from the present study. In this study, we did not include a control group. Hence, it is possible that the observed effects were caused by other factors that are not related to the intervention or attention received during the study. Further, there was no assessment of the competence of the counselors regarding their application of the ACT procedures. Therefore, we suggest that these methodological limitations be considered in further research.

Instead of using a group comparison model, single case approaches might be more suitable for analyzing the effects of interventions aimed at similar populations. In line with this, assessment tools that provide a possibility for obtaining data over a longer period of time might be very useful. It should be noted that interventions that are focused on the use of sign language are time-consuming, especially when the clients represent various levels of language skills. It would therefore be logical to assume that perhaps the time frame of the current intervention was too short. This assumption is supported by the clients' responses. Also, web- and mobile-based interventions could be used to promote the dissemination of psychological interventions for special groups and underserved populations. We propose that further research is necessary in this specific direction. To conclude, the present study provides an example of developing an intervention for special groups and for underserved populations. We have observed promising results that indicate that the acceptance- and value-based intervention was well accepted by both the clients and the counselors. We observed indications of positive effects of the intervention on the well-being of approximately half of the clients. Furthermore, many counselors reported that the intervention had positively impacted their level of satisfaction at work. Based on the feedback obtained from the clients and

counselors, the Finnish Service Foundation for the Deaf decided to provide similar training throughout all the centers that are owned by the foundation within Finland.

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Figure 1 Overall symptoms with the SCL-90 (GSI). Individual changes during the intervention (1 to 2, n=16), and during the follow-up (2 to 3, n=14)

Figure 2 Symptoms of depression (BDI). Individual changes during the intervention (1 to 2, n=16), and during the follow-up (2 to 3, n=14)

Figure 3 Psychological flexibility (AAQ-2). Individual changes during the intervention (1 to 2, n=16), and during the follow-up (2 to 3, n=14)

Table 1. Mean values (standard deviations) at Pre-, Post- and 6-month Follow-up, and F- and p-values and effect sizes (Pre-Post/Pre-Follow-up). \* = Statistically significant change over time (Pre, Post, F-up, p<0.05).

Measures	Pre	Post	6-mo Follow-Up	F (2,30 )	p	ES (g)
BDI	21.19 (7.55)	16.25 (6.77)	18.13 (6.32)	2,95	0.068	0.67/0.43
SCL-90 GSI	1.37 (0.57)	1.27 (0.63)	1.08 (0.57)	3.15	0.057	0.16/0.50
SCL-90 dimensions						
Somatization	1.31 (0.63)	1.25 (0.75)	1.01 (0.71)	3.34	0.049*	0.08/0.44
Obsessive- compulsive	1.66 (0.75)	1.43 (0.56)	1.29 (0.67)	2.57	0.094	0.34/0.51
Interpersonal sensitivity	1.47 (0.68)	1.27 (0.83)	1.06 (0.64)	3.35	0.049*	0.26/0.61
Depression	1.34 (0.65)	1.28 (0.70)	1.22 (0.67)	0.42	0.660	0.09/0.18
Anxiety	1.34 (0.70)	1.26 (0.76)	1.03 (0.65)	3.56	0.041*	0.11/0.45
Hostility	1.00 (0.71)	0.92 (0.58)	0.82 (0.63)	0.49	0.619	0.12/0.26
Phobic	1.06 (0.88)	1.06 (1.05)	0.99 (0.88)	0.27	0.765	0.00/0.08

anxiety						
Paranoid ideation	1.66 (0.77)	1.61 (0.72)	1.23 (0.74)	2.27	0.121	0.07/0.56
Psychoticism	1.28 (0.71)	1.28 (0.50)	1.18 (0.68)	0.31	0.738	0.00/0.14
AAQ-2	42.63 (10.44)	46.13 (9.22)	46.31 (6.12)	2.20	0.128	0.35/0.42

### Highlights

- Study provides an example of developing an ACT-based intervention for special groups.
- Exercises and metaphors based on ACT were translated into Finnish sign language.
- Counselors applied ACT in sign language for distressed clients.
- Intervention was well accepted, and showed encouraging effects on clients' wellbeing.
- Intervention showed encouraging effects on counselors' satisfaction at work.

