

Master Thesis

The Development of Psychological Flexibility in Chronic Pain Patients during Acceptance and Commitment Therapy

*How do acceptance, values-based action and application of learned principles
develop during an eight-week inpatient treatment in five patients?*



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ABSTRACT

Background. Chronic pain is remarkably common. It causes problems for both the suffering individual and society. Common treatments, like pharmacological treatment, do not always help when it comes to chronic pain. The pain cannot be managed anymore and the experience of pain cannot be avoided. In fact, persistent attempts to avoid the pain can lead to maintenance and often even an increase in pain. Therefore, Acceptance and Commitment Therapy (ACT) does not lean on pain control, but on a valuable life *with* pain and limitations. ACT aims to increase psychological flexibility.

Aims. In this study, the aim was to examine the development of pain patients during an eight-week, ACT-based treatment. We wanted to take a closer look at the development of acceptance, values-based action and application of learned principles during this treatment to see how psychological flexibility develops. Another subject was to examine if patients experience a crisis during the treatment, as often seen by therapists.

Method. Five intensive single case studies were conducted to get a better understanding of how ACT works. The participants were chronic pain patients who took part in a three days a week inpatient treatment in the Roessingh Rehabilitation Center in the Netherlands. Starting in the second treatment week, interviews were conducted weekly during the eight treatment weeks. The interviews were taken accordingly to an interview scheme, with open questions. Follow up interviews were taken six weeks after the last treatment week. The interviews were scored on acceptance, values-based action and application on a scale from 1 to 5. The average of the three scales taken together was taken as measure for psychological flexibility.

Results. A positive development in psychological flexibility and all three subscales has been found for all five patients. Each patient progressed in a unique pattern, each development being different from the other. Three of the five patients went through a 'crisis' during treatment, all at different moments. The crisis had a positive impact on the end result. Within four patients, psychological flexibility decreased in the follow-up interview compared to the interview in the last treatment week.

Conclusions. There has been found evidence that an eight-week ACT-based treatment helped patients to better accept their pain and pain-related limitations, to act upon their values and to integrate the principles they had learned during the treatment in their daily lives. The ACT treatment seems to be able to realize the aim to increase the psychological development of the patients. Thereby, every patient showed his own unique pattern of development.

SAMENVATTING

Achtergrond. Chronische pijn komt veel voor. Het veroorzaakt problemen voor zowel degene die eraan lijdt, als ook voor de maatschappij. Gebruikelijke behandelingen, zoals farmacologische behandelingen, helpen niet altijd bij chronische pijn. De pijn kan niet beheerst worden en het voelen van pijnprikkels kan niet meer worden voorkomen. Het is zelfs zo dat constante pogingen om de pijn te vermijden de pijn in stand houden of zelfs verergeren. Acceptance and Commitment Therapy (ACT) is daarom niet gebaseerd op pijn beheersing, maar op een waardevol leven *met* pijn en de bijkomende beperkingen. Het hoofddoel van ACT is om de psychologische flexibiliteit te verhogen.

Doelen. Het doel in deze studie was het om de ontwikkeling van pijnpatiënten gedurende een achtweekse, op ACT gebaseerde behandeling in kaart te brengen. We wilden het verloop van acceptatie, op waarden gebaseerd gedrag en toepassing van geleerde principes tijdens de behandeling onderzoeken om de ontwikkeling van psychologische flexibiliteit te meten. Een tweede doel was het om te kijken of patiënten gedurende de behandeling een crisis ervaren, zoals vaak door behandelaars van het RRC wordt geobserveerd.

Methode. Er zijn vijf intensieve single case studies uitgevoerd om een beter begrip te verkrijgen over de werking van ACT. De proefpersonen waren chronische pijnpatiënten die deelnamen aan een semi-klinische behandeling in het revalidatiecentrum het Roessingh in Nederland. Vanaf de tweede behandelweek werden er wekelijks interviews afgenomen tijdens de achtweekse behandelingsperiode. De interviews waren gebaseerd op een interviewschema, bestaand uit open vragen. Follow up interviews werden zes weken na de laatste behandelweek afgenomen. De interviews werden op een vijfpuntsschaal op acceptatie, waarden gebaseerd gedrag en toepassing gescoord. Het gemiddelde van de drie schalen werd genomen als maat voor psychologische flexibiliteit.

Resultaten. Er werd een positieve ontwikkeling in psychologische flexibiliteit en de drie subschalen gevonden. Elk patiënt doorliep een eigen, unieke ontwikkeling; alle patiënten lieten verschillende ontwikkelingen zien. Drie van de vijf patiënten hadden een crisis tijdens hun behandeling, alle op een ander tijdstip. De crisis had een positief effect op het eindresultaat. Bij vier patiënten was de psychologische flexibiliteit in het follow-up interview lager dan bij het interview in de laatste behandelweek.

Conclusie. In deze studie is bewijs gevonden dat een achtweekse, op ACT gebaseerde behandeling de patiënten hielp om hun pijn en de bijkomende beperkingen beter te accepteren, meer naar hun waarden te handelen en de principes die zij tijdens de behandeling hadden geleerd in hun dagelijkse leven te integreren. De ACT behandeling in het Roessingh lijkt dus het doel, om de psychologische flexibiliteit van patiënten te verhogen, te bereiken. Daarbij liet ieder patiënt zijn of haar eigen, unieke ontwikkelingspatroon zien.

**TO MY SISTER FRAUKE, WHO IS GOING THROUGH TOUGH TIMES BUT STAYS
REMARKABLY STRONG.**

Chronic pain is extremely common (Blyth, March, & Cousins, 2003). It can have devastating effects like social isolation (Cowan, Kelly, Pasero, Covington, & Lidz, 1998) and shows a high comorbidity with psychiatric disorders (Ohayon, 2006). Additional to the personal problems, chronic pain reduces the capacity for work and thereby forms a financial stain on society (Van Tulder, Koes & Bouter, 1995). Conventional therapies such as behavioral procedures do not always help and the chronic pain patients keep suffering. Different from the more conventional therapies, which concentrate on reducing pain, Acceptance and Commitment Therapy (ACT) helps people to deal with their suffering by focusing on a valuable life *with* pain and limitations. This study will take a closer look at the development of chronic pain patients during an eight-week ACT treatment. But first of all, we will turn to the question: 'What exactly is chronic pain?'

Chronic pain. Almost everyone is familiar with some form of pain. Pain is probably the most universal of medical complaints (Malloy & Milling, 2010), as can be seen in the fact that in more than 50% of all doctor visits pain, is the reason for the consultation.

Pain is a broad term which can have many different manifestations. The International Association of the Study of Pain gives a definition: 'Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.' (IASP, 1986). This widely excepted definition does not only describe the physical nature of pain, but also takes into account that pain has a psychological aspect and is a subjective experience, as well.

There are different forms of pain. Pain is called acute when the duration is not longer than three to six months. But also a long-term disorder as migraine is described in terms of episodes of acute pain which come back on a regular basis. When the pain lasts longer than three to six months, it is described as chronic pain. Chronic pain can be differentiated into two forms: chronic benign pain (not associated with progressive illness) and chronic malignant pain (associated with progressive illness). So pain can have an organic cause, but often, there is lack of a clearly identifiable biomedical cause. Research has shown that the experience of pain is not only moderated by physical factors, but also by psychological factors. The degree of attention paid to the pain, the mood and personal beliefs about the nature of pain, including its cause and controllability, are important aspects that can have an impact on pain.

As unpleasant as pain might feel, it also has an important function: It warns us of potential damage to the body. Our reflex to pain is to pull away from its cause or try to reduce the pain. Pain can also be a signal to the onset of a disease. When we feel pain, we are likely to seek (medical) help. In the future, we try to avoid the situation that has caused us pain in the past. Although pain has survival benefits, when pain lasts for a long period, it is likely to cause long-term problems.

Prevalence. Chronic pain is remarkably common: About 20 % of the population has some degree of chronic pain (Blyth, March, & Cousins, 2003; Eriksen et al., 2003). For certain types of chronic pain, like lower back pain, the numbers are even larger. 50 % of the population complains of lower back pain in any one year (Louw, Morris, & Grimmer-Somers, 2007). Joint disorders, especially back and neck pain, are the most often occurring forms of chronic pain.

Breivik, Collett, Ventafridda, Cohen and Gallacher (2005) conducted a large-scale study on chronic pain in 15 European countries and Israel. 19 % of the respondents had suffered pain for six months.

Their pain intensity during the last episode of pain was on average 5 on a 10-point numeric rating scale. 59% had suffered pain from two up to 15 years. In the Netherlands, 17,4 % of the population suffers of back and neck pain longer than a year (Demyttenaere et al., 2007). But not only in Europe is chronic pain common. Chronic back and neck pain which lasts longer than a year varies from 9,7 % among Colombians up to 42,1 % among Ukrainians.

Causes. The causes of chronic pain are only partially understood. Neurophysiological studies point to a disruption of the central nervous system and increased sensitization (Gatchel, Peng, Peters, Fuchs & Turk, 2007). What is well known is that psychological factors play a role when pain becomes chronic and that they are sustaining factors of chronic pain. Psychological factors can be behavioral reactions to the pain, like avoidance of activity or the opposite reaction - an increasing activity level (Asmundson, Vlaeyen & Crombez, 2004; Hasenbring, Hallner, & Klasen, 2001). Both are pain coping strategies which can be helpful in acute pain, but are maladaptive in chronic pain. Furthermore, emotional reactions can influence the pain, like anxiety or anger about the pain. Social consequences and reactions from the environment can also affect the level and intensity of pain (Gatchel et al., 2007).

Impact. Chronic pain can have a large impact on the life of the person who suffers from it. Cowan, Kelly, Pasero, Covington and Lidz (1998) described this impact. The suffering person has to deal with the fact that often, pain that does not show, and with the fluctuating activity levels that come with pain. The individual with pain often shows unpredictable mood swings, a lack of interest and sometimes they doubt the reality of the pain. Chronic pain can mean a loss of job, friends and productivity and therefore often cause social isolation.

Chronic pain seriously affects the quality of the social and working life. 61 % of the respondents of a large study in European countries were less able or unable to work outside the house, 19 % had lost their job and 13% had changed their job because of their pain (Breivik et al., 2005). The quality of life is affected by the limitations that chronic pain brings along. Most of the patients sleep worse and are affected in their mobility and in the performing of household activities. Participation in social activities is constricted and 20% of the patients feel that they cannot fulfill their role as partner as they wish. In short, an independent lifestyle is often heavily constricted (Breivik et al., 2005).

Chronic pain is not only a strain for the affected individual but also for the society. It is a substantial contributor to costs of health care utilization and a major cause of disablement and work absenteeism. In the Netherlands, the costs of just chronic low back pain are estimated around € 4 billion per year. Most of the costs are due to the reduced capacity to work (Van Tulder, Koes & Bouter, 1995). Rehabilitation for chronic pain, on the other hand, has been proven to be effective not only for the individual, but also in terms of financial gain. Kok, Houlens & Nissen (2008) estimated that rehabilitation for chronic pain and fatigue yields € 33.000 of social benefits per patient.

Comorbidity. As described above, chronic pain can have devastating effects. An additional risk is the high comorbidity with psychiatric disorders, especially depression and anxiety disorder (Ohayon, 2006). The likelihood of developing a mood or anxiety disorder is twice as high for patients with chronic back and neck pain (Demyttenaere et al., 2007). One out of five patients with chronic pain

reports to also suffer from depression (Breivik et al., 2006). Chronic pain patients also have an increased chance of getting addicted to alcohol or other drugs (Demyttenaere et al., 2007). Impaired sleep quality is also common in people with pain (Ohayon, 2005). The relation is bi-directional; poor sleep exacerbates pain, while greater pain adversely affects sleep. Furthermore, sleep deprivation leads to increased sensitivity to pain (Lautenbacher, Kundermann & Krieg, 2006). Chronic fatigue complaints can often be seen in combination with chronic pain.

Raymond, Nielsen, Lavigne, Manzini and Choiniere (2001) investigated patients with burn injuries. They found that the subjective quality of sleep predicted pain intensity on the following day. There is also evidence that pain impairs sleep. Up to 55 % of the patients suffering from chronic pain, such as headache and musculoskeletal pain, also suffered from reduced sleep (Paiva, Farinha, Martins, Batista & Guilleminault, 1997; Roehrs & Roth, 2005). The bi-directional relation between poor sleep and increased pain was also found in younger adults (Brand, Gerber & Pühse, 2010). Children with persistent abdominal pain were considerably more likely to suffer from psychiatric disorders in adulthood (Hotopf, Carr, Mayou, Wadsworth & Wessely, 1998). Children with recurrent headaches have a risk of developing additional physical and mental problems when they are adults, like anxiety disorders and depression (Fearon & Hotopf, 2001). Fichtel and Larsson (2002) found that adolescents with frequent headaches had higher levels of anxiety or depressive symptoms, in addition to functional disability.

Treatment. There are two broad types of treatment against pain: pharmacological and non-pharmacological treatment. The first type, mainly painkilling medication, has a short-term effect. Non-pharmacological treatments can be physical treatments, like massage and physiotherapy, or can focus on psychological aspects of pain. There are a number of treatments that help people to cope with acute pain, which are relatively easy to learn and use. Most approaches to acute pain focus on increasing the patient's sense of control over the pain experience, teaching coping skills, like distraction and relaxation. Hypnosis has also proven to have a positive effect in reducing pain (Patterson & Jensen, 2003). Distraction has been shown to be considerably effective (Blount, Piira & Cohen, 2003). Typical distraction interventions are deep breathing, listening to soothing music, or watching a favorite video. The effect might be due to the fact that human have a finite attention. A distraction task that consumes some portion of those resources probably leaves less cognitive capacity available for processing pain (McCaul & Malott, 1984). But for people with chronic pain, both these treatments and medication have been shown to be only of short help.

Still, for the treatment of chronic pain, there are a number of possibilities. Some of them have a physiological approach, like biofeedback, others use a psychological approach. A variety of these psychological methods have been proven to be effective in reducing pain, including cognitive-behavioral procedures (Butler, Chapman, Forman, & Beck, 2006). This is in fact the most prominent treatment for chronic pain. Psychological treatment is so prominent, because there is often a lack of a clearly identifiable biomedical cause and the influence of psychological factors as sustaining factors of pain are well known. The treatment aims at teaching skills in pain control and pain management. Even though cognitive-behavioral treatments seem to have a positive effect, there is still room for improvement. The positive effect can be found mainly in the improvement on the patient's mood,

rather than in a reduction of the disabilities (Eccleston, Williams & Morley, 2009). There are also findings that not all patients profit from these treatments (Ostelo, van Tulder, Vlaeyen, Linton, Morley & Assendelft, 2005; Hoffman, Papas, Chatkoff & Kerns, 2007). Accordingly, some researchers argue that the current standard treatments have to be improved. Greater attention should be placed on therapeutic processes. Furthermore, they ask for a better selection of methods and processes which are known to produce improvements. Treatment integrity should also be considered (Eccleston, Williams, & Morley, 2009).

ACT. Within cognitive behavioral therapy (CBT), some approaches can be found that are attempting to meet these challenges. These include Acceptance and Commitment Therapy, abbreviated as ACT (Hayes, Strosahl, & Wilson, 1999). Accordingly, there seem to be a growing interest for acceptance oriented treatment strategies. Mindfulness Based Cognitive Therapy and ACT are among these treatments, which found wide recognition and acceptance over the last years (Hayes, Strosahl & Wilson, 1999), partly due to the mentioned short-comings of the other treatments. The theory behind acceptance oriented treatments is that suffering is a natural part of life. Therefore, suffering has to be accepted. This is especially relevant for the treatment of chronic pain, as chronic pain and the accompanied avoidance cause suffering.

