

**THE INFLUENCE OF ACCEPTANCE AND COMMITMENT THERAPY
(ACT) FOR THE PSYCHOLOGICAL WELL-BEING OF MOTHERS
RAISING A CHILD DIAGNOSED WITH AN AUTISM SPECTRUM
DISORDER**

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ABSTRACT

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The influence of Acceptance and Commitment Therapy (ACT) for the psychological well-being of mothers raising a child diagnosed with an autism spectrum disorder

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The aims of this study were to evaluate the effects of 4-session Acceptance and Commitment Therapy (ACT) intervention in a non-clinical group of mothers (n=9) raising a child with an Autism Spectrum Disorder (ASD). A within group design with pre-, post and follow-up measurements was conducted. The initial design was to compare findings in an experimental group to those of waiting-list group. A poor answer rate of a waiting-list group enabled a control group design. During the three measurements points, participants completed the following multiple-choice self-report questionnaires: Mindfulness Awareness Attention Scale (MAAS), Acceptance Action Questionnaire (AAQ II), Beck's Depression Inventory (BDI), and Quality of Life inventory (QOLI). The aim was to find out whether the ACT-intervention had a positive influence on psychological well-being of participants as measured in increased psychological flexibility, greater mindfulness, better quality of life, and a decline in depression if depressed.

The results show that the psychological flexibility and mindfulness skills of mothers participating in the ACT-group increased during the intervention and at 3-month follow-up, whereas depression levels declined in mothers who were depressed at pre-measurement point. It was also revealed that changes in psychological flexibility were positively related to changes in mindfulness and that changes in Quality of life were positively related to changes in psychological flexibility. Furthermore, the results in mindfulness change correlated with quality of life measures in between pre-intervention and 3-mth follow up measures. The ACT course evaluations complete these findings. Mothers reported having used ACT methods such as acceptance, mindfulness and committed action in every-day interactions with their children as well as in regard to themselves. Furthermore, the mothers reported experiencing more satisfaction in the relationship to their child with ASD. This study indicates that mothers raising a child with Autism Spectrum Disorder may benefit from applying Acceptance and Commitment Therapy.

Key words: cognitive behaviour therapy, acceptance and commitment therapy, autism, autism spectrum disorder, psychological flexibility, mindfulness, depression, stress

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INTRODUCTION

Autism Spectrum Disorder

Autism Spectrum Disorders (ASDs) such as Autistic Disorder, Asperger's disorder, Childhood Disintegrated Disorder and Pervasive Developmental Disorder Not Otherwise Specified (UNS) are life-long Pervasive Developmental Disorders. Autism is the core of Autism Spectrum Disorders. The view of autism have gone from a category view to spectrum view which has opened the door for a wider (and milder) forms of autism that were not diagnosed at all in the earlier days (Baron-Cohen, 2008). In the upcoming fifth edition of the Diagnostic and Statistical Manual of Mental Disorders, a proposed revision is to group these diagnoses under the name "Autism spectrum disorder" defined by common set of behaviors and represented in single diagnostic category instead of several different ones. According the new proposal in DSV-5, Autism spectrum disorder is characterized by specific persistent deficits in social development, that is; disturbances in the developmental of reciprocal social interaction as well as disturbance in restricted repertoire of interests and behaviors, that is; stereotyped motor or verbal behaviors, unusual sensory behaviors, excessive interest in routines, ritualized behaviors or restricted interests (Berthélémy et al., 2010, www.dsm5.org/). Even if impairments in verbal and nonverbal communication in many cases do exist, these are seen in the new proposal, as deficits in *social communication*, inseparable with the impairments regarding social development and characterized by contextual and environmental specificities. It is also emphasized that development of language in children with ASD are extremely variable, ranging from no speech at all to good communication skills with well developed language (Berthélémy et al., 2010). The new proposal sees the condition as a continuum and takes into account the that persons with ASD can vary from severally intellectually impaired to those with above average intelligence, from those with almost no communication to those with severe speech deficits, from those with few repetitive behaviors to those with severe stereotypical, repetitive or ritualized behaviors.

Leo Kanner was the first one who, year 1943, described the children with autism calling their condition “autistic aloneness”. Aspergers disorder was first described by Hans Asperger year 1945 in intention to draw special attention to this group of children within autism that have a normal IQ and no language delays, but eventually an unusual language in form and content. Since Kanner’s and Asperger’s times, the amount of diagnosed individuals has increased remarkably. Today, it is estimated that 1/100 children have ASD as compared to 1/10 000 year 1980 (Baron-Cohen, 2008). In Sweden, about 6 children /1000 are diagnosed with ASD, which means approximately 9000 children in total. The disorder affects boys more often than girls.

There is a great amount of research going on trying to reveal the causes of ASD, with many questions yet to answer. What the research findings do know that ASDs are neurodevelopmental disorders caused by a number of different biologically based brain dysfunctions. ASD appears early in life. In case of classical Kanner’s type of more severe autism signs are evident within the first two years of life whereas persons with higher intellectual abilities can reach their school years before the disorder is recognized (Berthélémy et al., 2010; Coleman & Gillberg, 2010).

The usually affected areas in brain include prefrontal, temporal, brainstem and cerebella regions of the central nervous system (Coleman & Gillberg, 2010). The areas known to be responsible for e.g., planning and execution of behavior, tasks that require the integration of information over time, auditory processing of linguistic material and linguistic memory, arousal, pain regulation, modulation of reflex muscular movements and motor control (Gazzaniga, 2002). However, no one area has been consistently pinned to ASD, suggesting that it is a question of early brain “network” dysfunction rather than a abnormality that can be localized to one or more areas in brain (Berthélémy et al., 2010). Gillberg (2010) call it the “default network”. Even the clinical heterogeneity shows that it is a question of complex genetic underpinnings that lie underneath ASD. It is believed that several different genes and in many cases new genetic mutations can cause ASD, and that an abnormal synaptic homeostasis is a risk factor In rare cases, complications during pregnancy and delivery can lay behind the disorder (Bourgeron, 2008). What is affected is the brain’s ability to process information which include perceiving, processing, understanding and interpreting information from ones environment (Zander, 2005). Particularly affected is the child’s capacity to process social information. Also common are the difficulties with executive functions that affect the organizational and planning abilities (Berthélémy et al., 2010).

The deficits included in ASD diagnosis are present early in life. Many children with ASDs have initially difficulties in learning through imitation, and generalizing the already learned skills into new situations. They are detail focused having difficulties seeing the whole event. As early as in infants, can the deficits in empathy, imitation, pretend play and joint attention¹ be recognizable (Charman et al., 1997). The difficulties with social and emotional reciprocity are seen in e.g., turn taking, play, and interactions with caregivers and peers. Specifically difficult for these children seem to be accepting that there may be other perspectives, not just one's own. Their "theory of mind" does not allow them to understand that other people may think another way than they self do, a skill that normally developing children acquire around 4-years of age (Doherty, 2009). Furthermore, even those children that do have quite adequate social skills tend to have trouble reading social situations, especially the subtle cues that an environment provides. This often leads to misunderstandings and conflicts. Not too seldom, these children get teased or rejected in their play and school environments (Mungo et al, 2007). Some children with ASD never develop language at all and those that do have good language skills, often use speech inappropriately for the social context, and tend to understand it literally (Baron-Cohen, 2008).

The frustrations, limitations and disappointments the child experiences lead to reactions in child, and in the child's environment. The child herself can demonstrate challenging behaviors such as temper tantrums, running away, aggressions, self-abuse and generally impulsive behaviors (Wing, 1996; Mugno et al., 2007). These behaviors are not a part of the symptoms but by-products reinforced by different environmental contingencies. For example, a child who self-abuses by hitting his head on the floor, might do it first by accident, but will continue doing so in the future because of the attention this behavior got from the caregivers. The unwanted behavior of head banging had become reinforced "by accident" (Wadström, 2004). Many inappropriate behaviors serve a communicative function for a child.

It is also important to notice that considerably many people with ASD show to be hypo- or hyper sensitive in regards to various sensory stimuli, such as heat/cold, pain etc. Moreover, children with ASD tend to experience various kinds of other problems such as sleep disturbances and problems with eating (Frith, 2000; Gillberg & Coleman, 2000). Some co-morbidities also exist, e.g., with psychiatric problems such as anxiety and depression (Gadow, DaVincent & Sneider, 2008).