Figure 1

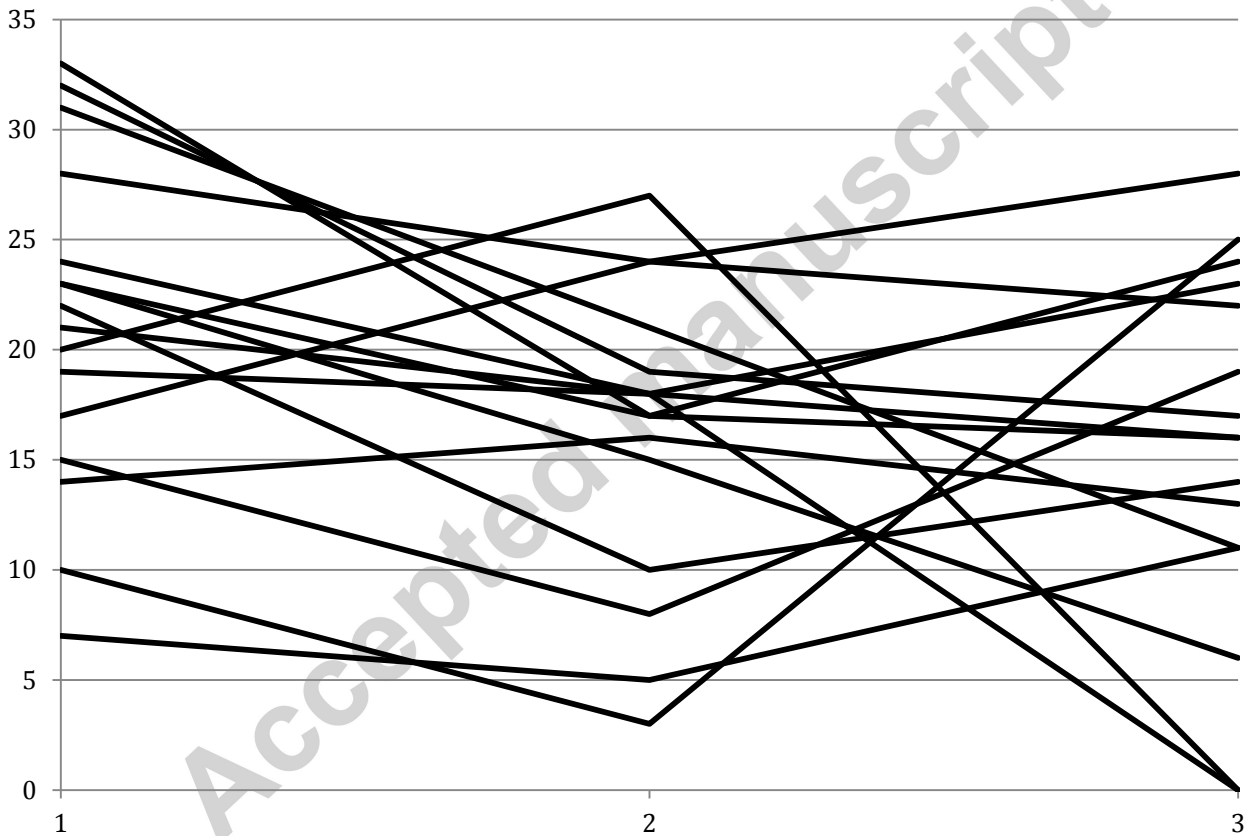




Figure 2

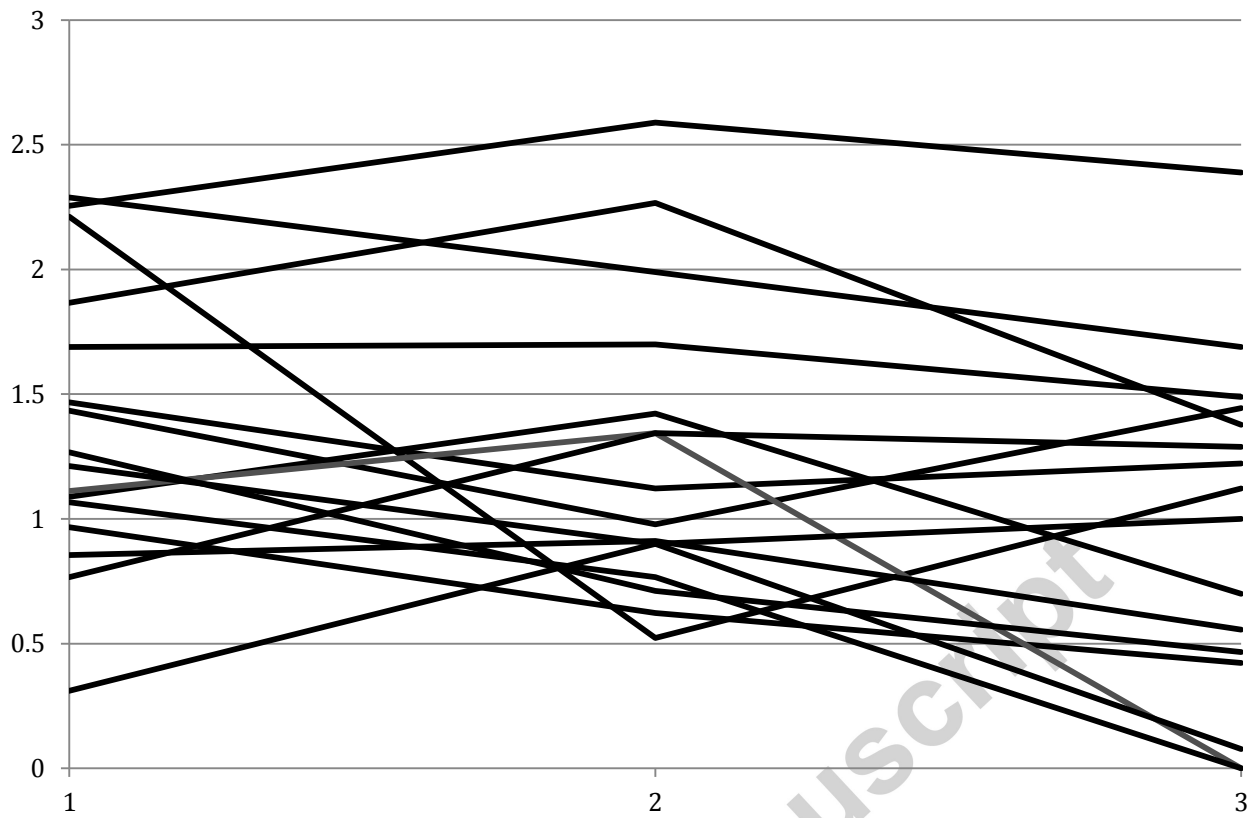


Figure 3