ACT is a third generation behavioral therapy, based on insights from behavioral therapy, cognitive behavioral therapy and mindfulness-based therapies. As typical for third wave behaviour therapies, ACT aims at enhancing acceptance of negative experiences instead of reducing symptoms. The most crucial goal in ACT is the promotion of psychological flexibility, the ability to act effectively in accordance with personal values in the presence of negative private experiences (Hayes, Luoma, Bond, Masuda & Lillis, 2006). The central principle of ACT is that much of the suffering we experience is caused by attempts to avoid painful experiences and emotions. That makes ACT a powerful form of therapy for chronic pain. It lies in the nature and definition of chronic pain, that it is not possible to avoid the pain. Through the efforts to avoid the pain, the chronic pain is actually maintained or even worsens. To improve their functioning, it is necessary that patients give up these avoiding strategies and instead focus on the valuable things in their lives. Thereby, it is important that they regain the feeling that they can determine their lives instead of letting the pain control their lives. Here, the term agency is important.

Studies on pain coping showed that coping strategies, aimed at the acceptance of pain stimuli, lead to more pain tolerance and less suffering than strategies aimed at control of pain (e.g. Vowles et al., 2007; Masedo & Esteve, 2006). McCracken and Vowles (2010) examined the effectiveness of interventions for chronic pain patients that focus on acceptance of pain and showed that these interventions are promising. In their review, Vowles and Thompson (2011) showed that there are at least eleven trials that provide evidence for the effectiveness or efficacy of ACT for chronic pain. Most of these trials had a follow-up assessment, up to a seven month interval (Wicksell, Ahlqvist, Bring, Melin, & Olsson, 2008). These follow-up measures suggest good maintenance of treatment effects achieved in ACT. Veehof, Oskam, Schreurs and Bohlmeijer (2011), conducted a systematic review and meta-analysis of controlled and non-controlled studies reporting effects on mental and physical health of pain patients. They included 22 studies and found that acceptance-based therapies

have small to medium effects on mental and physical health in patients with chronic pain. The effects are comparable to effects of CGT. Accordingly, ACT can be a good alternative to CGT.

Although a great number of studies have been conducted on ACT and chronic pain, there are very few case-studies on this issue. This is a huge shortcoming in the research on ACT, as qualitative research is important to gain insights in the processes, the patients' experiences during therapy and insights in the content of the therapy, not only the effects. To our knowledge, there are only three studies with a qualitative approach so far. Luciano, Visdómine, Gutiérrez and Montesinos (2001) demonstrated that ACT leads to less pain, less avoidance responses and an emphasis of life values. Wicksell, Dahl, Magnusson and Olsson (2005) found improvements in valued activities, less pain and achievement of individual goals in an adolescent female. Psychological and behavioral improvements also have been found (Kleen & Jaspers, 2007).

ACT in the RRC. In the Netherlands, the pain clinic of the Roessingh rehabilitation center (RRC) was one of the first clinical settings that fully implemented ACT in 2007. Measures, comparing the effect sizes from the old treatment to the new ACT approach, show that the new program is more effective (Roessingh, n.d.). The implementation of ACT in inpatient group treatments decreased the impact of pain on the daily life and improved the degree to which the patients experience that they can cope with stress. These are also the aspects ACT focuses on. Interestingly, the intensity of the pain also decreased, even though this is not the aim of the program. It seems that the pain decreased because the patients reached more acceptance of their pain and focused more on the important aspects in their lives. On average, people who followed the program experienced that the pain got less intense and had less impact on their daily life after treatment. They were able to deal better with daily hassles and their mood improved. Therapists of the RRC often see that patients experience a relapse, some form of personal crisis, during the treatment. Interestingly, such a crisis often has a positive effect on the final outcome of the therapy.

The found effect sizes were medium to high. In follow-up measures three to six months after the end of the treatment, the effects were still substantial, but smaller. The program has become more effective with the years. Since the introduction of ACT in 2007, a clear improvement took place. Although not significant, these outcomes are promising.

Present study. Based on the literature, we can conclude that ACT is an effective way to treat chronic pain patients. However, the studies on that topic are mostly comparing differences before and after the treatment. Research on the development during treatment and the processes involved are missing. We know that ACT works, but what mechanisms are playing a role? Another aspect of great importance, which is missing in present research, is the patient's perspective. Therefore, it is yet unknown how the patients experience the ACT treatment, what they see as especially helpful and what they perceive as barriers. Although a great deal is known about the different factors of psychological flexibility, we don't know how these factors develop within patients in the course of time. Are there great individual differences in the development or is there a general pattern? Just these questions from the patient's side of view are important, but cannot be answered with the quantitative studies that have been conducted so far. Therefore, the purpose of the present study was to extend the results from current studies of ACT for chronic pain with a detailed case study of

five chronic pain patients, who attended an eight-week, ACT-based treatment. Three objectives were identified for assessing the individual development. The first was to assess the personal development of the patients and thereby the efficacy of the ACT treatment for them. Secondly, we wanted to investigate if the patients developed differently from each other, in their own, personal way, or if a general pattern could be found. The third objective was to find out if patients experienced a crisis during the treatment, as often observed by practitioners in the RRC.

Answers to these objectives can give valuable insights into the treatment processes, which can be used to further develop and optimize ACT, in a way that helps patients the most. Analyzing therapy stories can help to gain insight in the patient's experiences during therapy. This can help to get more insight in the realization of the intended ACT processes and therefore can help to improve weak points and get to know more about the mechanisms that took place. This research on the patient's point of view on the treatment can give new ideas and impulses in the treatment practice, especially in the RRC, but also in ACT treatments of people with chronic pain in general. Last, but not least, the interviews can also help the patients. As Adler and McAdams (2007) pointed out, when patients construct stories about their therapy experiences, it helps them to get better insight and understanding of the therapy and give them the feeling that their lives are more purposeful. It also helps to maintain the in the course of therapy achieved growth, when therapy had already stopped. In short, the aim of the study is to gain more insight in the vision and experience of the patients. To address the three objectives, we based our study on the method of Pablowski's (2010) and Middelinck's (2010) study. They examined the development of patients in the same treatment for chronic pain patients in the RRC by measuring agency. In the following part, we will explore if agency is a concept that can answer our research questions as well.

Agency. In research with similar objectives, the effects of treatments were often measured with agency. Pablowski (2010) and Middelinck (2010) based their research on a study of Adler and McAdams (2007), who used the concept of agency. They asked people about their therapy after it had ended, and scored the stories about the experiences people made during therapy. Within the therapy stories, it was found that people got more and more control on their lives (Adler & McAdams, 2007). This process is called agency. McAdams (1992) defined it as the existence of an organism as an individual. Related themes are self-mastery, victory, achievement, responsibility and empowerment. Self-mastery is linked to reaching strength and control. With victory, McAdams means the pursuit of achievement and a high status. Adler and McAdams (2007a) describe agency as overcoming a problem.

Agency is widely recognized as good means to conceptualize therapy success (Williams & Levitt, 2007), especially in narrative construction of psychotherapy. Agency is also an important indicator on positive psychological functioning within different psychotherapeutic traditions (Adler & McAdams, 2007). Adler and colleagues (2007) found that patients high on well-being and ego development emphasized their personal agency throughout their story.

However, when we look at ACT, agency is not an adequate concept for measuring its therapy success. ACT differs from regular therapies, like CBT, especially when it comes to the treatment of chronic pain. Instead of working with pain control to reduce the pain, patients learn to accept and

live with the pain. They cannot and should not overcome their pain, but instead learn to gain acceptance. In contrast, a heroic overcoming of one's problems lies at the basic of the Adler and McAdams' (2007) definition of agency. Of course, ACT aims to give back control to the patients instead of letting the pain control their lives. But ACT also implies that wanting to control the pain excessively causes suffering. Contrary to this principle, control is one of the core concepts of agency. Therefore, agency does not seem to fit well to the theory of ACT.

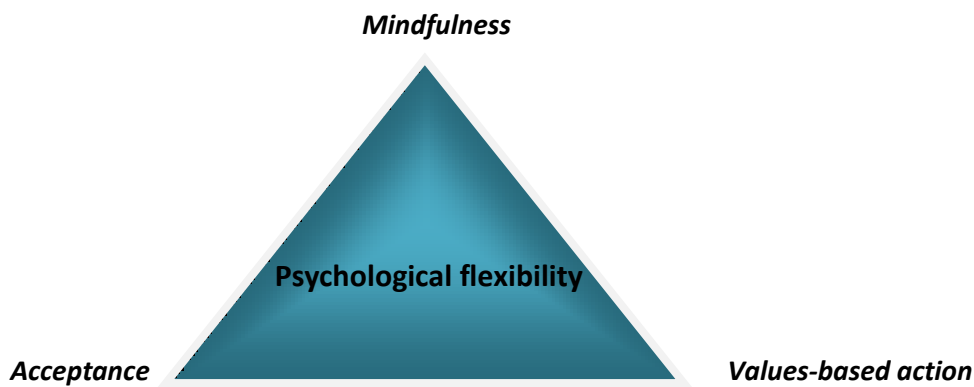
Furthermore, agency also isn't a good fit to our target group of chronic pain patients. The patients in Adler's and McAdams's (2007) study had problems which were possible to overcome. Chronic pain, on the opposite, is a problem that cannot be beaten. That shows that agency, as Adler and McAdams define it, is not a good measure for the therapy success of the target group of this study, as it is impossible for them to overcome their problem, which is chronic in nature. The participants in the study of Adler and McAdams (2007a) experienced problems that could be solved with therapy, like suffering of anxiety disorder or having problems with adjusting to a new environment after moving again to a different area. Unlike chronic pain, the disorders the participants had could be treated and the problems could be worked out. This is not true for the participants in our study, as their problem is of chronic nature. Accordingly, agency does not seem to be a correct measure for the aim of our study to examine the effectiveness of ACT, as it differs in some important points from the concepts of ACT and even contradicts it in some ways. Instead, we will look at the processes that underlie ACT.

Psychological flexibility. The ultimate goal within ACT is to strengthen the psychological flexibility, a theory-based and well integrated set of processes, which can be applied to chronic pain (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Psychological flexibility is defined as „the ability to contact the present moment more fully as a conscious human being, and to change or persist in behavior when doing so serves valued ends.“ Hayes, Luoma, Bond, Masuda & Lillis (2006) also describe it as the ability to act effectively in accordance with personal values in the presence of negative private experiences. McCracken and Velleman (2009) showed that by improving the psychological flexibility, the impact of chronic pain on the patient's life decreases. These positive outcomes seem to be mainly a result of the processes of acceptance and values-based action. These processes have been showed to be important for reducing suffering and disability arising from chronic pain in several studies.

In the beginning, ACT used to be represented in a hexaflex, with six processes of psychological flexibility. As the theory and practice of ACT developed with the years, it now is often represented as a triflex, with three core processes of psychological flexibility. These processes are acceptance, values-based action and mindfulness (Hayes et al., 2006). Figure 1 shows this ACT triflex (Harris, 2009). We have adapted the triflex at some points for a better understanding in this context. Harris called acceptance 'Open up', mindfulness 'Be present' and values based action 'Do what matters'.

Figure 1

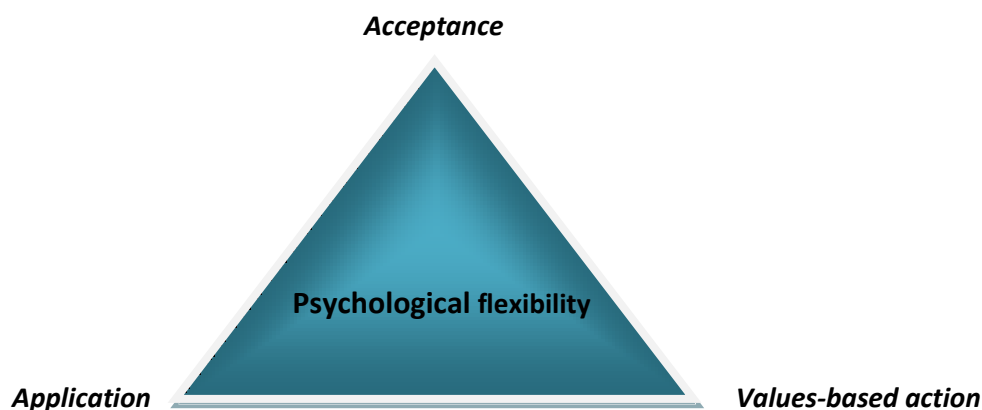
Harris' (2009) ACT triflex of psychological flexibility



Mindfulness is for this study of less importance. It is seen as an aspect of acceptance and as a technique which helps to perceive things in an accepting way, respectively. In the interviews, it was of importance to measure the application of the ACT principles in a practical way, to capture how participants deal with ACT in their daily lives. As this is not captured in the triflex, we adapted the triflex to this study. Figure 2 shows this altered triflex, where mindfulness has been replaced with application (of the learned principles).

Figure 2

The ACT triflex of psychological flexibility



The three subconcepts of the triflex are used to operationalize and thus being able to measure psychological flexibility and its development in this study.

Acceptance versus experiential avoidance. Avoidance is a common reaction to chronic pain. It can take countless forms, like avoiding work or social activities or the excessive use of alcohol, food or medication. This often helps on short term. In the long term, however, experiential avoidance tends to lead to frustration, life dissatisfaction and feelings of insignificance. Experiential avoidance can be described as the attempt to escape or avoid private events - emotions, memories and thoughts - even when the attempt to do so causes psychological harm (Hayes, Wilson, Gifford, Follette & Strosahl, 1996). Several studies have suggested acceptance strategies as an opposite strategy to

experiential avoidance, as they can help to restore functioning and quality of life for people with chronic pain (Keogh, Bond, Hanmer & Tilston, 2005; McCracken & Eccleston, 2005; Viane et al., 2003).

Acceptance is a part of a broader therapeutic process of changing influences on behavior. Methods aiming to reach these goals include prevent purposes from being dominated by experiences to avoid pain and pain related symptoms. Instead, the purpose should be to engage in an activity with openness. These different purposes seem to make a great difference to the social, physical and emotional functioning of people who suffer of chronic pain (Vowles, McCracken, McLeod & Eccleston, 2008). Acceptance has a key role in the well-being and daily functioning of people with chronic pain (Nicholas & Asghari, 2006; Viane et al, 2003) and a good quality of life (Mason, Mathias & Skevington, 2008). Even when acceptance is the only process that is worked on, positive resultants have been found. When patients are willing to experience pain and taking part in activities despite their pain, they are found to function in a healthier way (McCracken, Vowles & Eccleston, 2004a; McCracken & Eccleston, 2005; Viane et al., 2003). McCracken and Zhao-O'Brien (2010) point out that acceptance is important in a broader perspective, not only for the acceptance of pain. Therefore, we apply acceptance in a broader meaning in our scoring scheme.

Values-based action is also a process which plays an important role when it comes to the impact of chronic pain (McCracken & Vowles, 2008; McCracken & Yang, 2006). Hayes and colleagues (2006) define values as 'chosen qualities of purposive action that can never be obtained as an object but can be instantiated moment by moment'.

One of the processes of psychological flexibility is committed action. This process resembles our term application of the learned principles. Hayes and colleagues (2006) described the value of committed action. ACT encourages the development of larger patterns of action that have a positive effect for the patient. Concrete goals can be set and achieved. In the therapy, the patients get homework which aim to change behavior, also outside the safe therapy setting.