¹ Joint attention refers to the use of eye-contact in conjunction with gestures or alone when children alternate their gaze in between an interesting object or activity and another person (Mundy, Sigman & Kasari, 1990)

Autism spectrum disorder and parenting

Parenting a child with an autism diagnoses is a great challenge to parents. Several studies indicate very high stress levels and psychological distress in parents, especially mothers, raising a child with Autism Spectrum Disorder (Tobing, 2005; Estes t al., Tomanik, Harris & Hawkins, 2004; Mungo et al., 2007; Baker-Ericzén & Brookman-Fraze, 2005). Schieve et al. (2007) report that parenting a child with autism seems to be associated with more a unique type of stress compared with children with other special care needs. Mugno et al. (2007) studied the quality of life of parents who have a child with ASD compared to other neurological or psychiatric disorders. Their findings suggest that parenting a child with ASD causes more stress and is more challenging for parents than the other disorders. His study points to that the higher stress levels and lower experienced quality of life can be the result of, not only the challenging child behaviors, but the lack of support from the society, stressful experiences with the professionals, worries about the future as well as unmet own personal needs. Even Bromley et al. (1990) reported that over half of the mothers in their study had significant psychological distress which was associated with challenging child behaviors.

Several researches have documented that despite stress, the parents to children with ASD's have increased rates of depression (Ohlsson, 2008; Singer, 2006; Snee, 2007). Singer's (2006) meta-analysis with a weighted effect size of .39 indicated an elevated level of depression in mothers of children with developmental disabilities. Snee (2007) presented in her dissertation that the level of challenging behaviors the child with autism presented was associated with parental depression, that is: the more challenging the child behaviors were, the more likely the parent was to show higher levels of depression. On the other hand, self-injury and stereotyped behaviors were more related to stress than depression. Furthermore, according to Montes & Halterman (2007) the mothers to children with autism experienced poorer psychological well-being than mothers in the general population. Bebko, Konstantareas & Springer (1987), stated that it is the child's language and cognitive impairments that parents and professionals found most severe and stressful. Even those problems child demonstrates with regards to social and emotional reciprocity pose a challenge and contribute to a wide range of parental feelings. Many of these children do not spontaneously share emotions or activities with their parents, nor do they seek them for consolation (Zander, 2005). Norton & Drew (1994) discussed the effects this type of "rejection" has in regards to bonding in between family members and the child with autism. Difficulties in communication and

understanding others point of view (“theory of mind”) do not only can lead to misunderstandings and behavior problems in children, but affects the parent-child relationship itself, and the appreciation of one’s own parenting.

It is not only the child behaviors that affect the well-being of parents. After the birth of a child with ASD, many parents experience a sort of “narrowing down” of everyday life. They report not being able to do things that they used to do, have less time for their own needs, and often get disrupted in their plans regarding activities (Rodrique, Morgan & Geffken, 1990). Some parents simply start avoiding social situations in fear that these would end up in disappointment and chaos. Even usually cheerful and happy occasions, like Christmas, can be a challenge to parents when faced with possible anxious or fearful child who refuses to participate. Many parents report that they have lost friends and old networks after a birth of a child with ASD. In general, these parents experience that their quality of life is negatively affected in several areas of life (Wing, 1996; Lee et al., 2007)

Very little has been done in a society to address the needs of parents. Parents to children with Autism Spectrum Disorder experience the support from the society as inadequate and poor, not answering to their needs as parents (Arenz, 2007). The support available addresses the needs of the child and/or offer parents’ methods for more effective parenting, e.g., KOMET, Cope, Early Years (Foster & Livheim, 2006, Webster-Stratton, 2007). Most of these approaches see parenting difficulties as “skill deficits” in regards to more than usually difficult parenting situations. The parenting courses give support for the role as a parent with the focus on effective parenting. The main idea is to achieve a behavior change in parents in order to thereafter attain it in the child. These behavioral programs are successful in teaching methods such as to notice when the child behaves well, to pay *less* notice to challenging behaviors and to refrain from using empty threats or escalating demands. The missing link, however, has been *the acknowledgement of parent’s thoughts and feelings* (Coyne & Murrel, 2009). During the recent years has the Acceptance and Commitment Therapy (ACT) given hopeful results in treating the emotional needs of parents (e.g., Blackledge & Hayes, 2006). Recently, even literature has become available for “mindful parenting”. According to ACT-based perspective, parents’ thoughts and feelings in the context of the relationship to their child play a mature role in positive parenting and positive parent-child relationships (Coyne & Murrel, 2009; McCurry, 2009). In ACT intervention, e.g., the psychological skills to handle painful thoughts and feelings are addressed as well as work is done to clarify ones personal values in life (Hayes, 1999).

The theoretical frames in Acceptance and Commitment Therapy (ACT)

Acceptance and Commitment Therapy (ACT) belongs to so called third wave cognitive behavior therapies together with therapies like Mindfulness Based Cognitive therapy (MBCT, Segal, Williams & Teasdale, 2002), Mindfulness Based Stress Reduction (MBSR, Kabat-Zinn, 1990) and Dialectic Behavior Therapy (DBT; Linehan, 1993). These “third-wave” therapies have focus on individual’s relationship and attitude towards one’s own experiences, thoughts and feelings. The approach is empirical and principle-focused, having interest more in *how* people relate to their thoughts and feelings than in what they think or feel, that is; the focus is in the form not the content. These approaches believe that psychological problems have their ground in the patients fight in trying to avoid unpleasant or unwanted experiences, thoughts and feelings. The third way therapies have been developed since 1990’s and are influenced by dialectics, linguistics, acceptance concepts and the Eastern traditions, e.g. Buddhism (Kåver, 2006; Hayes, 2004, Zettle, 2007). Furthermore, ACT has similarities even with Gestalt therapy and emotion-focused psychotherapy (Hayes, 1999).

According to Harris (2009) (ACT) can be seen as a three story apartment building with ACT itself on the third floor. The middle floor has Relational Frame Theory (RTF) living in it and at the down floor can Applied Behavior Analysis (ABA) be found. The whole building lies on the solid ground of functional contextualism. The core concepts in Functional contextualism are that the center of attention is on the entire event, the sensitivity to the role of context in understanding the nature and function of an event, as well as the focus on the pragmatic truth criterion (Hayes, 1999). Everything in ACT can be related to “successful working” and “workability” concepts. There has to be a purpose if one is to predict and influence behavior. In ACT that is to be of support in clients efforts to create vital and meaningful lives (Harris, 2009).

The influence of Relational Frame Theory is in ACT focus on the role of language in human suffering. RTF’s aim is to understand and influence human behavior through a language theory that is developed by experimental research. The attempt is to break down destructive language dominance over other behaviors, in the light of knowledge on how relational learning works and which are its downsides (Fletcher & Hayes, 2005; Törneke, 2009). In ACT, RTF is seen in how it encourages the individual to take notice of relational frames and the affect they have on ones’

behavior. For example, the active use of metaphors, paradoxes, and experiential exercises to help the clients to understand the role that language plays in their suffering. (Lappalainen et al., 2008).

According to Törneke (2009) it is impossible to understand ACT if one does not understand the principles of respondent and operant conditioning. Hayes, Strosahl & Wilson (1999) describe ACT as a *contextual cognitive-behavioral therapy* and Harris (2009) in his metaphor sees the ground floor of the ACT building consisted of Applied Behavior Analysis with its cornerstones being the prediction and influence of behavior. Therefore, ACT has its deep origins in behaviorism even though it is eclectic in a way it has taken in influences from other traditions as well. It also employs the well known methods in behavior therapy such as exposure and behavior activation (Törneke, 2009).

What makes ACT unique and separates it from other cognitive behavior therapies is its focus on teaching clients to "just notice", accept, and embrace their private events, especially previously unwanted ones that the person have previously spent psychological energy trying to avoid. Whereas the traditional CBT therapies teach people to better control their inner sensations, thoughts and memories, ACT applies acceptance and mindfulness strategies, together with commitment and behavior change strategies in order to increase psychological flexibility (Fletcher & Hayes, 2005). The intense use of metaphors' makes it difficult to continue with rule governed behaviors. Metaphors are stories creating distance, more pictures than verbal behavior, making it easy to remember the storyline. The use of metaphors and other language based techniques are used to help clients to make healthy contact with their thoughts, feelings, memories, and physical sensations that have been previously feared and avoided, that is: to recontextualize and accept these private events. In ACT the focus is on rather than changing the form of private events, in changing the functions of private events. This is done by manipulating the context in which thoughts and feelings are usually related to e.g., actions. Thereafter, these actions are evaluated in relation to individuals chosen values (Hayes, 1999).

The therapy framework of Acceptance and Commitment Therapy (ACT)

ACT lifts up the human suffering as something inevitable. We are humans and we suffer; it is a natural part of life. Just that notion offers the client an alternative perspective on one's inner feeling states, which is: I'm not the only one suffering. It normalizes suffering. At the same time, ACT points the finger to the role of human language as the cause for suffering. People create suffering through the creation of explanations to their problems which they believe in so deeply that these explanations are seen as absolute truths, not just explanations (Lappalainen et al., 2004). Language enables us humans to predict and verbally process, give meaning to events that has not yet been experienced as well as enables the subjective (often colored) meaning giving to events that already has been. To summarize, language let us engage in suffering over and over again in our minds. Humans are the only living creatures that are able to abuse itself through the language (Hays, 1999; Hayes, 2003; Hayes & Smith, 2005; Lappalainen et al., 2004). What makes the phenomena worse is that once stimulus relations are derived, relational frames established, they become very difficult to change (Hayes, 1999). Hayes & al. (1999) cleverly summarize this role of language when they quote the Star Wars: "Language is the Force; both the force of progress and the force that brings on unneeded suffering."