Research questions. Based on this background, we have four research questions. The main research question in this study is:

- How does psychological flexibility develop during an eight week long ACT-based pain-treatment at the Roessingh rehabilitation center within the pain patients? How do acceptance, values-based action and application develop? Can we conclude that ACT is effective for the participants?

We also want to know how the developmental courses of the five patients interact with each other. We wonder if their developmental show the same pattern at all:

- Is there a recurrent pattern or do the subjects develop differently, in their own, individual way?

We also want to find out if the experience of the therapist in the RRC can be found back in the scores:

- Is there a measurable relapse, a crisis, in the development of psychological flexibility? What is the influence of a possible crisis on the end-level of development?

Last, but not least, we want to look at content of the interviews to answer the following questions:

- How can the development of the participants be found back in their description of what they learned and experienced and the situations they describe? How do they describe their growth and experiences during therapy, as well as possible pitfalls and the progress they made?

Hypotheses. Based on the literature, the primary hypothesis is that there will be a positive development in psychological flexibility, given that ACT is directed to increase psychological flexibility. Accordingly, we expect that all three submeasures will be higher at the last measure. This expectation is based on the fact that the treatment aims to reach more acceptance, that is helps patients examine their values and how to base their actions on it and that it helps them to use the ACT principles in their daily lives.

Secondly, we expect that the individual development of the five subjects will differ from each other. We expect these differences because Middelink (2010) and Paplowski (2010) found that the patients developed in individual patterns, different from each other.

Thirdly, based on the experience of the therapist in the pain rehabilitation of the RRC, we expect that the majority of the participants will experience a crisis in their development of psychological flexibility and that they will finally end up at a higher level after the crisis, compared to the highest level before the crisis. Therapist often sees that patients have a low point, do not feel well, and sometimes even think about stopping the treatment, mostly in the middle of the treatment. When they overcome this crisis, they often had good results at the end of the treatment. No research has been conducted so far about this interesting pattern, other than the study by Middelink and Paplowski. We expect that this described crisis can be found back in the measures of psychological flexibility (and therefore in all of the three subscales).

Method

Participants

Five chronic pain patients that took part in an eight-week inpatient treatment in the pain revalidation of the RRC in Enschede, the Netherlands, participated in this study. The treatment took place internally every week from Wednesday till Friday. The participants were assigned tasks to do during the days they stayed home. The program was multidisciplinary; the patients were treated by a team of rehabilitation physicians, psychologists, social workers, physiotherapists, occupational therapists, sport therapists and creative therapists. The team worked with the protocol 'Leven met pijn' (Living with pain), based on ACT.

Five of the six patients in the approached group agreed to participate. Three of the patients were female, two were male. All five patients had the Dutch nationality. The age ranged from 19 to 47 years, with a mean age of 34,3 years (standard deviation 11,2). The diagnoses varied in duration and type. The ICD-9 (International Classification of Diseases) diagnoses were chronic fatigue syndrome, whiplash associated disorder, back pain (sciatica), fibromyalgia/myalgia not specified and low back pain (lumbago). For an overview, see table 1. All of the five patients were in a relationship. The sample was representative for chronic pain patients in the RRC. In the polyclinic treatment, the age

lies between the age of 18 and 70, with a mean age of 40 years. Fibromyalgia, back complaints and whiplash complaints are most common (Roessingh, n.d.).

Three of the participants participated in all of the eight interviews. One of the participants, patient E, experienced that the interviews were an additional burden on top of the general program and stopped after the third interview. She rejoined in the seventh and eighth interview. One of the patients, patient B, informed the interviewers in the beginning that she would stop the treatment two weeks earlier because of personal circumstances. Therefore she did not participate in the last two interviews of the treatment but was interviewed again in the follow-up interview.

In exchange for their participations, all patients received a personal report on their development.

Tabel 1

Characteristics of the participants

Patient	Sex	Age	ICD-9 diagnosis
A	male	28	whiplash associated disorder
B	female	35	chronic fatigue syndrome
C	male	42	Sciatica
D	female	47	fibromyalgia/myalgia not specified
E	female	19	lumbago

Material

The interviews were taped using a voice recorder, with permission of the participants. The interviewers had an interview scheme which they used (see Appendix 1). An interview always started with an opening question asking about how it is going with the patient. This question was asked with the aim that the patient could tell what kept him busy at the moment. Then, the main question was asked: "What did you learn and experience last week?" When a patient experienced difficulties to come up with something, a couple of cue questions could be asked to help:

- 1.) What was new for you in the last week?
- 2.) Have you learned something during the treatment which you were not able to apply?
- 3.) Did anything happen that you are likely to still remember after the treatment?
- 4.) What was different last week in comparison with the week before?

When the patient came up with something, it was explained that it is important to tell about a concrete situation. This was only necessary in the first few interviews, as the patients quickly picked up the structure and 'rules' of the interview and came up almost always with concrete situations by themselves.

The following questions were always asked to further examine the situation:

- Can you give a concrete example and describe the situation?
- Can you tell about the thoughts you had in that situation?
- Can you tell about the feelings you had in this situation?
- Why was it important for you to do it / don't do it?
- What let you to decide to do it / don't do it?
- Can you indicate how well you succeeded to apply what you have learned to this situation on a scale from 1 to 10 (1= not at all, 10=very good)?
- Did you also apply what you learned or experienced in other situations?

The order in which the questions were asked was not prescribed, except from the first question ("Can you give a concrete example?"), which always has been asked first. At the end of every interview, the interviewer asked the patient if he or she had any questions or comments about the interview and the patients were thanked for the participation.

The interview scheme was the same in every interview, except for the first one and the last two ones (see Appendix 2). The first interview differed from the normal scheme in the way that it began with a short introduction of the interviewer, the aim of the research, an explanation of the procedure and what will be done with the data. Furthermore, the participants were asked to give a short description of themselves. In the seventh interview, the participants were asked how they perceived the interviews and if they had any suggestion for improvement. In the follow-up interview, they were asked what they have learned and experienced since the end of the treatment. They were also asked how they would describe their own development and whether they changed during treatment and in which manner. Furthermore, they were asked about the most important thing they learned during the treatment.

The interview tapes were used to transcribe the interviews. To score the interviews, the transcripts were analyzed using a scoring scheme (see Appendix 2). After the study was finished, every participant received a summary of his own development and the transcripts of their interviews via e-mail.

Procedure

To address the research questions, a qualitative study with five single-case studies has been conducted. The six patients of an inpatient pain group in the RRC have been approached in their first week of treatment. The group was one out of two newly started groups and was chosen randomly. The aim and procedure of the interviews were explained to the group members. Then they were asked if they want to participate. Five out of the six patients agreed to participate.

The patients were assigned to one of the two interviewers. One interviewed three patients (patient A, B and D) and the other two patients (patient C and E). One male patient was assigned on purpose to each interviewer, the others were assigned randomly. Before the interviews were conducted with the patients, the interviewers practiced the interview with each other and with other students. The participants were interviewed eight times. The interviews were conducted weekly from the second to the eighth week of treatment. After the fifth week of treatment, there was a treatment-free week

because of holidays. Therefore, no interviews were conducted during in this week. Six weeks after the last interviews, a follow-up interview was conducted.

The interviews have been conducted in Dutch. The interviews were face-to-face and were conducted in the pain clinic, individually planned in the therapy-scheme. So every participant had the interviews every week at the same day and time. A quiet room was chosen, where the interviewer and the patient could sit alone.

The interviews were semi-structured and took maximal thirty minutes. In the seventh interview, the maximum time was set to 45 minutes. The aim was to discuss at least three different situations in one interview. The follow-up interviews were also face to face. With two patients, these interviews were conducted in the RRC. The other three patients were interviewed someplace else, in a quiet environment, depending on what was practical for the participants. The last interview was set to a maximum of 45 minutes.

Data analysis

First of all, all 35 interviews were transcribed. Secondly, the situations had to be determined in terms of where they started and where they ended in the text. Then, a name was given to every situation. The name was chosen accordingly to the aim the patient had in the specific situation, like 'taking a break during sport'. Finally, every situation was scored on three scales: acceptance, values-based action and application. The transcripts were scored accordingly to a scoring scheme (see Appendix 3). For examples for every score, see Appendix 4. The scores were compared and discussed, to finally coming to a shared decision.

Used variables. We scored the interviews on the three subscales of psychological flexibility on a five point scale, where 1 meant that the patient used the concept 'not good at all' and 5 meant that he did it 'very well':

Acceptance: With the subscale acceptance, we measured if someone tried to avoid negative sensations through experiential avoidance or saw negative sensations as an inevitable part of life and thereby accepted it. We measured the avoidance/ acceptance of physical and emotional pain and other negative sensations, memories, experiences etc.

Values-based action: With this concept it was examined why someone acted in a special way. Were the reasons externally or internally motivated, by thoughts, feelings, pain or social factors like social pressure, or based on personal values?

Application: This subscale measured the extent of the application of learned principles of the ACT treatment. We measured how well a patient succeeded in applying something he or she learned in the described situation. It measures how well a patient was able to use the concepts of ACT in his daily life.

1st round. In the first round, three interviews were divided into situations and given names by the two interviewers individually to get a feeling of how long the situations are and how to call them. These were discussed by the interviewers. Afterwards, all interviews were individually divided in situations and the situations were given names. The division of the situations were compared and when different, discussed to achieve an agreement. Mostly, the interviewers had the same division of situations. The names of the situations were also compared. When they differed, a discussion took

place and the most appropriate name was chosen. Thereby, the rule was handled that it should be something concrete and applicable, and where possible an action. Here, the content of the names was also often the same, but the exact phrasing differed oftenly.

2nd round. In the second round, scores on the three concepts acceptance values-based action and application were given for each single situation on a 5-point scale and were then compared. This was done in four steps. In the first three steps, three randomly chosen interviews were individually scored and then discussed. After the first step, the three interviews were discussed with experts. In the fourth step, the last 27 interviews were scored individually. The difference between the scores of the two interviewers very often differed one point on the 5-point scale. As the interrater reliability was 0.329 within all 35 interviews, which is poor, it was decided to discuss every single situation of all 35 interviews and to choose a final score together. In case of disagreement, an expert could be asked. In the end, no expert opinion was needed, as a 100% agreement on the scores was achieved. We calculated the mean value of the scores of the three subscales for all situations per interview. This overall mean value was the score for psychological flexibility in every interview.

Description of the interviews. In the results part, we described how the patients changed during the course of the treatment by means of the interviews. Descriptions of situations or citations from the interviews, which were translated from Dutch to English as literally as possible, are used for this aim. Firstly, a short description is given of all patients. Information from the intakes in the RRC was used for this aim. Secondly, we used graphs to visualize their development. The graphs depict the final scores in every interview. One graph shows the development of acceptance, values-based action and application and a second graph shows the overall development of psychological flexibility. As it would have been too extensive to describe all five patients in great detail, it was decided to describe three randomly chosen patients detailed (patient A, C and E). Here, the beginning situation was described first with help of the first three interviews. Typical situations with a theme that often came back within the stories of this patient were used to illustrate his development. Citations have been chosen accordingly to the presence of one of the three concepts. Citations, in which a patient clearly explained why he or she did certain things, where acceptance or the refuse to accept was strongly expressed, or where it became clear if someone succeeded in realizing something he learned in his daily life, were used to elucidate the scores they got.

The development in the middle of the treatment is described by means of interviews four, five and six. This was not possible for patient E, as she did not attend interview 4 to 6. The end situation is derived from the seventh interview and the follow up interview. In the last two interviews, the patients were not only asked about certain situations, but they were also asked to give a description of their own development. They had to sum up the most important things they have learned and tell about how they think about the treatment and the changes they made. We decided to use these descriptions, instead of the situations, to describe the end situation. We also did that for patient B and D, which were otherwise only described shortly. After this individual description of the stories of all five patients, a comparison was made between the five patients.

When a direct citation is used, numbers at the end of the citation indicate in which interview (first number), which situation in this interview (second number) and which time during the interview the

citation is taken from (third number). When a citation came from the first interview, from the second situation, and was said at approximately 3 minutes and 39 seconds, it was indicated in cursive letters as follows: (1.2, 3:39).

Results

In the results part, the following research questions are answered:

- How do psychological flexibility and its three subscales develop during the eight-week long, ACT-based treatment within the five patients?
- Is there a recurrent pattern or do the subjects develop differently?
- Do the patients go through a crisis and what is the influence of such a relapse?
- How can development be found back in the stories of the patients?

Patient A

Patient A was a 28-year-old man, who suffered of chronic headache. Two years ago, he graduated as an industrial product designer and found a job as a design engineer. He lived on his own and had a girlfriend. His parents lived nearby. A year ago, he had a bike accident and fell on his face. The complaints didn't vanish. Instead, the complaints got worse, but no physical or neurological causes could be found. He was diagnosed with whiplash associated disorder (WAD). One of his main complaints was his problem with processing stimuli, especially in crowded environments. First, he worked less, but finally, he had to quit his job. He already attended a two-week observation period in the RRC. He had a mental approach and thought, argued and analyzed a lot. His coping method used to be just going on. A sustaining factor was his tendency to rationalize. He had a great sense of responsibility, needed confirmation and had problems communicating his needs.

Figure 3

Development of acceptance, values-based action and application of patient A

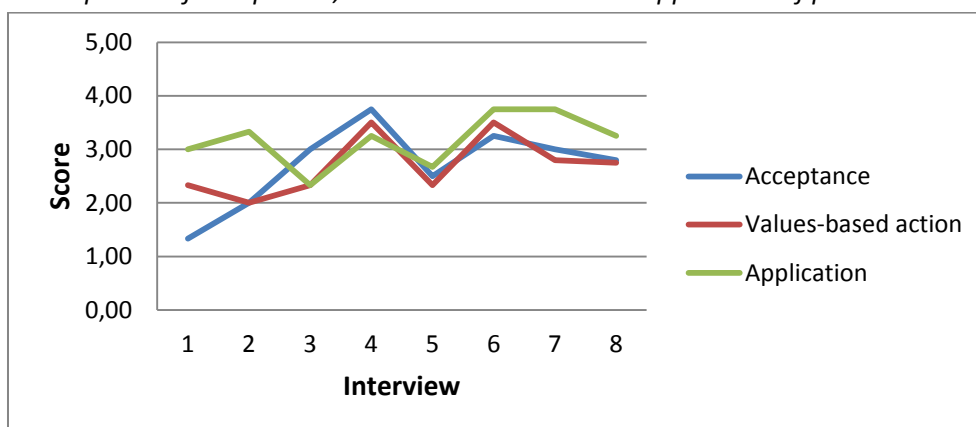
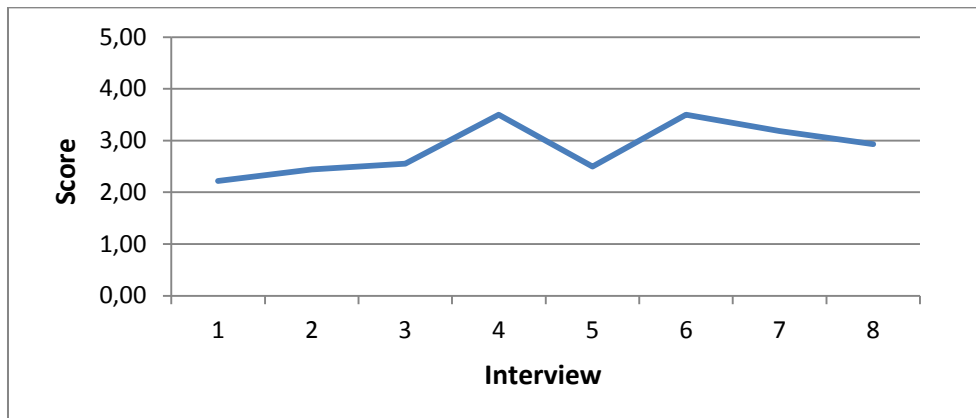


Figure 4

Overall development of psychological flexibility of patient A



A clear development can be seen when looking at the difference in interview 1 and interview 7. The development was less high when comparing the first with the last interview. A clear crisis can be seen in interview 5, which is the sixth treatment week. The crisis was due to a decline in all three subscales. Then, the score was almost as low as in the beginning.

The acceptance began as the lowest of the three evaluation points. It increased rapidly from the second to the fourth week. The application began as the highest of the three ratings. It did not only have a peak in week 6, but also in week 4. It ended as the highest of the three ratings. The score was as high as it was in interview 4 and in interview 6 at the end of the treatment. That means that the crisis did not have a positive, nor a negative effect on the final score. There were different themes that were important to him. Strategically dealing with stimuli was probably the most important one, as it came back in different forms throughout all the interviews. Other issues of importance were taking enough rest, dealing with fatigue, apply mindfulness, base his life on his values, and deal with worrying thoughts.

Beginning situation. In the first interview, patient A described his situation as the following: "... that I find it difficult sometimes, because I take it very serious what is happening now. And it is serious that I find it hard sometimes to life now with it and not let my whole analysis mechanism start." (1.1, 07:27). From the beginning on, he struggled with acceptance that his life had changed because of his pain: "Also because I don't do things or have to let be small things, have to do things less intensive. Less abundant. I think that is a pity. So I could accept that a little more that it is as it is. But still, I find it, sometimes I have difficulty with it." (1.1, 10:17). He got two points for acceptance in this situation, as he realized that he should accept his situation, but found it very difficult. His acceptance had the lowest startpoint from the three scales. Values-based behavior started a little higher, but still quite low. In the beginning, the reasons for why he did things were strongly externally motivated, instead of values-based. A good example for this could be found in the first interview. When he was asked why he made the decision to go to a birthday party, even though he knew that it would be hard for him, he said: "Yes, what decided what I do? Good question. How I feel, indeed, so if I feel already overstrung or not. My environment also plays a role I have to say. *What they want from you (interviewer)?* Yes, what they want from me indeed and if I am familiar with my environment or not. So a bit what I expect what they want from me. Also a little experience from what I learned here and

from the times that it went well or bad.” (1.1, 12:31). Here, expectations from others played the biggest part in his decision to go to the party. In the first interview in the second situation, he got one point for values-based action. Reasons he gave for why he did and didn’t do certain things were avoiding a restless feeling and his headache: “No, than I can’t keep my eyes open and can’t sit anymore and then I get restless and then I notice that I fastly go do something. What is that? Yes, I think to have a little distraction. [...] Then I clean up the house or something like that. It is on a low level, but then I get enough distraction so that I do not feel that I got a really bad headache.” (1.2, 16:40). When it comes to application of the learned principles, although he started relatively high, his greatest struggle was how to deal with impulses from his environment. In the third week, he went to his old work: “... I got caught in the moment. [...] And what happens then was that this thing doesn’t come up, this ‘Hey, wait a second, what can I do about this?’ That happens a little, but stays too much on the background. I suppress it a little. And then I go on too long. Talking too long with a couple of different people and this and that and so on. And before I know, it is three kwarters later and than I take a little break. [...] And then I think ‘I don’t feel so well’ at this moment. More like ‘I should have stopped earlier.’ (2.2,12:46).

Middle of the treatment. In the fifth week, there was clearly an improvement visible with regard to his habit of analyzing everything. Normally, it even hindered him to take a decision: “In general, the problem is that I want to think things over and over again, then decide, and then look again, to take my final decision, while I could have taken a decision earlier. [...] Maybe the outcome is different, but is it worth all the trouble to think it over all the time?” (4.2, 07:21). An example for this new way of taking decisions was the offer of the RRC to take part in an optional communication module. First, patient A decided to take part, as “maybe, this will bring something. So I look a little how it goes. [...] And then I will look at the end if it had brought something or not. Then I will find out if it costs too much energie to do it along.” (4.2, 8:29). So he started to wonder: “Isn’t that too much? Isn’t it at the expence of other things, which are really important for me. Because communication, about assertiveness and things like that, that is going well.” (4.2, 8:29). So he realized that his initial plan to take part and only then decide if he should take part regularly, is not the best way: “That is nonsense, because if I think of it in advance: ‘Is it worth the effort?’, I also can say directly that I will stop with it. [...] So I already took the decision that I will stop.” (4.2, 8:29). This decision felt good for him: “That is a positive feeling. Also a little like letting things go. That you don’t want to control everything. Look if you can make a decision and if it is good or bad, left or right, doesn’t matter that much in the end. With a lot of things. So I think that I have to consider fewer things can give me peace of mind.” (4.2, 10:24). He concluded that like this, he could put his energie into other things that he finds valuable and worth the effort. By removing unnecessary things, he was able to put his energie in other things he considered worth it.

Another important aspect of the treatment for him was mindfulness: “I did a mindfulness exercise and I find that very relaxing. And it is helping me to take a close look at my body and to my emotions and that is very positive.” (4.4, 21:28). He went on: “Normally, I am very busy with the life I am leading and the environment. And what you find normal to do, and what you don’t find normal to to. What is expected from you and what you expect from yourself. And if you are doing the mindfulness

exercises, than you are busy with not judging about what you feel for example, or what you think. Then you are busy with your body and your mind, you are observing in fact. [...] And that is not to do something with it, but just look at yourself. And that is not the case in normal life, at least I don't do it. I have unlearned it in all the years, because you are so busy with all external things, in fact." (4.4, 21:55). When asked what made it important to do this, he said that he found it important to be in balance with his body and mind. He also finds considered it important for his complaints: "Look, I have a painfull neck now, and I have a headache and I have a numb feeling in my face, and I am very tired. But in fact, I feel relaxed. I feel mentally relaxed now." (4.4, 21:55).

In interview 5, the patient had a crisis, which is clearly visible in the graphics of his development (see figure 3 and 4). This crisis also came back in the interview. He had been on a vacation with his girlfriend and her parents: "What did I learned? I found out that, and that is part of it of course, you get out of your rhythm, as I was already afraid of." (5.1, 1:18). He described how he got into the crisis: "You think, we are sitting in a positive spiral and that is really fine. And when you go away, you are not working [on yourself] anymore. And you forget a couple of things and you got out of your rhythm. I kept trying a couple of things which costs a lot of energy. What I noticed then is that I get fysically tired, I also suffer from it mentally. That I get more depressed. For example, when I was three days in Bergen, I got back, then I don't see everything so positive as I did before. And that is because I am so tired. So you have to see to get out of it." (5.1, 1:54). He described the vicious circle het got in: "At the moment I get overstimulated I also feel bad. I get worried. And because of that I get more overstimulated. I don't have enough energy to move, what I seem to need. So you went down the stairs really quickly, while you was standing so high a short time ago." (5.1, 4:6). The patient worried about his situation: "The thoughts in this mechanism are: 'I knew how I had to deal with things.' and 'It is going so bad suddenly.' And everything becomes less transparent in fact. At once. How you got everything under control and how you have to do it all, that all disappears a little." (5.1, 05:08). He was also concerned about the future: "And this also brings a little fear along with it. Because I think: How am I going to do all of this? How is this going further?' [...] It is frightening me a little in the way that I think it will not work out in the future." (5.1, 6:1). Especially this worrying is something he dealt with during the time directly after the crisis. In interview 6, he described how he tried to deal with his worrying thoughts: "Of cours it is not like I can say every moment: 'I am going to put it all in perspective momentarily.' But I do try and I try regulary to take a moment on what I am thinking about right now: 'How real is it, can I do something about it? And I can think about something else, I can go busy with something else and it is going to be allright. [...] When I find out that it [worrying] is bothering me, that it annoys me, then I stop myself in it." (6.4, 10: 46). This situation was also a good example that the reasons why he acted like he did was based much more on his values than in the beginning of the treatment. He answered to the question what it made so important to try to do something about worrying as following: "... to rest and being mildly with yourself, so I can focusing on recovering and that it works out. And it is important for my whole development. I don't want to keep worrying my whole life. Look, it is possible that it is like that, but rather not. So that are all thing in your life you are working on. [...] The need is there, now, but I see it more like a broader concern than only for this moment." (6.4, 13:6).

Endsituation. During the follow-up interview, patient A was happy with his situation and development: "It is going well. Between the last time I spoke with you and now, I can be really satisfied with how it goes. Much happened, but it was a gradual change, I have to say." (8.1, 00:1). During the last weeks in the RRC, he planned to restart work where he can do something for society. At the time of the follow-up, he worked as a postman for a couple of hours every day. He was happy with it and wanted to keep the work a couple of months. Afterwards, he wanted to take the next step and work for example in an office. He had a very good picture of his values: "That I feel good about the things I do. That I do things that are important to me. That I am healthy. That I surround myself with the people I love and the people who inspire me." (8.3, 13:39). He came up for himself and it became easier for him to do so (8.3, 12:59). He was satisfied about his newly gained ability to take some distance: "I am able to reflect on myself and how it is going and to look at things from above for a moment, like: 'I am doing this now. Is it going well? Do I feel well? What do I see happen afterwards?'" (8.3, 14:46). He saw a huge progress: "Last weekend, I had a really nice day. I did so much that I thought: 'Unbelievable!' A couple of months ago, all of the things I did would have been impossible on their own. And now, I do it all in one day." (8.4, 19:30). He named the reasons why he was able to do all these things now: "It seems that I have done things differently than I normally did." (8.4, 21:01). For example, he went to a birthday party and while most guests stayed the whole day, he only stayed two hours, and it was fine for him. Here, we could see that social pressure is not a motivation for him anymore to do certain things. He accepted that he couldn't do the same things in the same way as his friends. Doing things differently also meant: "that I limit things a little. [...] Also in how I do them. [...] It is important that I stay calm, for myself, and unconsciously, I am doing a lot of things strategically." (8.4, 21:41). By doing things in a different way, he gained a lot: "So as you see, I became very aware of how I can do things. And how I can organize my life so that I am not burden myself too much. To give myself the chance to get better, in fact." (8.3, 23:45). He summarized the greatest changes he made during treatment in the 7th interview: "I have of course stayed myself. But how I deal with myself has changed. [...] Looking at what I'm doing now, do I want to do that or not? And that does not only have to do with the complaints but also with the direction that I want to give to my life and my career. [...] It has given me a lot of clarity to look at my values. [...] Concerning the whiplash, I have really learned to dose. [...] When doing something, to look at: 'What do I gain on long term? What do I gain when I structure my life?' Even if I do not feel well, I go and do something." (7.6, 28:01).

Conclusion. Patient A, the 'thinker', developed with ups and downs. In week 6, he clearly went through a crisis, which was at a late point of time, compared with the other patients. He came out of the crisis stronger than he was before. His main problems had a cognitive character: he thought too much about everything and pondered on every little decision, analyzed everything and worried intensively. Mindfulness helped him a lot and he found ways to deal with the worrying thoughts. Another important point was dealing with signals from his environment. He often felt overstimulated in the beginning and therefore avoided places with a lot of stimuli, like noise. During therapy, he learned that he had to exercise dealing with stimuli and embraced that thought and practiced it in daily life. In the end of the treatment, he felt capable of dealing with stimuli again. Six

weeks after the treatment, he even had a job as postman, where he had to do tasks which were very challenging for him, but he saw the job as a good training. In the course of time, he became clearer and clearer about his values. At the end, he had a detailed picture about his aims and about what is important to him and what is not.

Patient B

Patient B was a 35 year old woman. She was married and had two children of the age of 2 and 3,5 years. She worked 24 hours per week in the service sector. For circa three days in the month, she also helped in the business of her husband; she did a part of the administration and bookkeeping. She was diagnosed with a chronic fatigue syndrome. She took part in a rehabilitation day treatment because of dorsal pain in 2002.

Sustaining factors were the anxiety and uncertainty about her medical condition, frustration about inabilities and about missing acknowledgement in her environment and fighting against her complains, which produced stress. She also tended to demand a great deal of herself. These were risks to go beyond borders. She had a good understanding of the situation and a great willingness to deal with it from the beginning on.

Figure 5

Development of acceptance, values-based action and application of patient B

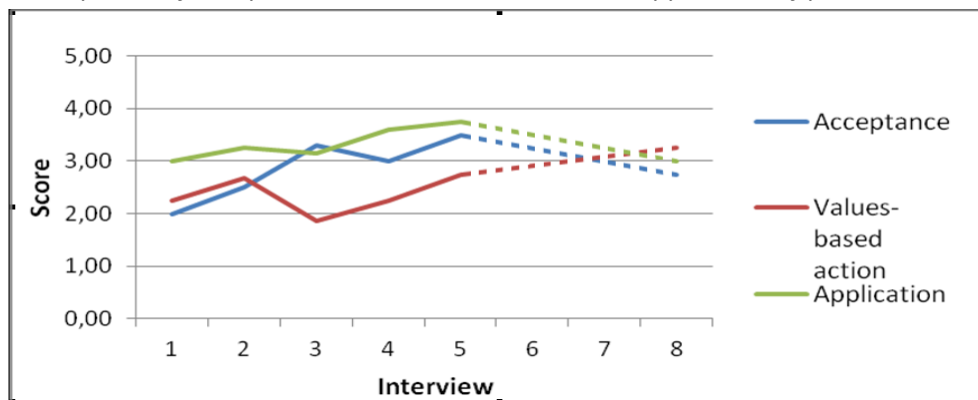
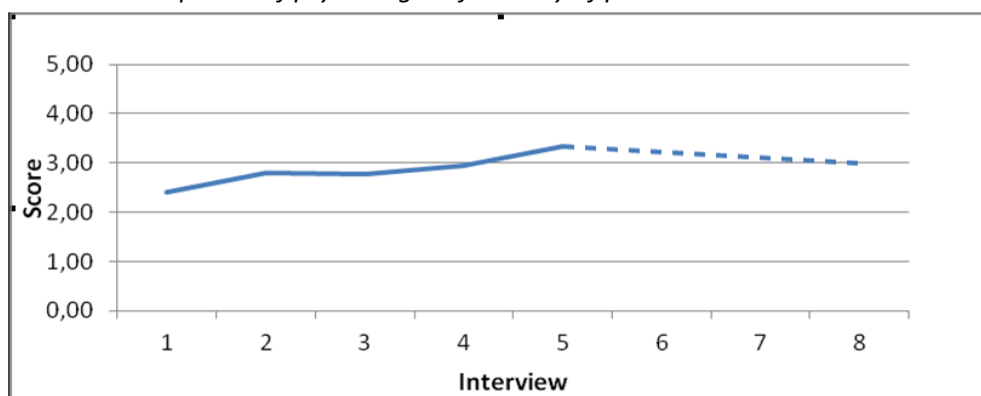


Figure 6

Overall development of psychological flexibility of patient B



Patient B participated only in the first five interviews and the follow-up interview. She stopped with the treatment two weeks earlier, as she got married. Up to week 6, a positive development could be seen. She started with an overall score of 2,42 had a score of 3,33 in week 6. In the follow-up interview, the score of psychological flexibility was a little lower than in her last treatment week (3,00). Here, the scores of acceptance and application decreased, but values-based action increased. Acceptance and application roughly developed the same, whereas values-based action developed differently. Values-based action clearly decreased in week 3, but then increased again in the last interview. It was finally higher than in the week before the decrease. Important themes for patient B were listening to the signals of her body, taking time for herself, letting go of her perfectionism, dealing with work stress, planning her daily duties, doing nice things again and taking breaks. When asked about her development in the follow-up interview, patient B also looked back at her situation in the time before the treatment: “Really positive. I think that my eyes really got open. Because you were in the negativity. Because you got pain. And things you normally did, you couldn’t do anymore. And I got stucked in it. [...] And I hoped for a long time: ‘When I wake up tomorrow, than it will be over.’ There will be a day, when it will be over. This day is still not there. And the negativity costed me a lot of energy. Also I forgot to enjoy the things I still was able to do. [...] You forgot that the things you got happy about earlier, still can make you happy. You know, you are so buzy with all the things that are impossible. And you do not appreciate the things that are still possible and you don’t even see them.” (8.5, 31:13). Then she went on with the things she has learned: “At the Roessingh, I learned what I represent. [...] The Roessingh gave me back the pleasure in the small things that I had. I see things from the sunnier side now. Even though I still got moments when I’m fed up with this headache. [...] I accepted it in the way that it is part of me. I am that far now.” (8.6, 32:46). When asked about the most importend things she leaned, she said: “To take time to listen to the signals of my body.” (8.5, 34:41). She described how she experienced this in the beginning of the treatment: “After two weeks, I understood that it would be useful to listen to your body. Anyhow, I still was convicted that I never heard anything. [...] But I didn’t take the time to let my body shout. (8.5, 34:41). She summarized her time in the RRC as follows: “It helped me a lot, especially on long term.” (8.5, 40:48). She expected that she is still in a proces of growing.