All methods used during Acceptance and Commitment therapy attempt to obtain a positive change in regards to psychological flexibility (Hayes, 1999). The psychological flexibility is the single most effective predictor of one's psychological well-being (Bond & Bunce, 2003). For example, Bond & Bunce (2000) studied the Stress management program "ACT at work" developed by Bond and Hayes. The participants in their study had an increase in psychological well-being which was seen to be the result of increased psychological flexibility. Furthermore, Brown & Ryan (2008) reported that both dispositional and state mindfulness predicts positive emotional states which give support to its role for the psychological well-being of a person. Furthermore, several other studies confirm that increase in psychological flexibility and mindfulness skills relate to lower levels of depression (e.g., Brown & Ryan, 2003, Kohtala, 2009). A person with a good psychological flexibility is able to contact the present moment, here and now without judging, avoiding or fighting against its contents. He or she is not just accepting everything what a situation presents but can make a difference between what is changeable (if the situation allows an change) and what is better to "just accept", at least for the moment (Brown & Ryan, 2003). On the contrary,

as Hayes (2004) explains a psychologically distressed person attempts to control private events, is dominated by language and cognition in his or her private experiences, lacks of clarity in relation to ones values as well experiences difficulties in trying to change this behavior which, on the other hand, leads to psychological inflexibility and poorer quality of life (Fletcher & Hayes, 2005).

According to e.g., Harris (2009), ACT commonly employs six core principles to help clients develop psychological flexibility. These cornerstones are partly overlapping and reinforce one another. The first core principle, the **Cognitive defusion** has to do with creating a distance to your own feelings and thoughts, learning to perceive thoughts, images, emotions, and memories as what they are, not what they appear to be. The key idea is that to have a thought differs from being the thought. Thoughts are something that can be described but are not to be valued or judged (Hayes et al., 2006). According to ACT, attempts to control inner feelings, thoughts and sensations are not just ineffective but can be dangerous for the psychological well-being of an individual. Cognitive fusion leads to experiential or emotional avoidance, something that is often linked to psychopathology. On the contrary, through lessening the control that mind has on the person, a cognitive defusion is reached. To accomplish cognitive defusion ACT applies methods such as exposure to confront both emotional (e.g., thoughts, feelings) and experiential avoidance (e.g., places, situations), mindfulness exercises, metaphors, paradoxes and other experiential exercises (Hayes, 1999; Hayes & Smith, 2005). In ACT, avoidance is systematically broken down in various contexts, which thereafter lead to more flexible behavior (Törneke, 2009).

The second core principle, **acceptance**, refers to being able to have a non-judgmental and active approach to inner experiences (thoughts, feelings, memories), allowing them to come and go without struggling with them. It is to open up as a person, therefore an alternative to avoidance. One is to make room for the above mentioned inner experiences, to be willing to confront them, however much it may hurt. It also involves leaving behind the “get better” – methods, the fight, that has not proven to be successful in the past. It does not refer to acceptance of everything; a person is encouraged to change the changeable things in one’s life. The changeable things that lead the way towards chosen values are encouraged to be changed by taking action. In contrary, events happened in the past belong to things one should accept, for changing ones history is impossible. On the other hand, In ACT both acceptance and change are promoted. One is to Accept, Choose, and Take Action (Hayes, 1999; Harris, 2009).

Contact with the present moment involves awareness of the here and now, experienced with openness, interest, and receptiveness. The concept of **Mindfulness** comes from the Buddhist and other traditions that embrace the value of conscious attention and awareness and encourage switching of the “auto-pilot” (Kåver, 2006; Harris, 2009). Mindfulness is a state of consciousness where one is able to attend sensitively to psychological, somatic, and environmental cues. Baer et al (2004, 2.191) describes mindfulness in a following set: “Mindfulness [...] I generally defined to include focusing one’s attention in a nonjudgmental or accepting way on the experience occurring in the present moment [and] can be contrasted with states of mind in which attention is focused elsewhere, including preoccupation with memories, fantasies, plans, or worries, and behaving automatically without awareness of one’s actions.” A person with good mindfulness skills can register and describe activities inside and outside one without setting a price, title or label to them. To be mindful is to be brave enough to face all kinds of feelings. Rumination, spending a lot of time thinking of what had happened in the past or being anxious of the future can be considered as “mindless” behavior. Mindless behavior is characterized by habitual, automatic, lower levels of clarity and sensitivity in thought and can even be compulsive in its nature (Brown & Ryan, 2003). Furthermore, higher scores of mindfulness as measured by Mindful Attention Awareness Scale (MAAS) are related to lower scores on Becks Depression Inventory (BDI), thus mindfulness can contribute to better mental health (Brown & Ryan, 2003).

According to theory building behind ACT, the person has three different level of self awareness. The conceptual self is the one the person usually knows well. It is the part that contains the literarily constructed stories (a history) of a person that is affected by the person self and others. The self as a awareness describes a more ongoing self-awareness that can answer to her and now questions: what am I doing right at the moment. The **Self as a context** is the part of self that is not connected to thinking but instead to observing, seeing self from a distance. It is the part of self that allows one to get in contact with the transcendent sense of self. (Hayes, 1999; Harris, 2009). The more one acts in fusion with one’s own-construction of a “story”, the greater the risk for negative outcomes for well-being (Törneke, 2009). In ACT the idea is to make contact with self as context that is safe and consistent as a perspective, the self that has been there through different life phases and continues to do so (Hayes, 2006).

Values, the knowledge of one’s core values in life, are central part of Acceptance and Commitment therapy. Much of the work is done in purpose of finding the “chosen directions” in life in order to avoid being lured into values based on ruled governed behaviors or into behaviors of

avoidance or fusion. Values differ from goals in that goals can be reached but values are one never ready with. It's like heading to east, there is always going to be more east (Ghaderi & Parling, 2007). Values reflect the things most important to one's true self, which are not created by someone else or for the purpose of someone else. Values give meaning to life, answer to the direct question of "What do I want out of my life? In ACT, the values in the different life areas are identified and rank ordered according to subjective importance. Thereafter, the fact how well one tends to live according to these values is researched as well as the possible barriers to living a life in line with core values is explored. Chosen values work as a life compass for the individual. One sets the needle to point on preferred direction and acts accordingly (Hayes, 1999).

The last cornerstone, the committed action involves carrying out actions that serve values. Committed action is a responsible ACT, it is a choice. It includes the larger patterns of action linked to values, that is; living one's life in accordance with chosen values. Sometimes this means exposing oneself to pain and/or committing oneself to behavioral changes that can require concrete work and efforts (Fletcher & Hayes, 2005; Hayes et al., 2006). In ACT therapy, this part is to do with willingness and commitment, thus ACT put in action (Hayes, 1999).

There are several steps in ACT intervention that involves these above mentioned core principles. The core principles are not independent units but interactive and inseparable parts of the whole process (Harris, 1999). Each of these components is being targeted in Acceptance and Commitment Therapy, and there is some evidence that they underlie the therapeutic changes induced by this approach (Fletcher & Hayes, 2005.)

How exactly an ACT intervention is being carried out depends on the therapist, client and the context. However, in the usual case, the following phases are being and should be included. 1) Creating so called creative hopelessness which occurs when all the behavior oriented toward a desired outcome is experienced as unworkable, 2) Exploring how control is the main problem, and willingness and acceptance can function as alternative to control, 3) Reaching cognitive defusion, 4) Identifying of core values and their importance to oneself, 5) Approaching oneself from the perspective of an observing self and usually as a last moment, 6) Exploring willingness to make committed actions according to core values (Hayes, 1999; Ruiz, 2010). During an ACT intervention, it is even of importance to create a strong therapeutic relationship to client/clients. The therapeutic relationship is, however, seen as an equal. The therapist and the client are as Harris (2009) puts it "on the same boat".

Empirical studies supporting ACT

ACT is still relatively new in the development of its research base. This is due to the fact that in ACT the emphasis during the first 20 years was on developing a strong philosophical and theoretical base where it now stands firmly (Ruiz, 2010). Nevertheless, ACT has been used and evaluated in quite a few randomized clinical trials for a variety of client problems, e.g. , epilepsy, stress, workplace stress, chronic pain, emotionally instable personality disorder, addictions, depression, psychosis, tinnitus, obesity and mothers to children with autism (Lundgren, 2004; Bond & Bunce, 2000; Salmon, Santorelli & Kabat-Zinn, 1998; Livheim, 2004; Bach & Hayes, 2002; Flaxman & Bond, 2006; Linehan, 1987; Marlatt, 2002; Teasdale et al., 2002; Gregg et al., 2007; Hesser et al., 2009, Lillis et al., 2009; Hayes & Blackledge, 2006). In a study of Lappalainen et al. (2007), the impact of CBT and ACT models using psychology trainee therapists were examined. Clients treated within an ACT model showed better symptom improvement than the CBT clients, despite the fact that the students reported having initially less knowledge of ACT and being more insecure in using it.