Conclusion. Patient B, the ‘perfectionist’, was hinderd by her own high standards when she began therapy. She was not able to listen to her body and often went beyond her limits, both at work and at home. At therapy, she learned to recognize the signals of her body and acting accordingly to it. She learned to let go and let things be unperfect, especially in the household. She felt less stressed by putting less pressure to herself at the end of the treatment. She had put her life on the hold. During treatment, she accepted step by step that the pain will not go away and she learned to appreciate life again with the pain. Therby, she also got happier. She made a steady development, without great ups or downs.

Patient C

Patient C was a 42 year-old man. He was married and had two daughters in the age of 11 and 14. He worked in a sport center as head of technical services. He described work as his biggest hobby. Sport used to be an important hobby before he got a hernia. He used to work a lot. He had to reduce his

work to 50 % because of his complains. When he came home, he had to rest an hour of one or two. A high tempo and perfectionism were typical for him, as well as a lot of stress, fear of movement and fear of the future. He had a hard time relinquishing tasks. He was diagnosed with back pain (sciatica). He also had pain and reduced strength in his leg. He used to be in good health, until a stressful period at work a couple of years ago. Shortly after this period, his complains started. He had difficulties to deal with the loss of health. He had a somatic approach and interpretation of his complaints and was disappointed about the failure of all medical interventions.

Figure 7

Development of acceptance, values-based action and application of patient C

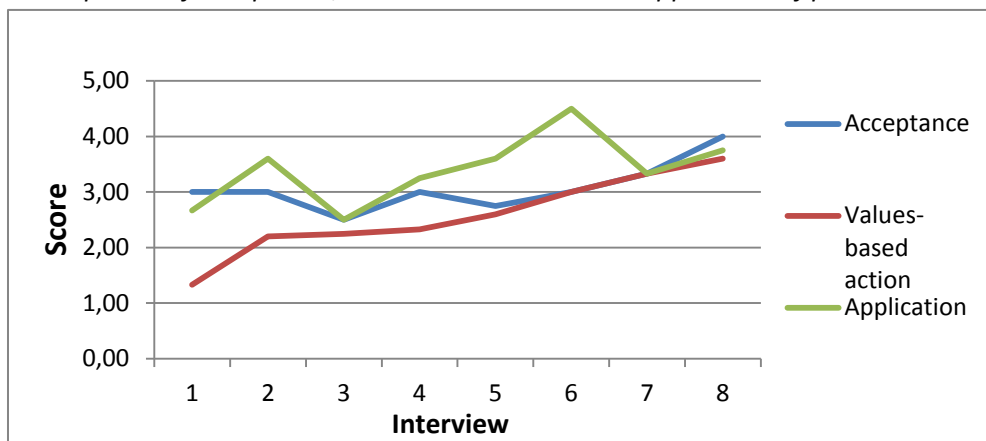
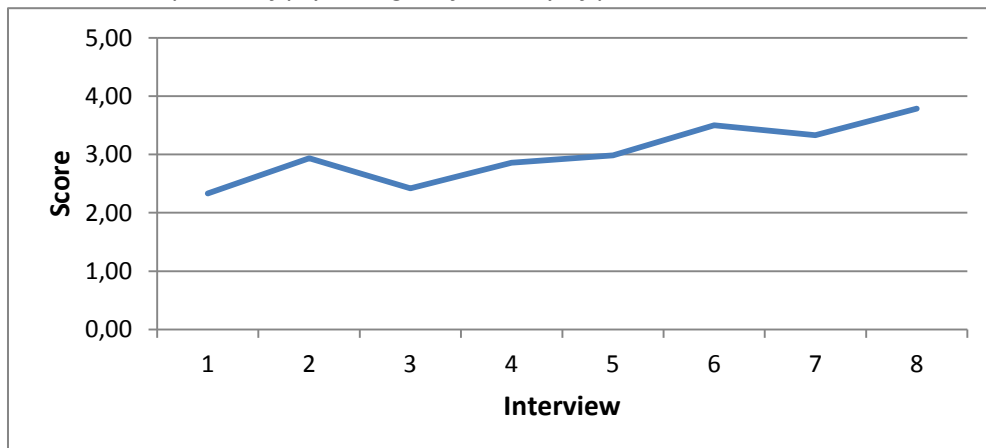


Figure 8

Overall development of psychological flexibility of patient C



Patient C started with score of 2,33 and then made a big step in development from the first to the second interview with a decrease of one point. In interview 3, a clear crisis can be seen. Then, a steady development took place, up to the eight interview. Only the application differed in the way that it had its highest point in interview 6 and sank down to a lower score in interview 7, just to rise again in the last interview. The highest developmental score could be seen in the follow-up interview with a score of 3,78. Important topics for patient C were accepting boundaries, stopping and taking breaks, planning before beginning with something, choosing for himself, making choices more consciously, letting go responsibility, working less, communicate boundaries at work, find a balance

between work and private life and accepting that he is not able to work as much as he used to do. His pitfall was that he worked so much that he needed to rest at home a significant amount of time before his pain was bearable again.

Beginning situation. The development that can be seen in the graphics, can also be found in the interviews. In the first interview, the application was still difficult for the patient. In two out of the three situations, he had low scores in the adaptation. He realized his mistakes afterwards and wanted to make a change. He had learned new things, but could not adapt them yet. One example was that he went beyond his limits in swimming therapy. This situation was also a good example for the reasons why he did things his way. He realized: "There is nobody here who demands that you go up to a certain level. But then you find out that you demand it from yourself." (1.1, 3:39).

Furthermore, he did certain things because he wanted to lessen the pain. When he was asked why it was important for him to do act like he did, he answered: "You can smooth [...] the pain with it." (1.2, 9:06). The reasons he gave for being open for the things they learnt in therapy were that he "[...] maybe by approaching things differently in the future or thinking differently, can influence the pain." That meant that his score on values-based action started at a quite low level.

In the second interview – the third treatment week - a clear improvement could be seen. This peak was caused by the great increase in application and values-based action. In the application, in the six situations that patient C described, four of them went well or very well (score 3 up to score 5). The values-based action was still pain directed (2.1), influenced by social acceptance (2.2) and other external reasons (2.6). Others, like his father, were still more important than he was: "In this sense, he is more important than I am." (2.5, 18:27). But differently from the first interview, his behavior was also based on his values, like "being able to do others things" (2.2, 05:05) at home. Acceptance remained on the same level.

In the third interview, a crisis can be seen. Here, he fell back to the level of the first interview. The crisis took place in all three areas. In terms of acceptance, he avoided to disappoint others. He couldn't accept that he did not say anything to the others during an exercise in occupational therapy, where the others inadvertently made the task harder for him: "Yes, I see it happen, it is an allergy of mine. That I think: 'Gosh, do it now!', but I do not say anything about it." (3.4, 24:12) and later on: "It is stupid. Because I feel annoyed then. [...] That must be an enormous irritation, I think, when even someone else sees it." (3.4, 26:07). He also did not accept the pain, as he based his behavior on the aim to prevent the pain, because "otherwise, the pain becomes unbearable." (3.3, 21:02).

Concerning the application, the fourth week was apparently a fallback. In the four situations, three situations had a low score in the application (1 or 2). He learned things in the RRC, but couldn't convert them at home. This lack of generalization could be seen, for example, in his astonishment that at the RRC, he did not have rest or sleep, like he does at home: "That is really strange. I cannot find a negative effect in this." He was not able to generalize it: I don't know how I can place this." Therefore, he still rested at home. There was an inner battle whenever he had to choose between helping someone or doing something that is good for him: "On the one hand it gives a good feeling that you can help somebody." (3.1, 7:25). Concurrently, he asked himself: "Is this the smartest way?" (3.1, 6:49). He realized that "so apparently, at this moment, it is still the other who is more

important.” (3.1, 08:01). Regarding the values-based action, he realized that his motives are not value-directed: “That I think: ‘What is so important about it?’” (3.1, 2:54). The reasons for his actions were to not disappoint anyone: “To not disappoint someone, I disappoint myself.”, automatism, being persuaded by a colleague to stay longer, stress and things that have to be done and the satisfaction he got out of helping others and pain reduction. In this interview, especially the social motives, like doing anything just to avoid disappointing others, became clear: “[...] because I do not disappoint others, but actually myself. And yes, maybe there lies one of the big problems.” (3.1, 4:11).

Middle of the treatment. After the low point of the third interview, all three areas rose again slowly. His level of acceptance was difficult to measure, as he barely talked about aspects of acceptance. This was different from the other four patients who were interviewed. There was still a contradiction in his feelings when he stood up for his rights, like leaving work early. He did something good for him, but fell badly about it. He did not know how to deal with these negative feelings that came along with doing something that is good for him, but maybe disappointing to others: “[...] on the one hand it is very, very positive. On the other hand, there is still a negative side. I have to try slowly to, if it is banishing or accepting I don’t know yet exactly, but that the positive side will predominate.” (4.1, 6:48). He was still in an adaptation-stage: “And one time it feels better than another time.” (4.4, 15:25). He succeeded in giving up responsibility to other group members. He realized that it is not always the best way to do things automatically. He applied the principles he learned in treatment, especially in occupational therapy, more and more. Still, pain relief stayed his most important motivation to do things differently.

In the adaptation, he still needed an external aid to accomplish certain things, like making an appointment with the hairdresser to leave work early: “I know that I would have been at work till ten or eleven o’ clock.” (4.1, 02:35). It helped him to have a reason, which he could tell his colleagues and thereby create clarity. A very important theme for him was awareness. He lived and planned in a more aware way, he asked himself why he does the things how he does them and he thought about it in advance.

For patient C, the sixth week, thus interview 5, felt like a low mark, especially in the application, because he had to rest in bed. He realized that his learning process did not worsen. However, this cannot be seen back in the application-scores, because he told about situations where he was feeling better and was not so sick anymore. In these situations it was striking that he was able to realize and especially to indicate his boundaries, at home and at work. Another important theme in the fourth interview was the difference between long term and short term effects. He was able to make an explicit difference between these two and act accordingly. This also improved his way of planning things beforehand and to be able to make a thought-out choice.

End situation. When asked how he changed in the weeks of the treatment, patient C answered: “I became much more aware about myself. And that was the main point, what was necessary. Before, all went on the automatic pilot. To the limit, past the limit. [...] I more often indicate it before the limit is reached. I say: ‘Till here and no further.’” (7.4, 14:29). In the follow-up interview, he summarized the greatest change he had undergone like this: “I think the greatest change in me is

that I am doing the things that are really important to me. [...] That is not only at work, but also at home. That you are doing your choices really consciously. What I do and what I don't do." (8.6, 29:47). Finding this limit was clearly one of the most important things that patient C had learned. He answered the question about the main point the treatment did for him as follows: "This is seeing that the expectations I always had for myself were ridiculously high." (7.4, 15:16).

In the follow up, he stated that he will profit from the treatment at the RRC the rest of his life: "After eight weeks, the rest of your life begins. And you can use these things the rest of your life. It is not like a peace of cast that you have around your leg for six weeks and that it has to be done. No, this is really something you can take with you for the rest of your life." (8.6, 34:32).

Conclusion. Patient C passed through an enormously positive development during the treatment. In the beginning, he was a 'work-a-holic'. He used to had a hard time to deal with the fact that he could not work as much as he used to do. He always enjoyed his work and it was hard for him to have to cut down on it. He always wanted to help everybody and was not able to give away responsibility at the beginning of the treatment. With ups and downs, he learned to say 'no' at work and gave responsibilities to others. He constantly went beyond his limits before he started therapy. When he went home, he first had to rest a couple of hours. He learned that when he divided his energy more evenly, he did not have to rest anymore. In the middle of the treatment, he went through a crisis, but was able to realize his mistakes and learn from them. His greatest learning point was to think about how important something is before doing it and then decide if it is worth doing. In the beginning, he based his action mainly on pain; he did many things to prevent pain. Later, he learned to make choices more consciously and base his decision on if something is really important and worth the pain. In the end, he accepted that he cannot work as much as he used to do, which was a big step forward in acceptance for him.

Patient D

Patient D was 47 years old and lived together with her partner. She worked thirty hours per week in the IT industry in a coordinating role. She was responsible for the operational management and had a number of subordinates. She was diagnosed with fibromyalgia/unspecified myalgia.

Figure 9

Development of acceptance, values-based action and application patient D

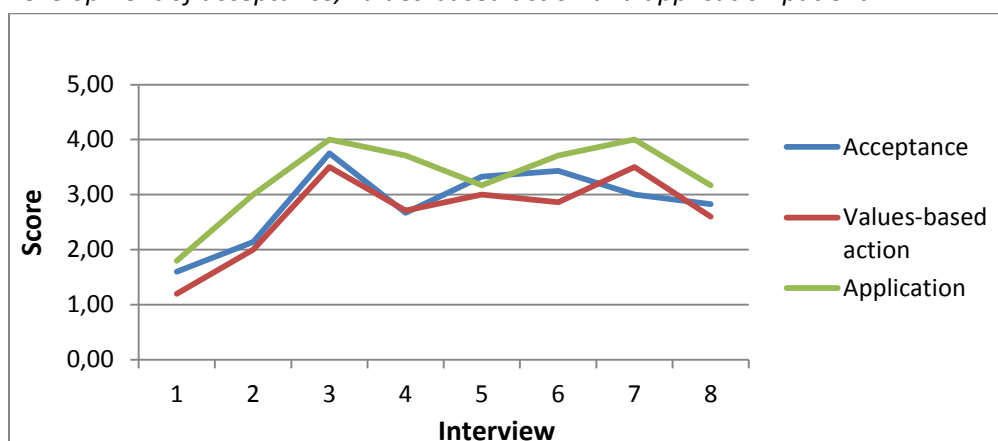
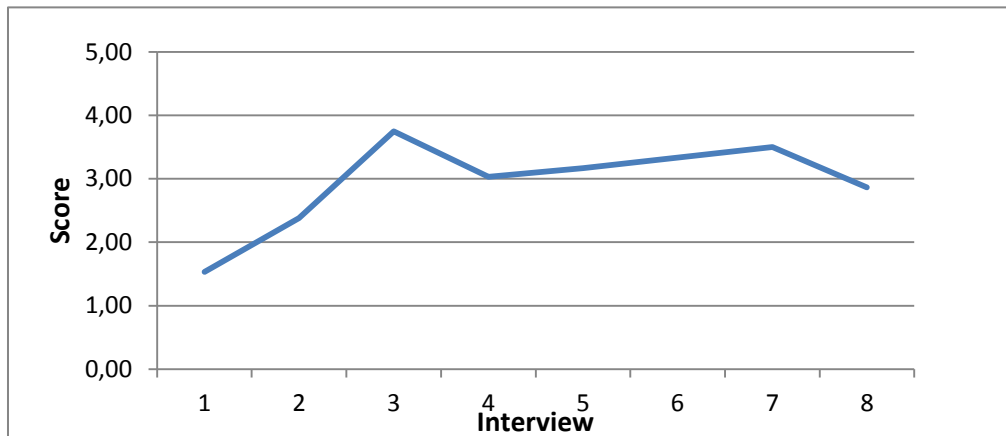


Figure 10

Overall development of psychological flexibility of patient D



Patient D showed a steady growth up to interview 3. In interview 4, the scores were lower again. This could have been due to the especially high score in interview 3. Patient D's score in interview 3 was one of the highest reached scores of all scores from the five patients during treatment. Because of this high score, we cannot be entirely sure if she had a crisis in week 4, or rather of a stabilization of the score, after it had an exceptional peak. From week 7 to 8, a decrease in the score took place.

Important topics for patient D were giving up her resistance against the therapy, being more open to herself and others, including her therapy group, being able to relax, not over exerting and regain trust in her body. Further themes which were important to her are being more active in relationships to others, treating herself more gentle, doing the exercises which she got as homework, dealing with work reintegration, allowing herself to enjoy, being honest to herself and allow emotions. In the first few weeks, she kept the group at a distance and was not happy to sit in a group at all, as she wanted to do her thing independently from others. With time, she really opened up to the group, she trusted the others and even told them things about her traumatic youth she normally kept to herself. She felt that "it is nice that you feel supported and understood." (5.3, 9:25). She was able to open up because she felt safe and had built up trust in her group members. In the end, she said that the group was really important for her development. She summarized her development in the group like that: "I came in here and thought: 'Therapy, on the double, I take care all that quickly. Sociability, what a nonsense. I just have to follow all the steps. And now, it is just very cozy and nice and we did not even talk about therapy. So, it is possible, a bit of relaxation. [...] And I allowed myself to enjoy it.'" (4.6, 20:47).

In the follow up interview, patient D described her development: "When I came here for the intake, I kept the things more at a distance. [...] I lived in my own world. And now it [my world] has become bigger. And I look really different at things of which I first thought they would be really bad if they would happen to me, like working less. [...] I am more relaxed about it." (8.5, 24:26). She said that the most important thing she got out of the treatment was getting more peace of mind. When asked how she acquired this peace of mind, she answered: "I think it is acceptance of how I am and what I have. That sort of things. That there is more. That I always fought for the things I thought I was not allowed to have, to show or to accept. And now it is more like: 'I have rheumatism, so what, so be it.

But at the same time, it [life] is still nice and a whole lot more. And it wasn't like that before." (8.5, 25:10). Openness is another important issue for her: "I noticed that I am more open to colleagues about the tumor and so on and that I have changed a lot in that aspect. When people ask me now: 'How are you?' [I answer] 'Well, considering the circumstances.' [...] and then I do tell them. I think that I wouldn't have done that. [...] So I think I became more open on the overall and I make more contact with others. [...] And I find that important." (8.6, 27: 24).

Conclusion. Patient D developed a great deal, with some peaks and lowpoints. She was the 'rebel', as she began therapy with a lot of resistment. She was there do do her own thing, as fast as possible, without getting in contact with others and so she resented the group in the beginning. Her way to cope with her pain was by totally rejecting it. She went on and on, without paying attention to her body. She pretended that nothing was wrong with her to others and to herself. During therapy, she started to connct more to her body and learned to accept it. She treated herself with greater mildness. She also got more open to the other groupmembers. In the end, she was the patient who valued the impact of the group the most. She did not only open up to the group, but also got more open to the people around her at home and work. She kept having difficultie doing the exercises she learned in fysiotherapy regularly. She used the mindfulness-exercises she learned to stay calm in difficult situations. Compared to the other patients, her psychological flexibility increased most.

Patient E

Patient E was a 19 year-old woman. She was diagnosed with low back pain (lumbago). She had to stop with a vocational training as hairdresser after the first year because of her back pain. She switched to the study of commercial economy in a university of applied science. During treatment, she was in her second semester. She lived at home with her parents, but had plans to move in with her boyfriend soon. She struggled with admitting to herself that she is not well anymore.

Figure 11

Development of acceptance, values-based action and application of patient E

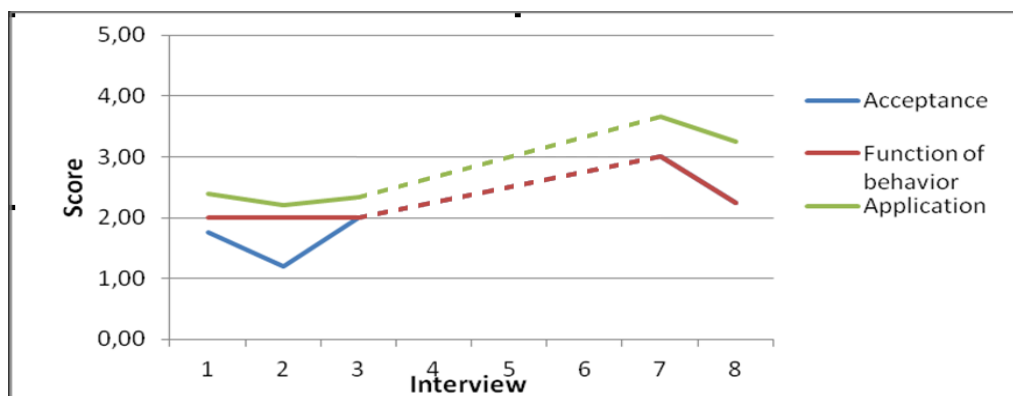
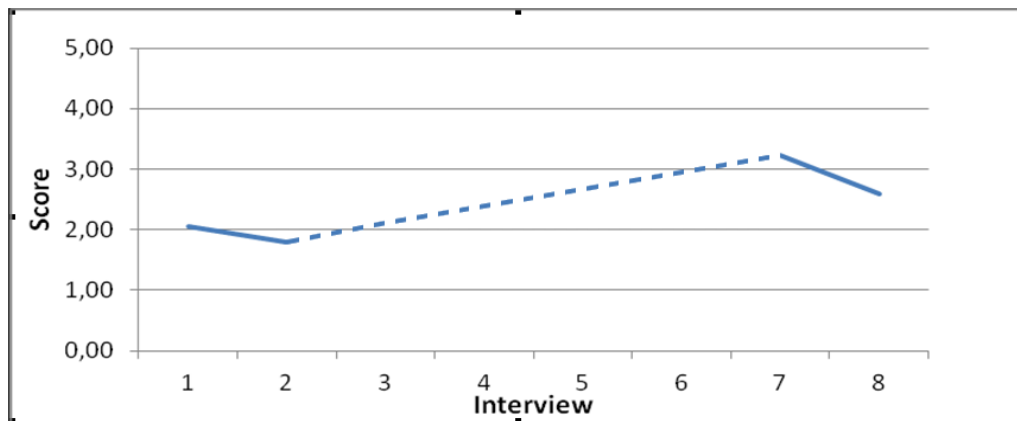


Figure 12

Overall development of psychological flexibility of patient



Patient E was only interviewed five instead of eight times. After three interviews, she wanted to pause with the interviews, because it was too intensive for her. The last two times, she joined the interviews again. In the second interview, the scores were lower than in the first one and increased again in interview three. When she was interviewed again in the last treatment week, her scores were higher in all three subscales. In the follow up interview, the scores decreased a little again. The development was similar on all the three subscales.

Themes that came back through all of the interviews were letting her perfectionism go, carrying for herself instead for others, recognize boundaries and respect them, taking her 'mask' of, stopping on time instead of going on too long and finding pleasure in different things.

Beginning situation: Patient E described herself as someone who is bottling everything up as she does not "want to bother other people with it" (1.0, 2:59). She said that she is someone who is presenting herself differently to others than she actually feels: "I always wear a mask to the outside world." (1.0, 2:59). She said that she learned so far that she has to "think more of myself and not always account for someone else." (1.0, 2:59). Before she went to the RRC, she dealt with her pain by saying to herself: "It's going to be fine, I can manage with it. I am not doing that bad." (1.0, 1:57). She was very perfectionistic and when she began with something, she wanted to bring it to a good end. In occupational therapy, she was so busy with an exercise they got that she did not realized that she had gotten enormous back pain. "I do not feel anything then, as I am so focused on the exercise." (1.1, 8:44). She noted "that I went over my boundaries, unnoticed. Without perceiving it." (1.1, 2:59). She said: "It partly has to do with my perfectionism. I want to do everything well. Better than good." (1.1, 10:14). She was disappointed and mad that she could not do the exercise as perfect as she wanted. Here, her very low beginning level of acceptance became clear: "[...] angry and mad. Sometimes, I have moments that I want to kick doors. Then I have something like 'Why do I have this? Why am I in such gigantically pain?' And these thoughts come up again then." (1.1, 10:14). She was also very sad about her situation. She asked herself: "Why can't I function like other girls my age?" (1.1, 11:17). Here behavior was not based on her values, but on her perfectionism. When asked why it was so important to her that the exercise was done well, she said: "When I begin with something, then I finish it, and even when there are problems, I go on until I am satisfied with the results. I do not stop before that." Another situation she described was that she cared more about

her mother than for herself. She had to go to therapy, but almost came too late, as she felt that she had to console her mother, who was sad that she had to leave. The reason for her behavior in this situation was the satisfied feeling she got when helping others. (1.2).

In the second interview, the patient scored even lower than in the first interview. She saw clearly that she had to change the way she acts, but she was not able to handle things differently. She learned "to make it easier for myself. Less things; I want so many things, but I have to understand that I can't do everything." (2.1, 00:29). She still couldn't accept that she had to change her goals because of her pain. She wanted to get a diploma after the first year, but now realized that this would not be possible in her situation. She said that she was "disappointed in me that I cannot manage it all." (2.1, 3:14). She realized: "That I make it very hard for myself to set everything to the maximum." (2.1, 4:24). Even though she knew that she asked too much of herself, she could not help herself: "But, in the end, when you have set a goal then you want to reach it." (2.1, 4:49). She also told about situations, where she had trouble to put down her mask. "I find it very difficult, as I am someone who absolutely does not want that someone else finds me pathetic. Because I am not pathetic. [...] Sometimes I think 'Stop it!' you know, I can do it all on my own. Even though it is hard when I have to do it all on my own." (2.2, 7:01).

Another typical situation for her was that she did not think about herself. She wanted to listen to her body, but it did not work out. "When I do something, then I completely got into the thing I have to do. And then I do not think of myself." (2.4, 16:08). She still worked as a hairdresser occasionally, even though she often got pain when she did that work and found it too much to handle. Still, when a neighbor called and asked if she could cut his hair on short term, she agreed. Afterwards, she was hard on herself: "Whoa, you did not think about yourself again!" (2.4, 18:28). In this case, the reason for her behavior was social pressure: "Otherwise, I would have been busy with school, but I could also do that the day after. But yes, it is giving and taking, I always think in these situations." (2.4, 18:13).

It was also hard for the patient to stop on time. "I had more pain. But this is just because I did it too fanatic." (2.5, 20:39). She went too far with the fitness training in the RRC. She had to stop at a certain point in therapy, as she had unbearable pain, because she has gone beyond her boundaries in the lesson before. "And that is just my fault. [...] Finally, I am very serious, when it comes to activities. When something has to be done, then I do it till it is ready, whether I am in pain or not. These are things you have to take care of, but I go beyond my borders then." (2.5, 22:12). The problem was that she did not stop, until it was too late: "I think that I always realize it when it is too late. I don't stop on time." (2.5, 22:43).

In the third interview, the last one before she paused with the interviews, she made a little progress. This could be seen especially in her work. Someone called her to ask if she could cut his hair tonight. But she had pain in her back and said 'no' for the first time. This was really new for her and still felt wrong: "I have to say that I regret it, when I hung up the phone I thought: 'Oh, if only I have said yes.' But I did say 'no'" (3.3, 14:40). As patient C, she had some sort of a double feeling – one the one hand, she felt proud that she did it, on the other hand, she did regret it: "You are a little afraid, like: 'Soon he will go to another hairdresser.'" (3.3, 15:28). She was partly satisfied with the situation:

“Because it gave me a bad feeling but I succeeded.” (3.3, 15:28). She also told that she rejected to go to a visit to the brother of her boyfriend, when her boyfriend asked her: “Normally, I would have said yes, because I never go with him to the disco, I would have said yes so that he doesn’t have to do everything on his own. But then I said no.” (3.3, 17:57). The reason that she said ‘no’ in these situations was pain, on the one hand pain. On the other hand, she said: “From the things they advised me, I want to follow as many as possible to make it easier for myself.” (3.3, 17:08). This was really new for her, as she always found it hard to choose the easy way.

End situation. At the end of the 7th interview, patient E was asked if and how she has changed during the treatment. She answered: “I do more thinking during activities. [...] Now, during activities, I sometimes think: ‘This is not going well. Go away or stop with it.’ But it is also possible that I think: ‘It goes fine, I go on a little more.’ I don’t want to say that it is always going well, as I feel it sometimes afterwards. But you notice that you haven’t been thinking about yourself or you did. [...] And I wouldn’t have been busy with it earlier. Yes, accepting. Certain things, that the pain is not going away anymore and so on. I still find that difficult. But we have been working on that a lot.” (7.4, 23:19). She had experienced that she had anger in her and that it is okay to feel it. She used to suppress all negative feelings. Now, she allowed herself to feel anger. She explained that in more detail: “I already knew it in a sense, but I found out this week that I rather wanted to push it away from me. That I wanted to keep it all at a distance. [...] I don’t want to believe in the emotions I have. What I have always said unconsciously to myself was: ‘Is not there. It isn’t. I don’t have it.” (7.4, 25:44). She became able to allow herself to act on the anger: “Now I think: ‘Beat the punchball or beat or kick against something, really hard. [...] Sometimes it feels really fine.” (7.4, 25:17). She said that she had benefitted from the treatment. She still struggled with a couple of things and realized that there is still work to do: ‘I have benefitted from it in any event. I improved on every point, but not so that I now do think: ‘Yes, this is finished, this is finished, and this is finished.’ And that is also not possible, because you have to work on it on your own. But it made me more confident. And gave me more peace.” (8.5, 26:30).

In the follow up interview, she described the way she changed: “I got the feeling that I am more at rest. Yes, and more easily. I still find it hard, but I can let it happen more easily. That you don’t find it that hard anymore all the time. Not ‘go on, go on, go on’. And it hurts to admit it, to think: I cannot do it anymore, that’s it. But you do it, you admit to it. And that is a development.” (8.5, 29:47). The most important things she learned were described by her like that: “There are a couple of things. I find the hobby’s very important, as I feel great doing it. Taking time for yourself, that is part of it. Becoming easier in things, how others look at you, although I still find that difficult.” (8.5, 29:47). She had difficulties with the mindfulness exercises: ‘No, I have to say honestly that I find it odd stuff. I just sit there a little. [...] I just don’t believe in it. No, I don’t like it.” (8.5, 31:47). She found that it went too far for her, that she didn’t wanted the therapist to foist this theory upon her. She even thought that it would have worked out negatively for her if she would have participated: “I think that I would have changed, if I would go that way. And not in a good way.” (8.5, 30:29).