The first meta-analysis concerning ACT was done by Hayes et al. (2006). It showed that ACT processes, on average, account for 16 - 29% of the variance in psychopathology (general mental health, depression, anxiety) at baseline, depending on the measure, and when using correlation techniques. According to Hayes, ACT was better than control conditions, waiting list condition and treatment as usual ($d=.99$ at post treatment and $d=.71$ at follow-up. It was even considered more effective than structured interventions ($d=.48$ at post-treatment and $d=.63$ at follow-up).

Later, Öst (2008) did a qualitative and quantitative examination of the previous research done concerning evidence of ACT. Öst made a conclusion that the traditional CBT was superior to ACT due to ACT's lower scores in methodological scale. Gaudianos re-analysis of Öst's results 2009 show that ACT studies could not be compared with CBT studies because they represented different disorders, thus: in case of ACT, they were not equally easily treated (Ruiz, 2010).

Furthermore, a recent meta-analysis combining 18 RCTs found that, there was a clear overall advantage of ACT compared to control conditions (effect size = 0.42). The average

participant in an ACT intervention was 66% better improved than the participants in the control conditions. However, ACT was not significantly more effective than established treatments (Powers, 2009). However, a re-analysis was once again done which showed that ACT, as a matter of fact, was better than the control treatments (Ruiz, 2010).

As a conclusion, it can be stated that much research indicates that ACT is very effective in treating a wide range of conditions that include experimental avoidance in the context of cognitive fusion. ACT is superior to control and treatment-as-usual conditions. However, more evidence is needed to show its superiority to CBT. At the moment, some studies indicate similar results in between CBT and ACT, some indicate ACT being more effective. Subsequently, the similarities or differences should be considered from a larger perspective, that is; with consideration to ACT's specific characteristics, e.g., its philosophical assumptions, contextual approach to language and cognitions as well as its solid model of explaining psychological suffering by avoidance or psychological inflexibility (Ruiz, 2010).

ACT as a parenting intervention

ACT has been used as an intervention to parents in challenging parenting situations (e.g., Blackledge & Hayes, 2006). In the Blackledge & Hayes (2006) study the effects of 2-day ACT workshop for parents of children diagnosed with autism were tested. The results revealed significant pre and follow-up improvements as measured by at Becks Depressions Inventory, Global Severity Index of the Brief Symptom Inventory, changes in measures of experimental avoidance and cognitive fusion. There is evidence that suggests that the changes in experimental avoidance and cognitive fusion were the ones responsible for the positive outcomes in parental well-being measures.

An ACT-based approach to parenting emphasizes interactions with ones child that are more mindful in regard to overt behavior, as well as, more aware and receptive to inner experiences. "Mindful parents" are more in tune with their emotional states and able to change them when needed. They fulfill even their own psychological needs. Mindful parents listen to their children with full attention when interacting with them, refining emotional awareness and self-regulation in

parenting. Furthermore, parents with greater mindfulness skills bring compassion and nonjudgmental acceptance to their parenting situations (Duncan, Douglas & Greenberg, 2009). If a parent is less mindful, that is; acts without noticing own thoughts and feelings and reacts instead, the result is parenting that are more habituated and automatic. Thus, a parent fails to attend to the child's behavior in its context, mindfully right here and now. Coyne & Wilson (2004) discussed how cognitive fusion can lead to maladaptive parenting, and how mindfulness and acceptance can be used to break the negative cycles. For example if a parent thinks that he or she is a bad parent, one may so fused with the thought that one takes it as a truth, and thereby engages in behaviors trying to control that "bad" thought. This may lead to that instead of attending to the child and its needs, parents are focusing on own "failure" as a parent which naturally causes psychological distress.

An ACT intervention for parents involves naturally the same core therapeutic principles that are used in ACT usually. For example, their change agenda is being challenged, they are guided towards cognitive defusion and their core values and willingness to do what it takes to live accordingly is being explored. ACT attempts to help the parents to find greater psychological well-being (psychological flexibility) through the ACT methods, and at the same time find more adaptive ways of parenting while living according to ones values. Furthermore, parents are encouraged to enter a life of difficult private events instead of trying to deny, win or fight against them (Hayes & Smith, 2008). Furthermore, some studies indicate that ACT-based support for parenting affects not only parental well-being but also the behavior of children. For example, Singh et al. (2008) discovered that "mindful" parenting decreased aggression and increased social behavior in children with autism. When these parents mindfully attended to the challenging behaviors of their children, they were more satisfied in their parenting skills as well as social interactions with their children. Overall, there are few studies that have applied ACT in challenging parent situations, e.g, Cohen & Semple (2009) reported that "mindful parenting" may reduce stress, enhance parenting satisfaction as well as decrease aggressive behaviors in children.

The purpose of this study

The purpose of this study is to find out whether a 14-hour ACT group has a positive effect on the psychological well-being of mothers raising a child diagnosed with an Autism Spectrum Disorder. It was expected that we will observe an increase in psychological flexibility, greater mindfulness skills, a decline in eventual depression, as well as an increase in the quality of life in the group receiving ACT treatment. We expected also that an increase in flexibility and mindfulness skills will be associated with larger change in depression and quality of life. Furthermore, mothers of children with an Autism Spectrum Disorder will after the completed ACT-course experience an increase in the use of ACT related methods, such as mindfulness, in everyday life situations with their children.

METHOD

Participants and procedure

This study was conducted during the year 2010, in the Autism Centre for young children in Stockholm, Sweden. A letter of invitation to participate in an ACT group was sent to mothers, who had children in treatment at the Autism centre born during the years 2004-2005. Therefore, 235 mothers received the advertisement letter. Initially, approximately 30 mothers contacted the Autism centre and wished to sign up for the ACT intervention. 24 mothers were interested in participating during the spring. Of these 24 mothers, 12 were randomly chosen to a group starting in the spring, and 12 to group starting in the fall. No exclusion criteria were used. The participants were informed about their placement. At the same time, they received a letter of information regarding this evaluation study. Both groups were informed that participation in the study was completely voluntary and would not have an effect whether they could participate in ACT group or not. Both the members in the experimental group and members in the waiting-list received multiple-choice self-report forms to fill in. Autism centre had provided the waiting list participants with stamped envelopes with return address to Autism Centre. Regardless of attempts by post, e-mail and phone, only 3/12 mothers in the waiting list group returned the questionnaires. As a result, it was not possible to continue with a RCT design for this study.

The 12 mothers in the experimental group were asked to take the pre-filled self report forms with them to the first group session. They were even informed of the post and follow-up measurements (see appendix 1). Of the 12 mothers randomly chosen to participate in the experimental group, 2 dropped out before the treatment began, leaving this study with $n=10$. These two mothers had difficulties due to conflicting interests during the spring and wished to participate during the fall instead. One more participant dropped out after the intervention had begun due to being sick during the first two times. Consequently, 9 participants remained as subjects in this study.

All participants were mothers ($n=9$, Table 1) raising a child diagnosed with an Autism Spectrum Disorder and came from the greater Stockholm area in Sweden. Their children were currently receiving treatment at the Autism centre. At the Autism centre, families are always included in the

treatment of the child with ASD. Of the experimental group, three of the nine mothers had children enrolled in the Intensive Behavior Therapy (IBT) with weekly therapy sessions, and continuous counseling for parents in regards to child's concerns. Two of the nine were mothers to children which had had received 5-10 treatments sessions before that start of the ACT, the rest had received less than 5 treatment sessions. These 9 mothers were all highly motivated to participate in the ACT intervention.

Table I. Background information of the treatment group.

	ACT-group (n=9)
Age	M=39.7, SD 1, 80, range 37-43
Collage/university studies	9 (100%)
Working	9 (100%, one partly on maternity leave)
Married	9 (100%)
Nationality Swedish	9 (100%, one with double nationality)
Number of children	M=2.7, SD 1, 00, range 2-5)
Motivation to participate in ACT (mean, SD, range)	M=9.4, SD 0.73, range 8-10

Therapists and intervention

The therapists delivering the ACT intervention were both Licensed Psychologists currently working at the Autism centre. One of the psychologists had studied ACT during her psychotherapy studies at the University of Uppsala and the other one had participated in the "ACT-att hantera stress och främja hälsa" instructor course given by Fredrik Livheim. One of the psychologists had held several similar ACT groups in the past. The manual "ACT- Att hantera stress och främja hälsa"- written by Fredrik Livheim (2007) was followed during the ACT grupp. The manual was inspired after the "ACT at work" work done by Frank Bonds and Steven Hayes (2002). All the sessions were held at

the Autism Centre for young children. Before the first session the mothers received information concerning the course material. They received a Mindfulness CD (by Fredrik Livheim) with 6 mindfulness exercises, and were encouraged to buy the book called ”*Sluta grubbla, börja leva*”² av Steven Hayes, as a complement to the ACT course.

The ACT intervention consisted of four 3.5 hours long sessions with the total of 14 hours. The participants received a number of homework after each session (Table II). Homework is seen as one of the key elements in this intervention. It makes the effect of the intervention greater and gives the participants a change to make ACT based exercises, such as mindfulness, as a part of their everyday routines. Homework was carefully addressed during the beginning of each session to keep up the motivation. The assumption was that participants that did their homework would get most out of the course. There were 2-4 weeks in between each session. The time period in between the first (pre) measurement and second (post) measurement was 8 weeks. The time interval in between post and follow-up measurement was 15 weeks. In total, it took 23 weeks from that the participants received self-report until the follow-up measurement.

Each of the four sessions had a specific theme (Table II). Several core components in ACT were addressed during each of these sessions. The first session focused on stress and language. Participants got information of stress, could talk about their previous attempts to control stress and discuss the possibility of learning a new way of handling stress. Acceptance and change as well as some other helpful methods (motion, sleep) were discussed as alternatives to current attempts to control stress. Furthermore, the role of language and avoidance in suffering (and stress) was discussed. The life compass work, identification of one’s core values, was the theme for session number two. The participants got to write down values important to them in each category presented, and afterwards identify possible barriers for taking steps towards the core values. During the session three, the work with values and barriers continued. The direction in life (values) were broken down to goals and concrete actions, at the same time as, the importance of the process itself not the goal, was discussed. For last, the observational self as well as the role of mindfulness were presented through metaphors and exercises. To conclude, the role of language was taken into consideration again, that is: language causes pain. The last session emphasized concepts of empathy and committed action as well as tied together the entire ACT core concepts discussed during the

² In English; Get out of your mind & into your life. Hayes, 2005.

intervention. Special focus was given to the thought of forgiveness towards one self. Communication skills such as to say “yes” and “no” and to give “I” related messages were role-played. The important message to participants was that ACT is not over; the whole life is the session number five. Three months after the last session, participants were brought together for an additional boost-up session.

Table II. Content of the ACT intervention (week 1-4)

THEMES	GOALS	EXERCISES	HOMEWORK
1. Stress and language	To understand the effects of stress To understand the role of rule governed behavior and language in suffering To explore the struggle and control agenda	Hold your breath Lie detector Jaws in your bathtub Don't think of the numbers Idol, Quicksand, Two scales metaphors	Mindfulness CD, 33 minutes, at least 4 times a week Schema for motion Acceptance instead of fight exercises
2. Life compass	Identify core values Explore barriers	White life compass Life compass and barriers role-play Buss metaphor – role-play Funeral exercise Bubble metaphor	Mindfulness CD, 33 minutes, at least 5 times a week Exercise at least 2 times a week Acceptance exercise Continue fill in life compass
3. Barriers and flexibility	To understand that it is the process that matters To find the observing self To be mindful To accept feelings, thoughts, and situations Turn down the autopilot To deliteralize oneself	Values, goals, action and barriers exercise Skier, chess metaphors Observer exercise Raisin exercise Milk exercise Child's Time	Mindfulness CD, 33 minutes, at least 5 times a week Exercise at least 2 times a week Turn down the autopilot Mindfulness exercise with the child: Child's Time Goals and barriers exercise Concrete Actions according to core values
4. Empathy and committed action	To forgive, have empathy and to be together To learn to say “yes” and “no”	Empathy (medkänsla) exercise 5 things I have done good Validation steps To say “yes” and “no” role-plays “I” messages roleplay Acceptance role-play Difficult visitor metaphor To hold your breath Fertilize, take satisfaction, take power	Train yourself in mindfulness with CD at least twice a week Try mindfulness in everyday life Ask yourself every week which steps I have taken towards my chosen values Read “Get out of your mind and into your life”

Client Measures

The following client measurements were used direct prior to start of the ACT-group, direct after the last session as well as 3 months after a completed intervention.

Acceptance Action Questionnaire is a widely used measure of the core ACT processes. It assesses several aspects of psychological flexibility, e.g., emotional acceptance, cognitive defusion and actions one takes when faced with difficult emotions. In AAQ the items in the scale are arranged so that the lower scores indicate greater psychological flexibility. There are several versions of AAQ available of which the 6-item scale AAQ-modified used in this study is the shortest and newest. Ghaderi, Parling, Forslund, Palm & Barnes-Holmes (in prep) have studied the psychometric properties of AAQ modified and found that the internal consistency of AAQ-mod was high with Cronbach's $\alpha = .88$. Only one component in Ghaderi et al. study was extracted in Principal Component Analysis of AAQ-mod, accounting for 64% of the variance.

The Mindfulness Awareness Attention Scale (MAAS) is a 15-item scale designed to assess the core characteristics of dispositional mindfulness, that is; open or receptive awareness of attention to what is taking place in the present. It assesses the individual differences in the frequency of mindful states over time. The respondents specify how often they have experienced the described statement, using a 6-point Likert-scale that reaches from 1 (almost always) to 6 (almost never). The higher scores reflect greater mindfulness. The used items contain cognitive, emotional, physical, interpersonal and general domains. MAAS has shown to have strong psychometric properties and has been validated with college, community, and cancer patient samples (Brown & Ryan, 2003). According to Brown & Ryan (2003), there are empirical links between mindfulness and psychological well-being. Mindfulness is associated with greater well-being as well as less anxiety, depression, unpleasant affect and negative affectivity. At the same time, higher scores on MAAS have been associated with e.g., higher pleasant affect, positive affectivity, life satisfaction and higher autonomy. Furthermore, higher mindfulness as measured by MAAS is related to lower levels of both mood disturbance and stress (Brown & Ryan, 2003)

Becks Depression Inventory (BDI, originally published in 1961) is a commonly used self-report form that measures both the grade of depression and the change in depression (Beck et al., 1961). The self report questionnaire consists of 21 items that reflect symptom of depression and attitudes.

For example, symptoms and attitudes such as depression, pessimism, feelings of failure, lack of satisfaction, feelings of guilt, punishment, and suicidal thoughts are being addressed. For every item there is an answer alternative that represents growing grade of depression (0-3). When the test is scored, a value of 0 to 3 is assigned for each answer. Thereafter, the total score is compared to test key to determine severity. The standard cut-offs are as follows: 0–9 indicates minimal depression (no depression), 10–18 indicates mild depression, 19–29 indicates moderate depression and 30–63 points indicate severe depression. BDI has in several studies shown to have a good reliability and validity (Beck, Steer & Garbin, 1988).

Quality of Life Inventory (QOLI) is a self-report questionnaire that has been developed to measure the subjective experienced quality of life (Frisch et al., 1992). The questionnaire has 16 different areas of life of which only the ones of importance to the person answering are taken into an account. When answering, the idea is to value both how important the area is to oneself and how satisfied he or she is with that specific area of life. QOLI has been translated and validated in Sweden with good results (Paumovic & Öst, 2004).

In addition, the clients' experiences were addressed by giving them a feedback form to fill in right after the last session, as well as, at the follow up that took place three months after. The following questions were asked: 1) How satisfied the participants were with the course curriculum, 2) How well they completed their homework, 3) How satisfied they were with to be given homework, 4) How satisfied they were with *how* homework was done, 5) To which extend they had after the ACT group lessened avoidance of difficult things to do or think, 5) To which extend they had experienced positive changes in reactions to experienced stress, 6) To which extend they had improved mindfulness skills as a parent, 7) To which extend they had improved acceptance skills in difficult parenting situations, 8) To which extend they had increased awareness of their core values, 9) To which extend they had more acceptance for things out of one's control, 10) To which extend they had taken steps towards their chosen values, 11) To which extend they had started doing more of things that increase their quality of life, and at last 12) How well the ACT intervention met up to their expectations. The participants were asked to rate their experience with the 5-point Lickert Scale where 1= not at all, 2= in a little extent, 3= somewhat, 4= much or in a great extend, and 5= very much or in a very great extent. To make the presentation of results clearer, these five points were later grouped so that 1-2= not at all or in a little extent, 3= somewhat, 4-5= much or very much; in a great or very great extent.

Data-analysis

Within group differences were analyzed by using the Friedman test. The Friedman test is a non-parametric test that is used to test the same sample of subjects three or more times, under different conditions. In this case, pre, post and follow-up measurement was done in order to study whether an eventual change occurs during and after the ACT intervention. The Wilcoxon test for paired samples is the non-parametric equivalent of the paired samples t-test. It was used to compare the differences between measurements to find out more precisely whether the change occurred during the treatment or during the follow-up period. Furthermore, the Spearman's nonparametric test of correlation was used to uncover whether there would be a relationship between the different measures used to evaluate psychological well-being. The Spearman's test measures statistical dependence between two variables. All statistical methods used were conducted with SPSS, version 15.0.