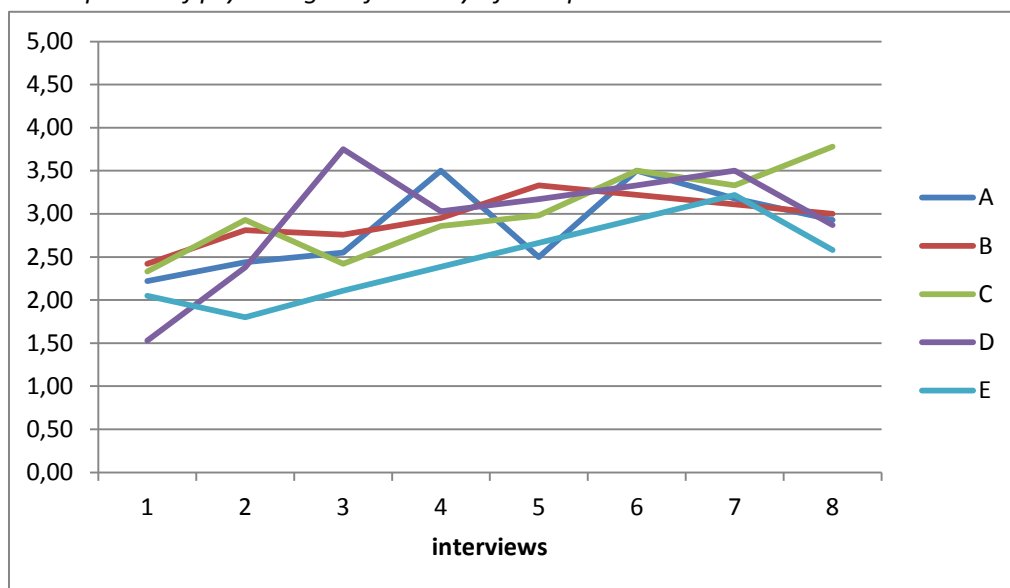
Conclusion. Patient E, the ‘fighter’, had many difficulties at the beginning of the treatment. Especially her perfectionism got in her way. She always wanted to be strong and she didn’t want others to feel

pitty for her, therefore she often weared a 'mask' and didn't showed her pain and her weak side to others. She also gave more attention and care to others than to herself. She was the patient who struggled most with acceptance, especially of the fact that she couldn't do the same things anymore she used to do. This may have been partly due to her young age. She is the youngest of the patients with her 19 years and compared herself with her peer group. She saw that she could not celebrate anymore like her friends. She lost her hobbies, like going out or going shopping, because of her pain. That depressed her, as her world got smaller and smaller. During therapy, she found new hobbies; especially by (re)discovering her creative side. At the time of the follow up interview, she painted on a regular base and was busy with making a scrapbook, both activities she saw as nice alternatives for her old hobbies. She found new joy in these hobbies, she could relax and she permitted herself to take time for herself, which she never allowed herself before. She was happier at the end of the treatment and put her own needs more central. She dared to put off her mask. These were important and big steps for her. She saw that she still had a long way to go, especially when it comes to acceptment of her pain and the limitations and changes the pain brings with it.

Comparisions

Figure 13

Development of psychological flexibility of all 5 patients



As can be seen in figure 13, the patients developed differently from each other, everyone in his or her own unique pattern. The starting levels differed to quite some extent between the patients. The scores at the end level of the treatment (7th interview) varied less. This means that although the patients began therapy at very different starting levels, they ended therapy with smaller differences and came out at a similar level. When talking about the end level in this section, we are talking about the score of the 7th interview and not the score of the follow-up interview. We made this choice, as the scores were lower in the follow-up interview, in all but one patient, than in the last interview during treatment.

The beginning level of acceptance laid between 1,33 and 3 points. Patient C started with the highest score and also ended with the highest score of 4 in the follow up interview. He differed from the other patients, as he was the only one whose acceptance score was higher in the follow up interview than in the last interview during treatment. The others varied only slightly between 3,00 and 3,33 points in the 7th interview.

Values-based action varied in the beginning between 1,02 and 2,33. The end level lay between 2,8 and 3,5. Application varied a lot at the starting point. The scores of the patients differed between 1,33 and 3. The scores of the end level varied between 3,33 and 4. Patient D started with the lowest psychological flexibility, a score of 1,53. Patient B started with the highest level of 2,42. The end level lay between a score of 3,18 and 3,5. Patient D ended with the highest score.

All patients, except patient C, had a lower level on all three subscales and psychological level in the follow up interview than in the 7th interview. Patient B did not participated in the 7th interview, but she also had higher scores on all measures, except from values-based action in her last interview during treatment, in week 6. Only patient C had a higher level on all measures in the follow up interview than in the last interview during treatment.

Patient D developed most in psychological flexibility, as she began with a psychological flexibility score of 1,53 and ended with a score of 3,5, which is a increase of 1,97 points. After her came patient C with an increase in the scores of 1,45. Patient C had an increase of 1,97 points in psychological flexibility. Patient A had an increase of 0,96 points. Patient B had the lowest increase with 0,91 points.

Three of the five patients had a crisis. Patient A had a clear crisis in week 6, which is relatively late, compared to the other patients. After his crisis, his scores went up again as high as they were before the crisis. Patient B had no clear crisis but rather developed gradually. Only the score of values-based action rised significantly during week 4. Patient C rather developed in in stages. He had a crisis in week 4. After the crisis, his scores went up much higher than they were before the crisis. That could also be due to the fact that his crisis took place relatively early. Patient D had a crisis in week 5. However, we must see that in the light of the especially high score in the week before. This high score also could have played a role in the fact that her score did not went up again as high as they had been in the fourth week. We cannot see a crisis in patient E. Anyhow, that does not have to say that she did not pass through a crisis. We don't know for sure, as we have only measured here up to week 4 and then only started again in the last treatment week. It is possible that she relapsed during the time where no interviews took place.

Based on the described scores and as can be seen in the developmental lines, it can be concluded that all patients passed through a development in all subscales and psychological flexibility. Three of them passed through a crisis.

Discussion

All five pain-patients passed through a positive development during an eight week long ACT-based treatment, as all patients increased in their scores in psychological flexibility. Their acceptance of pain and pain related issues showed a measurable growth. The number of times of values-based

action and application of what they learned during the treatment increased. However, when comparing the scores study of psychological flexibility and on the three subconcepts, obtained in the beginning and at the end of the, the difference is relatively small, especially between the first and the follow-up interview. The end scores of the seventh interview, which took place in the last treatment week, were higher. Furthermore, we can conclude that three of the five patients experienced a personal crisis during the treatment, with a following advancement of their development. We tested three hypotheses:

1st hypothesis: There will be a positive effect on psychological flexibility. All three sub measures will show an increase during the ACT-based treatment.

2nd hypothesis: Individual development of the five subjects will differ from each other.

3rd hypothesis: The majority of the participants will experience a crisis in their development of psychological flexibility and will finally end up at a higher level after the crisis, compared to the highest level before the crisis. We expect that this described crisis can be found back in the measures of psychological flexibility (and therefore in all of the three subscales).

The first hypothesis was supported by the data. The scores on psychological flexibility of all five patients were higher at the end of the interviews than in the first interview. Also, the scores of acceptance, values-based action and application increased between the first and the last interview. However, we did not expect a decrease of the scores in 7th interview to the follow-up interview, as was observed.

The second hypothesis was also confirmed by the interviews and resulting scores. Each participant developed in an individual manner, with different starting point and different end results, with or without a relapse, with highest scores and relapses at different point of times. Every patient was unique. Patient A was the 'thinker' who became more mindfully. His development was characterized by ups and downs and a late crisis. Patient B was the 'perfectionist', who learned to let go and accept that she can be happy with pain. She passed trough a steady development without hitting rock bottom or reaching exceptional peaks. Patient C, the 'work-a-holic', who constanly went beyond his limits, learned to make deliberate choices and to base them on what he found valuable. He passed through a positive development, with some ups and downs. Patient D, the 'rebel' with a lot of resistance against therapy, who denied her pain, open up, became more mildly and profited from being in a group a lot. Patient E, the 'fighter', who couldn't accept the limitations her pain put on her life, realized that she don't have to pretend to be strong all the time.

Althoug every patient developed in his own unique pattern and had special problems and learning points, there were also some resemblances. Firstly, every one improved in psychological flexibility. Secondly, there were some problems that could be found in almost all of the participants, like perfectionisme, going beyond limits and try to fight the pain. These things are also typical for pain patients. The patients of this study seem to have shared many characteristics, but also differed in many ways. Almost everyone pointed out that being in a group helped their own development. A third similarity in development was that all patients but one fall back in their scores of psychological flexibliy after therapy ended. Summarized, within a similar framework, everyone had his own way of developing.

The third hypothesis was only partly supported by the data. A crisis had been seen in three of the patients, whereas the scores of the other two patients didn't show signs of a crisis. Also, the measured relapses were different from each other in time and content, so that it cannot be concluded for sure that a crisis is part of the development during treatment for most patients. The patients that did experience a crisis finally ended up with higher scores when compared to the scores before the crisis, or at least with scores as high as they were before the crisis. Anyhow, it has to be noted that we cannot be certain that a crisis took place. Another possibility is that the interviews before and after the crisis were peaks. Another weak point is that the patients who did not experience a crisis dropped out of the interview earlier. So it is also possible that they did experience a crisis, which is not represented in our data.

It seems that a crisis can be a good thing for the development of the patients. How is that possible? The patients seemed to have learned an important lesson. They lowered the high expectations they often got when seeing that they were developing very fast in the first few weeks. Patients also accepted that relapses are part of the development they have to go through. By this, they are better equipped for future relapses that are likely to occur after the treatment. After the crisis, they often realized what they have done wrong. By that, they can anticipate in the future, as they know how to deal better with difficult situations. They tested their limits and went beyond it, with the positive side effect that they knew this limit afterwards and were less likely to go beyond it again in the future in such an extreme way. They have fallen and stood up again. This gave them more confidence in their strengths to deal with hard times. Considering this, it is only a logical consequence that the patients got out of their crisis better and stronger than before.

Comparisons with the literature. Our study confirms the finding that ACT is an effective means to help people with chronic pain (McCracken & Vowles, 2010), also from the patient's point of view. The positive outcomes that have been measured in quantitative studies, like for example described by Veehof, Oskam, Schreurs and Bohlmeijer (2011), were affirmed by the stories of the participants in our study.

The effects of our study are comparable with Middelink's (2010) and Pablowski's (2010) study on the development of agency in chronic pain patients. They observed an increase in agency, which is partly comparable to the increase in psychological flexibility. Some of the patients in their study also had a relapse, like it was the case in this study. Another resemblance was that in both studies, the development differed strongly between individuals. We decided to measure psychological flexibility instead of agency. Although agency can be used as a measure of the success of therapy, we came to the conclusion that the concept of agency does not fit to ACT, and thereby cannot capture the success of ACT. Furthermore, the concept of agency and its role in therapy is defined very vaguely. Emirbayer and Mische (1998) stated: "The concept of agency has become a source of increasing strain and confusion in social thought. [...] the term agency itself has maintained an elusive, albeit resonant, vagueness [...]." In our literature research, we found countless definitions; all differed in smaller or greater detail. As we did not find this to be a helpful concept to build our theory on, we decided to let this concept go. As psychological flexibility is the overall model of ACT and comprises the core ACT processes (Hayes et al., 2006), we found it a far better concept for our study. After all,

the ultimate goal of ACT is to increase psychological flexibility. Therefore, psychological flexibility, operationalized by the three concepts acceptance, values-based action and application, was chosen as a measure of the treatment effectiveness, as it appeared to reflect ACT in a better way. As agency is an American concept, it is rooted in the American tradition and history. Aspects of the 'American dream' can be found back in the concept; overcoming a problem heroically, often without help but rather with one's own strength, and finally rising up more powerful than before. This view also can be found back in the terminology of Adams and McAdler (2007a), who described the participants as 'beaten-down heroes'. This epic picture does not fit to the European picture of (therapy) success. It is even less compatible with to the principles of ACT. Within ACT, suffering is seen as a normal part of life, which should not be overcome, but rather should be accepted.

In the analysis of the content of the interviews, it can be seen that agency indeed didn't play an important role in the stories of the participants indeed. They didn't tell stories about overcoming their problem (their pain), but about accepting it as a part of their lives. Furthermore, their stories differed from the stories of the patients Adler and McAdams (2007a) studied. Their participants often experienced the caretaking of their therapists as disempowering, especially in the beginning of the therapy. One patient, for example, described that his therapist treated him like a victim. As many saw the work of their therapist as reinforcing their own powerlessness, they realized that the power to change had to come from within themselves. In the end, they often saw their improvement as solely due to their own work, not to the effort of the therapist. These stories differed from the stories the participants of our study told during the interviews. They mentioned that the therapists were helping them, even though it was often by confronting them, but thereby opening their eyes and empowering them, instead of letting them feel helpless.

Another difference was that participants in Adler and McAdams study described that their therapy had a turning point, often caused by abrupt and important insights, so that therapy was punctuated with dramatic revelations. These sudden and powerful changes cannot be found back in the stories of our participants. In the last interview, they were asked if there was a turning point in their therapy. No one of the five patients experienced such a sudden change, but told that it was rather a process of change instead of one point. These differences emphasize that the decision not to use agency as a measure of the therapy success was right in the context of our study.

Still, agency had played some part in this study, as our scoring scheme was based on the scheme that was used by Middelink (2010) and Pablowski (2010). They based their scheme in turn on Adler's and McAdams' (2007) scheme on agency. Although Middelink's and Pablowski's scheme formed the basis for our method, we finally carried out extensive changes, as we did not measure agency but psychological flexibility.

When comparing the outcomes of our study to the outcomes of the measures the RRC made (Roessingh, n.d.), many similarities can be found. Firstly, the RRC found medium to high effect sizes. In our study, we also saw a positive development in all five patients. Secondly, it was found by both the RRC and our study that the impact of pain on the daily life decreased. Through the stories of the patients, we now know more about the reasons. Impact of the pain got less, as the patients focused more on valuable things in their lives instead of doing everything to avoid or fight the pain. This was

already hypothesized by the RRC and is confirmed by this study's outcome. Thirdly, the RRC found that the mood of patients improved after therapy. This is also found in some of our patients, especially patient B and E. In follow-up measures, the RRC conducted three to six months after therapy ended, the effect of the treatment was found to be still substantial, but smaller. We also found decreased scores in our follow-up interview. As it was earlier - six weeks after the treatment - it can be concluded that the effect decreased fastly.

Finally, an observation of the practitioners of the RRC, which was not measured until now, can be confirmed by our study; patients often go through a personal crisis during the treatment. This relapse does not have a negative but rather a positive effect on the final outcome of the therapy.

In short, it can be concluded that this study confirmed what was found in the analysis of the RRC, which was based on questionnaires of the patients.