RESULTS

The results of the Friedman test showed an increase in mindfulness skills during the intervention. From the pre- intervention to 3 month follow up were statistically significant changes in mindfulness skills obtained, $\chi^2(2, n=9) = 9.55, p < 0.05$. Assessment of the mean values showed a continuous increase in MAAS scores (higher scores reflect increased mindfulness) from pre-intervention (Mean=3.4) to post intervention (Mean=4.1) and to further increase at follow-up (Mean=4.4). The Table III at p. 27 shows the pre, post and 3-mth follow-up measurement mean scores and standard deviations by group. When further analyzed with the Wilcoxin test, it was revealed that the statistically significant change occurred in between pre and post measurement, $z(2, n=9) = -2, 31, p < 0.05$. This indicates that the increase in the mindfulness skills occurred mainly during the ACT intervention. The trend is that the participants' skills in mindfulness continued to increase after the treatment (from the Mean of 4.1 to 4.4); however, this finding was not statistically significant.

The results of the Friedman test indicated that there were statistically significant differences in the psychological flexibility measured by AAQ II scores across the three time points (pre-intervention, post intervention and 3 month follow up), $\chi^2(2, n=9) = 7.94, p < 0.05$ (Table III). Supplementary inspection of the Mean scores showed a continuous decrease in AAQ II scores (note: lower scores reflect increased psychological flexibility) from pre- intervention (Mean=21.1) to post intervention (Mean=16.8) and to further decrease at follow-up (Mean=14.3). However, when the intervention period and follow up period was analyzed separately with the Wilcoxin test, the change in between pre and post measurement was $z(2, n=9) = -1, 72, p = .085$, and in between post and follow-up measurement $z(2, n=9) = -1, 87, p = .062$. The results show that there was a trend that the psychological flexibility of mothers participating in the ACT-group increased during the intervention, and after the intervention. There were, however, certain participants ($n = 3, 6, 8$) that already at pre measurement showed to have good psychological flexibility with AAQ score less than 15 (see table IV, p.28). When these persons were excluded from the Wilcoxin test, the change became statistically significant in between pre and post measurement, $z(2, n=6) = -2, 21, p < 0.05$. Thus, the purpose of this further analysis was to reveal that a greater change in psychological

flexibility measures occur with participants that have lower flexibility skills to begin with, and that then these changes occur already during the intervention.

Table III. Pre, post and 3-mth follow-up measurement mean score and standard deviations in the ACT group.

Measurement (n=9)	Pre	Post	3-mth Follow-up
MAAS	3.4 (0.94)	4.1 (0.70)	4.4 (0.76)
AAQII	21 (11.35)	16.8 (6.61)	14.3 (7.93)
BDI	13 (8.04)	9 (4.44)	6.8 (5.40)
QOLI	1.3 (1.56)	1.5 (1.14)	1.6 (1.25)

MAAS; higher scores reflect higher levels of dispositional mindfulness. AAQ; lower scores reflect increased psychological flexibility and greater acceptance skills. BDI; scores above 9 indicate depression. QOLI; higher scores reflect greater quality of life measure.

Before the onset of ACT intervention, 6/9 participants were depressed according to their scores on Beck's Depression Inventory. 5/9 were mildly to moderately depressed, and 1/9 moderately to severely depressed, with the DBI score of 34 (For more details, see Table IV). 3 subjects scored under the cut-off score of 9 in BDI. The Friedman test depicted a statistically significant decline in depression at the group level, measured by BDI scores across the three times points, $\chi^2(2, n=9) = 7.94, p < 0.05$. The consideration of mean scores revealed an incessant decrease in BDI scores from pre- intervention (Mean=13.0) to post intervention (Mean=9.0) and to further decrease at follow-up (Mean=6.8). However, when the Wilcoxin test was used to find out when the change occurs, no statistically significant results were established. However, as mentioned earlier, 3/9 subjects were not depressed during the pre measurement. When the not depressed subjects were removed from the Wilcoxin test, a statistically significant result was able to be obtained, concerning time from pre intervention to post intervention, $z(2, n=6) = -2.21, p < 0.05$. There was a trend of a significant change $z = -1.89, p = .058$ from the post intervention to follow up measurement.

Table IV: Detailed information of client pre-, post- and 3-mth follow-up measurement mean score.

Subject nr	MAAS Pre	MAAS Post	MAAS Follup	AAQ- Pre	AAQ- Post	AAQ- Follup	BDI- Pre	BDI- Post	BDI- Follup	QOLI- Pre	QOLI- Post	QOLI Follup
1	2.3	3.4	3.8	40	19	23	31	8	6	-1.9	0.2	0.6
2	2.9	3.8	3.3	24	18	14	12	7	8	1.4	1.1	1.8
3	3.1	4.6	5.4	9	10	6	7	7	2	2.1	2.0	3.6
4	2.9	3.2	3.9	34	30	30	15	14	7	0.1	0.7	0.6
5	4.3	5.2	5.3	17	10	7	3	1	2	1.8	2.9	2.0
6	5.4	4.9	5.3	6	10	8	7	14	19	3.0	2.1	1.1
7	3.5	4.3	4.2	18	15	11	12	6	5	2.9	3.3	3.7
8	3.8	3.9	4.3	14	17	13	13	10	2	2.1	0.2	1.0
9	2.8	3.5	3.9	28	22	17	17	14	10	0.3	0.8	0.4
Mean	3.4	4.1	4.4	21	16.8	14.3	13	9	6.8	1.3	1.5	1.6

** Note: Lower AAQ II scores reflect greater psychological flexibility*

The Table IV presents the pre- post and 3 month follow-up measurement mean scores by all subjects in the ACT treatment group. It is noteworthy that the Table IV shows that 8/9 mothers experienced an increase in mindfulness skills, and that *all* participants showed an increase in their

psychological flexibility. Of the mothers that were mildly, moderately or severely depressed, *all* showed decline in BDI scores. In one case, the decline was from being severely depressed (pre intervention BDI = 31) to not being depressed at all (post BDI = 8 and follow up BDI = 6). Furthermore, it is of interest that one of the subjects, case number 6, had become depressed during the intervention and experienced decline even in the experienced quality of life. Further analysis revealed that the case number 6 was most unsatisfied with life areas concerning health. In addition, the greatest decline in depression levels appeared with those participants who were most depressed (from 31 points to 6; from 17 to 10; from 15 to 7).

There were no statistically significant changes in the Quality of Life scores measured by QOLI. However, when the mean scores were observed could a tendency towards an increase in the experienced quality of life be seen from pre- intervention (Mean=1.3) to post intervention (Mean=1.5) and further increase at follow-up (Mean=1.6). When the individual cases are taken into account, it shows that 7/9 subjects got better quality of life scores at post measurement. However, in two cases, the quality of life scores had declined.

We expected that an increase in flexibility and mindfulness skills will be associated with larger change in depression and quality of life. The Spearman's nonparametric test of correlation was used to study correlations between score changes from pre-intervention to follow-up in different client measures concerning mindfulness, psychological flexibility, depression and quality of life. Correlations are presented in the Table V.

Table V. Correlations between score changes from pre-intervention to post measurement in between different client measures (MAAS, AAQ II, BDI, QOLI)

	MAAS change	AAQ II change	BDI change	QOLI
MAAS change	1	-.59*	-.30	.52
AAQ II change	-.59*	1	.57	-.83**
BDI change	-.30	.58	1	-.31
QOLI change	.52	-.83**	-.31	1

** Correlation is significant at the .01 level

* Correlation is significant at the .05 level.

The results show that a change in psychological flexibility correlates significantly with a change in mindfulness $r = -.59$ ($n=9$, $p < 0.05$) in between pre-intervention and post-intervention measurements. The changes in Quality of life measures correlate with the changes in psychological flexibility at .01 significance level, $r = -.83$ ($n=9$, $p < .001$). The negative correlations are due to scoring in between AAQ II and QOLI, that is; a decline in AAQ scores indicate greater psychological flexibility, whereas it is the increase in QOLI scores that indicate a better quality of life. There were no other measures that correlated in a significant level with one another in between pre and post measurements. However, it was quite close to a statistically significant correlation in between psychological flexibility (AAQ II) and depression (BDI), $p = .57$.

The results show that a change in mindfulness is correlated at significant level with quality of life measures $r = -.67$ ($n=9$, $p < 0.05$) in between pre-intervention and 3-mth follow up measures. The Table VI shows correlations between score changes from pre-intervention to 3-mth follow-up measurement in different client measures

Table VI. Correlations between score changes from pre-intervention to 3-mth follow-up measurement in between different client measures (MAAS, AAQ II, BDI, QOLI).

	MAAS change	AAQ II change	BDI change	QOLI
MAAS change	1	-.47	-.40	.67*
AAQ II change	-.40	1	.29	-.44
BDI change	-.30	.29	1	-.42
QOLI change	.67*	-.44	-.42	1

** Correlation is significant at the .01 level * Correlation is significant at the .05 level.

The clients filled in course evaluations directly after the last session and 3 months after, during the booster session. See Table VII.

Table VII. Course evaluations direct after (Post) and at 3 month follow-up rated by 5-point Likert-scale. Frequencies of answers are presented.

	Measurement (n=9)	Post1	Post 1	Post1	Follup2	Follup2	Follup2
	Scale *	1-2	3	4-5	1-2	3	4-5
1.	Satisfaction with the entire course	-	-	9			9
2.	Satisfaction course curriculum	-	1	8			9
3.	Completed homework	2	5	2	1	3	5
4.	Satisfaction with to be given homework		2	7		1	8
5.	Satisfaction with <i>how</i> homework was done	3	5	2	2	4	3
6.	Positive changes in reactions to experienced stress	-	-	9			9
7.	Lessened avoidance of difficult things to do or think	2	2	5	2		7
8.	Improved mindfulness skills as a parent	-	-	9			9
9.	Improved acceptance skills in difficult parenting situations	-	1	8			9
10.	Increased awareness of core values	3	1	5		2	7
11.	Improved acceptance of things out of one's control	-	4	5		2	7
12.	Taken steps towards the chosen values	-	2	7		3	6
13.	Started doing more of things that increase the quality of life	-	1	8		2	7
14.	Satisfaction in how the course met up to ones expectations	-	-	9		1	8
Total	122	10	24	88	5	18	103

*1-2= not at all or in a little extent, 3= somewhat, 4-5= much or very much; in a great or very great extent

The course evaluations show that participants were very satisfied with the ACT intervention. 9/9 participants were much or very much satisfied with the course. All participants reported in great or very great extent improved mindfulness skills *as a parent*. At the 3-mth follow up, *all (9/9)* mothers reported besides having improved acceptance skills in difficult parenting situations. Furthermore, 9/9 report having experienced much or very much positive changes in their reactions to stress, both direct after the treatment and at 3-mth follow-up. The work with committed action shows result already during the treatment as at post evaluations 7/9 point out that they have taken steps (action) in great or very great extent towards their chosen values. 5/9 at post evaluation and 7/9 at 3-mth follow-up described in great or very great extent more acceptance toward things that are out of their control. 8/9 at post evaluation and 7/9 at follow-up had much or very much started also doing more of things that increase their quality of life.

Most variation in client answers direct after the completed intervention were in regards to avoidance of difficult thoughts, feelings and things to do as well as increased awareness of core values. During the post evaluation 3/9 experienced that they had in a little extent experienced less avoidance or increased awareness of core values. However, this was changed during the follow-up evaluation when 7/9 felt that they in a great or very great extent avoid less of difficult thoughts or activities, and 7/9 in a great or very great extent experienced an increase in awareness of one's' core values. In both cases 2/9 thought this had happened somewhat, thus no one thought that they had been no change at all. Somewhat variation was found also in regard to homework, both in how the participants experienced being given homework and in their subjective evaluation on *how* well they had completed the homework. Interestingly, participants were at 3-mth follow-up more satisfied with their level of completing homework, with *how* they completed the homework and regarding their opinion on having to do homework. At the end of the post evaluation form the participants were asked to give free comments on if and how the ACT intervention has changed their way of interacting/meeting with their child. 8/9 participants experienced that knowledge of ACT during the intervention had had an effect on how they relate to their child with an Autism Spectrum Disorder.

The following comments were given by the mothers (note: translated by the author from Swedish to English) as an answer to a question “Has the ACT intervention had an effect on your relationship to your child with a diagnosis with the autism spectrum?”

- *Through that I now better accept my feelings, I am able to be more mindful and really there in the moment with her. I have more patience.*
- *I have got new skills that help me to relate to all this shit and my own bad consciousness. I have learned to relate to my thoughts in a new way.*
- *Absolutely a positive experience! I have acceptance for behavior...*
- *I see now my child as what he is, an individual, not just the diagnosis.*
- *I have done good progress in accepting things and situations as they are. I see my child's positive characteristics now- and they are so many!*
- *It's been important to be able to break down the negative cycles and create better habits instead.*
- *I can work with acceptance.*
- *I have after the ACT course more patience; don't become as angry at him anymore.*

Furthermore, the participants were asked if they would recommend this kind of ACT intervention to other mothers in similar situations and why. 9/9 mothers would recommend this kind of intervention to other mothers, even to fathers. The following comments describe why the participants would recommend the intervention.

- *All the mothers- with and without children with diagnoses should learn what ACT is all about. Even this mindfulness is very important to everybody. It gives a fantastic tool for one's positive development, and is a good thought awakener. One gets a sort of calm and insight.*
- *This kind of course gives one many new thoughts and even new tools to work with.*

- *ACT gave me a chance to turn the spiral upwards!*
- *I would recommend this course to everyone with or without children with disabilities. I think everyone would feel better of being more mindful in all moments of life. That way your life does not become as difficult.*
- *I have much to say on this, would love to do it again, with more time in hands. A super course! Thank you!*
- *I don't anymore want to change everything all the time. I have become better at accepting things as they are. I am more mindful.*
- *The best is that I don't feel as alone with my thoughts and worries anymore. It was good to get opportunities and practical tools to sort out and prioritize one's feelings and values.*
- *It has been a positive thing to hear other mothers tell about their relationships and experiences with their children with autism.*
- *I think we should have ACT courses because many parents are in similar situations as I am, and have a lot of stress in their lives. It is wonderful to be able to meet others in similar situations, exchange experiences and share with others who have it like I do.*
- *I feel much better after this course!*
- *If anything, I would wish that even fathers would be able to take a course like this.*

DISCUSSION

The main goal of this study was to determine whether a 14-hour ACT group has a positive effect on the psychological well-being of mothers raising a child diagnosed with an Autism Spectrum Disorder. Psychological well-being was defined by greater psychological flexibility and mindfulness skills, no depression as well as satisfaction with experienced quality of life. As hypothesized, ACT is an effective intervention influencing psychological well-being. In the current study both mindfulness and psychological flexibility increased during the course of the intervention whereas depression declined whose depressed participants. These changes showed statistic significance. No statistically significant change was found in the quality of life measures. However, when the Mean scores were observed, there was a tendency towards a positive change in the quality of life scores as well. There was a correlation in between increase of psychological flexibility and mindfulness from pre-intervention to post intervention. The changes in quality of life correlated as well with the psychological flexibility measures. If the whole intervention time, from pre measurement of follow-up, is considered, the change in mindfulness correlated with the change in the quality of life measures. Furthermore, the post intervention and follow-up course evaluations showed that the participants were very satisfied with the ACT intervention, and felt that they increasingly used the ACT methods, such as mindfulness and acceptance, in everyday life situations. Moreover, some of the participants reported that they could see a positive change in their child's problem behaviors, which they give credit to ACT intervention and the alterations in their set to relate to themselves and their behavior.

The results show that mindfulness increases most during the intervention time. The findings from post and follow up course evaluations support this finding as 9/9 participants report having improved mindfulness skills as a parent in great or very great extend. Furthermore, in their free comments, mothers stated being "more in the moment with their child" and "being more mindful, seeing the child in that given moment".

When it comes to psychological flexibility, a statistically significant change in psychological flexibility occurred during the treatment from pre to follow-up. These positive changes could not be more specifically localized to a specific time of the treatment which can be due to low sample size. The client feedback during the post and follow-up measurements support this finding. Participants

reported having positive changes in reactions to stress, less avoidance of difficult things to do or think, improved acceptance skills in difficult and parenting situations and improved acceptance of things out of one's control. At the same time, the participants felt that after the ACT intervention they had started doing more of things that increase their quality of life. 8/9 participants stated that their acceptance skills in difficult parenting situations had increased in great or in very great extent. In free comments, one of the participants explained this by saying "I accept my child more as an individual now". These results regarding psychological flexibility match well with the aim of ACT treatment in general (Hayes, 1999; Harris, 2009). These results support even earlier research done in the field of ACT as an intervention for parents in challenging situations. Blackledge & Hayes (2006) found that ACT led to improved mental health in parents of children with autism, e.g., psychological flexibility was increased as well as significant pre- and follow up improvements were observed in BDI. Even Creco & Hayes (2008) discussed the effectiveness of ACT interventions in challenging parenting situations and concluded that ACT provides the framework from which parents can obtain cognitive defusion and define their values, both predictors of good mental health.

The sample in this study represented a non-clinical group of mothers, not mothers with depression diagnosis. As previous studies have indicated (e.g., Ohlsson, 2008; Singer, 2006), parents to children with Autism Spectrum Disorders, do suffer of depression in greater extent than parents to children without ASD, and therefore, do not represent a normal population in that sense. This is evident even in this study, as of the 9 participants, 6 were mildly to moderately depressed during the pre measurement, completed one week before the first session. One of them was even severely depressed. The current ACT intervention can be considered effective in reducing depression levels as by the post measurement and 3-month follow-up, only 1/6 participants remained mildly depressed, with the score of only 10, that is precisely on the cut-off score for mild depression (10-18=mild depression/BDI). However, one participant that was not previously depressed became depressed during the course of the intervention. The same subject reported in the Quality of Life inventory several domains such as health which can be speculated to stand behind the change in mood. The largest differences in depression levels appeared with those participants who were most depressed. Moreover, in this study, the participant that was most severely depressed during the pre-measurement had initially the lowest mindfulness score and showed least psychological flexibility of all participants during the pre measurement. In the individual level, her changes were the greatest in regards to increase in mindfulness and psychological flexibility as well as decline in depression. It is also noteworthy, even if only a question of one person, that with such

a short intervention, the client's well-being can improved such a dramatic way. Naturally, not much change was seen in BDI scores of participants who were not depressed during the pre-measurement. This finding also supports the earlier findings in the field. ACT is an effective treatment against depression (Zettle, 2007).

The fact that there were no statistically significant differences in the quality of life measures in between pre, post and follow-up measurements can indicate that some of these measures take time to change, even if steps towards chosen values are being taken. For example, if one is to value a good economic status and education and is unsatisfied with that area of life, the positive change can take a good while. In other words, it is reasonable to assume that quality of life as an entity takes longer time to change than e.g., psychological flexibility or mindfulness skills. This was even observed by Zettle and Hayes (1986) who found that psychological flexibility changed before outcome variables changed. It can also be speculated that with a greater sample size statistically significant results could have been obtained. There was, after all, a tendency towards a positive change as 7/9 got better scores on QOLI in the 3 month follow-up measure. In addition, in the post and follow-up course evaluations 8/9 felt that they in a great or very great extend had taken steps towards the chosen values in life and started doing more of things that had increased their quality of life.

The results suggest that there is a relationship between several measures used in this study. The changes in mindfulness correlated with the changes in psychological flexibility, and the changes in the quality of life correlated with changes psychological flexibility during the treatment. This gives reason to believe that when changes in psychological flexibility occur, comes about even changes in quality of life and mindfulness as well. The quality of life was, however, the only measure that correlated with the change in mindfulness when the time from pre measurement to follow up was taken into the consideration. Even if the depression scores did not correlate significantly with either the change in mindfulness or psychological flexibility during the treatment, a result that was quite close to a statistical significance was obtained ($p=.57$). It can be speculated that this is to do with the small number of subjects and the fact that not all the subjects were depressed. If one takes a closer look at individual scores of those being depressed at pre intervention measurement, *all* showed to have higher mindfulness skills and greater psychological flexibility at 3-month follow-up measurement. This indicates that increases in these measures could with a greater sample size be associated with decline in depression levels.

There are limitations to this study due to small sample size and the unfortunate drop out of control group. While the changes in psychological flexibility, mindfulness and levels of depression are in the expected direction, this evaluation consisted of a small number of participants which were followed a relatively short period time, thus, setting limits to its reliability. The small number of participants also made it impossible to statistically analyze more in depth the mediators and moderators of change and their relationships. To prevent future drop out of a waiting-list group, it is recommended that the first pre-measurement is done before randomly assigning the participants into the experimental or waiting-list group. It is the writer's assumption that the disappointment in having to wait until fall to receive the ACT intervention had a negative effect on motivation to fill in the self-report forms. What also can be considered as a limitation to this study is the fact that all participating mothers formed a quite a homogenous group, all being higher educated (studies at university level), married, Swedish, a little older (in between 37-41 years of age) working mothers.). It can be speculated if these mothers represent a majority of mothers raising a child with ASD. Would the same results been obtained if the group had had younger and less educated mothers or immigrants? This could be even considered a challenge for the Autism centre; how to get the mothers from different backgrounds to attend an ACT intervention. To conclude, it is to be considered that there were social gains that these mothers received after the treatment that had not direct to do with the treatment. Namely, the participants formed privately an informal group and started meeting regularly. This could have facilitated the decline at least in depression as this kind of network can be seen as a form of behavior activation. Behavior activation and availability of a social network have in previous studies proven to be effective in assisting decline in depression levels (Martell, Dimidjian & Hermann-Dunn, 2010).

In the future, the ACT intervention for parents to children with ASD should be modified to include more of specific techniques addressing the needs of parents. ACT at work in its original form was developed for the purpose of meeting the needs of stressed employees at a work place (Livheim, 2007; Bond & Hayes, 2002). Even if the psychologists delivering this intervention already changed some of the agenda, for example included "The Child's Time" as a mindful parenting exercise, further alterations should be done. The concept of mindful parenting should be discussed in greater extend. In addition, instead of just stress, both stress and depression in the framework of parenting a challenging child should be taken into the agenda. More time should be spent on "Life compass" work with the core values as well as with the possible barriers. It often is the parenting of the child with special needs that creates those barriers for living a life according to

one's values. To conclude, it is also to be recommended that in the future interventions of this kind, the participants receive ACT literature before the start of the intervention, e.g., Hayes & Smith (2008) "Get out of your mind and into your life" or Coyne & Murrels (2009) "The joy of parenting. An Acceptance & Commitment Therapy Guide to effective parenting in the yearly years".

The results in this study are only preliminary and need to be replicated in order to get better knowledge of the short-term ACT interventions and their effect on well-being of mothers to children with ASD. However, this study along with other similar studies completed in this field (Blackledge & Hayes, 2006) give reason to believe that these kind of brief interventions may have great effects on parental well-being. Further studies should be of more sufficient size, and include a control group. It would be of interest to repeat a study similar to current one at the Autism centre (where the current study was done) with a control group design and with several ACT groups to get data over a longer period of time. Furthermore, as homework is central in this intervention, it would be of interest in the future research to find out whether the quantity and quality of homework done affects the treatment outcomes. It is the observation of the psychologists' delivering this intervention that those completing their homework got most psychological gains from the intervention.

The current support available for the parents to children with ASD include e.g., parent training based on behavior change techniques. In the future, more attention should be given to parents emotional needs (Mungo et al., 2007; Koegel et al., 1992). This may contribute even to the effectiveness of traditional parent training as higher levels of parenting stress have been associated with poorer outcomes in child-based (teaching) interventions (Osborne et al., 2007). According to post and follow-up course evaluations, the mothers in this study report positive effects in their parenting after the ACT course. Thus, ACT as an intervention not only seems to contribute to the well-being of mothers but may have a positive effect on children as well. According to Brown & Ryan (2003) better mindfulness skills may help the person (in this case, parent) to create an interval of time or gap wherein one is able to view one's mental landscape, including possible options for behavior, rather than simply reacting to events. This may be an important consideration in parenting, thus, more "in-tune" parenting allows one to choose just right behavioral options in regards to the given moment and context. This view is supported by research conducted by Singh et al. (2006), who found that mindful parenting decreases aggression, non-compliance and self-injury in children with autism. It would be an interesting area of future research to study more in depth the effects of an ACT intervention on the well-being of the child with ASD or other special needs.

Furthermore, a comparison study that weighed an ACT type of parenting intervention against more traditional type of parenting programs. Perhaps a combination of the two approaches would create a parenting intervention that would be superior to others by addressing several issues at the same time.

To summarize, the current study evaluated the effects of a 4-session ACT intervention. The participants in this study were mothers raising a child with an Autism Spectrum Disorder. The results obtained show that a short ACT intervention can have many positive changes regarding mothers' psychological well-being as well as overt behaviors. Their capability of being here and now, mindfully present in this moment, increased at the same time as they became psychologically more flexible, meaning that they were able to let go the control agenda, accept their thoughts and feelings, meet face to face even uncomfortable situations and thoughts as well as defuse themselves from their conceptualized self. Furthermore, according to post and follow-up feedback, the participants became more aware of what matters in life and started doing things that move them towards these values. This process had, in addition to increase in mindfulness and psychological flexibility, even an effect on depression. Depression declined in participants that were depressed to begin with. The quality of life the participants experienced showed a tendency towards positive change; however, there the time frame of approximately 3 months was probably too short to show significant changes. This study confirms the earlier findings on this field concerning ACT as an effective, short-term intervention that is helpful in creating richer and more meaningful lives while accepting that there is always going to be some suffering in life. ACT attacks the two core psychological processes of cognitive fusion and experiential avoidance, and through its powerful methods reduce psychological suffering.

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APPENDIX

- 1.** Acceptance Action Questionnaire modified (AAQmod)
- 2.** The Mindfulness Awareness Attention Scale (MAAS)
- 3.** Becks Depression Inventory (BDI)
- 4.** Quality of Life Inventory (QOLI)