Reflections on the study. As pointed out above, it has been a good choice to decide against agency as a measure of therapy success. Instead, we decided to measure psychological flexibility, which we operationalized with the three subscales acceptance, values-based action and application. This choice was based on an adapted triflex, which is now often used to capture psychological flexibility (Harris, 2009). It was changed slightly in order to be a better fit to our study, by adding application, which measures concretely if and how well participants were able to really do the things they learned in the RRC. The outcomes of the study showed that changes in development were made visibly with our method. The subscales mostly developed in the same pattern. This indicates that they are able to capture one concept, psychological flexibility. Accordingly, it is not only possible, but also advisable to examine the therapy success of ACT by measuring psychological flexibility. The three subscales which were used also seemed to be a feasible manner to measure this concept. We made the choice to change the interview scheme, which was based on Middelenk (2010) and Pablowski (2010) scheme, from a general open interview to semi-structured interview. The reason for this choice was that we could not measure the three sub-concepts without questions that are used to get to know more about acceptance, the reasons for the patient's behavior and the way they applied the principles they have learned in therapy. The structure of the interview, especially always asking about a concrete situation, may have restricted the patients to talk as freely as in a totally open interview. Anyhow, we formulated the questions as open as possible. For example, we did not ask directly about acceptance, but asked the patient about his feelings and thoughts in the situation. We also didn't ask the patients if they based their actions on their values or something else, but asked them why it was important to them to do something. This structure made it easy to divide the interviews into situations and to score the situations. Because of the changes made in the interview scheme, the division of situations was easier than in the study of Middelenk (2010) and Pablowski (2010).

In the analysis of the data, it was chosen for a qualitative focus. The given scores were not analysed statistically, but rather used for a visualisation of the development. Instead, the focus was laid on an extensive description of the content of the interviews, as the stories were seen as most important outcome.

Limitations of the study. As the interviewers also scored the interviews, they could have been biased during the scoring, as they knew the patients they interviewed and had formed a certain picture of them. It is possible that the scores reflected their personal perceptions of the patients. This could have been one of the factors that caused the low interrater reliability. The interviewers may have had a more biased perception of the patients they had interviewed, and possibly scored them differently than the patients they did not interview. That could have created differences in the scores between the two interviewers. This threat to validity was solved by discussing the individually given scores, so that the unbiased interviewer could reason more open-minded and the interviewer who knew the patient could give more background information. Also, the scores, which the interviewers gave independently, differed only one point from each other in the majority of cases, when they were compared. This fact shows that it is unlikely that the interviewers were biased in a strong way. As we conducted single case studies, the results cannot be generalized widely. The conclusions that can be drawn from this study cannot be used by all clinical settings that use ACT. However, the findings give a good picture of how chronic pain patients developed during the AC-based, three-days-a-week inpatient program and may be generalized for this treatment in the RRC. Therefore, the results are especially helpful to the RRC, but less to others. However, as these were case studies, generalization was not the aim of the study. We wanted to gain insights and different perspectives. Still, our findings could also be of use to other rehabilitation settings where chronic pain patients are treated, as it may offer valuable insights of how chronic pain patients experience ACT. Other settings may use the results as thought-provoking impulses. We can conclude that all patients developed in a positive direction, that there was much diversity in development, that it is normal and often even positive that patients go through a crisis and that there is a risk of falling back after the end of the treatment.

The interrater reliability was very low. Therefore, a very intensive and time-consuming scoring procedure was used, where every single score was discussed to reach agreement on the scores. To prevent this time-consuming method in following studies, perhaps a better internal consistency may have been reached with a 3-point scale instead of the used 5-point scale.

Finally, it is possible that the patients told more about the positive experiences than about the negative ones. Because they had to describe their experiences to the interviewer, it is possible that they wanted to make a good impression. We decided to ask about negative events at the end of the interview if patients only told about positive situations. This was not always possible because of the limited time of the interviews. This could have had an influence on the outcomes, too.

Another limitation was that one of the patients (patient A) had already attended a two-week observation period in the RRC a time before the actual treatment. He stated that he had learned a lot in this time. This change is not captured in our study. Therefore, the starting point of patient A is not the real starting point, but rather a point in the middle of his development.

Implications. It was found that the patients perceived the interviews as very helpful. Patient B, for example, said: "Also very valuable. In the way that it is the same [as the therapy, comment of the author], because you are consciously busy with how the last week went. You summarize it. [...] So you are more conscious of what is happening here because of it." (5.5, 25:57). This statement

reflects the reactions of most of the patients. Most of them saw the interviews as valuable moments for reflection. This impression has also been documented by other studies. Skalina and McAdams (2008) stated that telling their story about therapy does contribute to the patient's understanding of the therapy and the reasons why the treatment works. By telling about their therapy, the patients give meaning to their experiences. They learn from what has gone wrong and how to deal with it in the future in a better way. The narrative reconstruction of therapy can also help to keep the achieved success of the therapy, when the therapy has ended (Adler & McAdams, 2007a; Adler, Skalina & McAdams, 2008).

Based on the findings of the study, some recommendations can be made for the RRC. Firstly, the fact that the scores fell back after the treatment, should be used in the treatment plan. The RRC could organize come-back days earlier than in the current program. Apparently, the patients felt back in their development relatively fast; six weeks after the treatment has ended. This could be due to the fact that they had two months constant support from the team of therapists and their group and then had to readjust to their daily lives with its daily hustles at once. Often, the patients received special support at home during the time of treatment, like partners who took over household tasks. This support may have lessened when the patients came back from treatment. Similarly, some patients had to go back to work or university when the treatment was over. This (anew) stress could have been overwhelming, especially in the beginning. These factors are likely to play a role in patients who return home from the inpatients treatment. Therefore, just this challenging starting time back at home should be supported by the RRC by offering an extra come-back day one month after the end of the treatment.

Another observation is that it is especially hard for younger patients to accept their pain and the disabilities the pain cause. Patient E, the youngest of the patients, was a good example for this effect. Younger persons are still in a development and the process of choosing a direction for their life, which should be considered. Age seem to play a role that has not given much attention so far but should be bared in mind in future treatment. Treatment could be more adapted to the age of a patient. Older persons, for example, are in a different phase of their life than younger persons and have therefore different needs.

Another finding is that not all patients reacted positively to mindfulness or, like patient E, even resented it. It is questionable if this finding should have any consequences to the treatment at all, as minfullness is an important part of ACT. On the other hand, a strong resentment that lasts until the end of the treatment could have a negative effect on the development of the patient it concerns. So it should be thought about the option to offer the patients the possibility to skip the mindfulness exercises and do something else instead. By giving them the choice, they would not feel forced to take part and this could in turn lessens the resentment.

The group aspect seemed to be a crucial factor for all patients. Patients learned a lot from the other group members, felt that the group supported them and used the group as environment where they could exercise the principles they learned in therapy. The insight in the importance of the group should beared in mind when deciding if a patient should get individual therapy or treatment in a

group. When individual therapy is indicated, it should be considered to incorporate group treatment in certain parts of the treatment. This is already carried out in the RRC, but could be extended.

Recommendations for future research. There are some improvements to the methods that we recommend for future studies. Firstly, a three-point scale instead of a five-point scale could simplify the scoring and thereby improve the interrater reliability. In this study, it was chosen to use a five-point scale, so that even small changes in the development could be detected. This had the downside that the scores, given by the two interviewers, often differed by one point. A scale with less choice would make it easier to score and probably would increase interrater agreement. On the other hand, using a three-point scale might make it harder to detect small changes in the development of the patients. But it is likely that it would still give a good picture of the overall development. It could even be considered if it would be satisfactory to only measure psychological flexibility, regarding that the three subscales all measured psychological flexibility and developed very similar. The value of the three subscales is questionable, comparing it to the work load they produce in the scoring. On the other hand, it can be argued that it is valuable to being able to see small changes in the development of the three concepts. There are some points where they developed independent and different from each other, and these can be very interesting.

The interview scheme worked well, but one standard question has been used, which turned out to be redundant. We always asked which grade the patient would give to the described situation, concerning how well he or she applied what he learned in this situations (from 1, very badly, to 10, very well). We intended to use this grade as a basis for scoring the subscale application. During the interviews, we realized that the grades the patients gave themselves did not reflect how well they applied learned principles. Examples are that some patients rarely gave themselves high grades, or some patients gave themselves a high grade for a situation where they failed, because they saw it as a good learning moment. Accordingly, the recommendation is to leave this specific question out of the interview scheme.

Another recommendation is to hold the first interview during the first week of treatment. We decided to begin at the second week, as an interview could otherwise be an additional stressor for the patients in this new environment and stressful beginning time and might cause an aversion towards the interviews. In the second week, the patients are already used to their new environment. The downside to this is that by beginning in the second week, we got an incomplete picture of the development, as we did not measure the actual starting point. It would be of great advance to obtain interviews during the first week to have a picture of the whole process, from beginning on. It is likely that the effects are larger between the first and last measure, when measured this way.

It is also recommended to use the questionnaires of the RRC and to compare measures of e.g. acceptance with the development of acceptance in the interviews. This was not possible in our research, as the questionnaires were not administered completely and were too incomplete to be of use. It would be interesting to see if the measures of the interview match the questionnaire outcomes.

The method should include a clearer agreement if, how and when to ask about negative events. One possible solution is to always ask about one positive and one negative situation in every interview and let the patient decide about the third (and if some time is left a fourth or even fifth) situation. An interesting finding was that the willingness to participate in the study became higher during the recruitment, when the patients were told that they will get a summary of their development in the end. This seemed to be an important motivation for patients to take part. Some patients mentioned that they are really curious to see the description of their development during the interviews a couple of times. So this description should be explicitly mentioned when asking patients to take part. This also implies that the RRC could do more with reporting. Patients are interested in reports about their development during therapy. They complained about the fact that the team frequently talked about every individual from the group, but that they never received feedback. Also, there is only a letter for their physicians at the end of the treatment, but no standard letter for the patients themselves, even though they can ask their physician for the letter. It would be an improvement to give the patients an endreport with a short summary of their improvements, which has to be written in a way which is easily understandable.

Finally, we recommend including the interviews as a standard part of the RRC's treatment program, for the interviews which will be held in the future. This makes it easier for patients, therapists and interviewers to plan and execute the interviews.

Another recommendation is to conduct the follow up interview at a later point of time, for example two or three months after the end of the treatment. It is possible that this would influence the observed pattern that the development decreases from the 7th to the follow up interview. This could be due to the changes the former patients have to adjust to when coming back home, not having the support from the therapists and their group anymore. This time of transition from treatment to daily life probably influenced the scores. When measuring after two or three months, it is likely that the participants have adjusted better to the new situation and therefore would also score higher.

More (case) studies are needed to compare problems, main learning points, developmental patterns and the occurrence of a crisis from future patients with the patients of this study. This could shed light on the question if our findings are unique to this group of patients or could be generalized to a greater group of patients. For example, it could give clues if patients could be classified into categories. This could either be similar categories we used for the patients, like the 'fighter', or new categories. Furthermore, with more future research on this topic, categories on development could be found and used, like 'steady, slow development' or 'alternating development with ups and down'. This categorization could help practitioners to act accordingly to the special problems and needs of the category of a certain patient.

Importance of findings. This study addresses an important problem: the treatment of people with chronic pain. As chronic pain is common (Blyth, March, & Cousins, 2003) and today's treatments do not always help, the suffering individual and society are strained with social and financial problems (Breivik et al., 2005). Many studies have confirmed that ACT is an effective treatment (Vowles & Thompson, 2011; Veehof, Oskam, Schreurs & Bohlmeijer, 2011), but none have looked at how the patients actually perceive ACT. It was known that ACT helps a patient feeling better at the end of the

treatment, but it was never examined how they develop during the treatment. This study assessed the point of view of the patients, which is of utmost importance to understand not only if, but how ACT works. The outcomes of this study gave valuable information on the vision of the patients on ACT. It confirmed that they were able to use the theoretic concepts of ACT to handle their life with chronic pain in a better way. They were able to understand and use concepts like values and mindfulness in their daily lives. As we examined how they experienced the treatment, the findings also have clinical relevance for ACT treatments for chronic pain patients, especially for the treatment given in the RRC. The results showed that ACT had a positive effect on psychological flexibility and on the concepts of acceptance, application and values-based action. It also shows that a crisis is experienced by the majority and does not necessarily have a negative effect on treatment but can even affect it in a positive way. It can be seen as a natural part of the process.

This study also has practical significance. One of the clinical implications is related to the finding that the scores fell back after the treatment. This could be used in future treatment by organizing come-back days earlier than in the current program.

Still, a lot more can be done in this field and this study was only the beginning of interesting future research in this area. We gained valuable new insights from the patient's perspective, which can be used as the basis where future research can build on to gain more results useful to the practical field.

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Appendix 1

Interviewschema algemeen

Introductie

Ik ben blij dat u er bent en wil graag beginnen.

Openingsvraag

Kunt u vertellen hoe het met u gaat?

Deze vraag is vooral bedoeld om de patiënt te laten vertellen wat bij hem op dat moment speelt.

Hoofdvraag:

Ik wil graag beginnen met de hoofdvraag. U mag hierop alles antwoorden wat in u opkomt en wat u belangrijk vindt.

Wat heeft u afgelopen week geleerd en ervaren?

Per gegeven situatie doorvragen, zie volgende blok. Na het uitwerken van de situatie wordt naar een volgende situatie gevraagd. Wij streven naar tenminste drie situaties.

Specifieke vragen om antwoorden op de hoofdvraag te krijgen:

- A. Wat was nieuw voor u de afgelopen week?
- B. Waren er dingen die u tijdens de therapie hebt geleerd maar waar het u niet gelukt is om die toe te passen?
- C. Wat is er gebeurd waar u na de behandeling aan terug zult denken?
- D. Wat was er anders afgelopen week in vergelijking met daarvoor?

Aan de hand van wat revalidant een bepaalde dag gedaan heeft antwoorden genereren.

Indien een patiënt veel verteld wat niet binnen de onderzoeksvraag valt, deze respectvol herinneren aan de onderzoeksvraag: "Ik begrijp dat ... belangrijk voor u is. We kunnen aan het eind daarop terugkomen. Vindt u het goed dat we nu verder gaan met situaties die u afgelopen week ervaren heeft?"

Per situatie doorvragen. (bij voorkeur tenminste 3 situaties beschrijven)

Kunt u een concreet voorbeeld geven?/Kunt u de situatie beschrijven?

Kunt u vertellen welke gedachten u daarbij had?

Kunt u vertellen welke gevoelens u daarbij had?

Wat maakte dat het belangrijk voor u was dat te doen/ niet te doen?

Wat maakt dat het wel/niet deed? → hier goed doorvragen.

Kunt u aangeven in hoeverre het gelukt is het geleerde toe te passen op een schaal van 1 tot 10.

Bent u een dergelijke situatie ook op andere momenten tegengekomen?

Deze vraag is bedoeld om de generalisatie van de toepassing in te schatten (binnen de sessie, in andere sessie, in het Roessingh, buiten het Roessingh).

Afsluiting:

Hebt u zelf nog vragen of opmerkingen over het interview?

Ik wil u heel erg bedanken voor de moeite. Ik vond het erg interessant om naar uw verhaal te luisteren. Ik wil u succes wensen met het vervolg van de behandeling. Graag spreek ik u volgende week weer.

Appendix 2

Afwijkingen in het interviewschema

Eerste interview:

Kennismaking en uitleg

Ik ben Laura Weiss / Martine Tammes. Welkom bij dit eerste interview.

Het doel van dit onderzoek is om meer inzicht te krijgen in de behandeling en factoren die deze beïnvloeden. Dit kan helpen de behandeling te verbeteren door meer inzicht te krijgen in het behandelproces.

Ik zou u graag gedurende uw behandeling op het Roessingh wekelijks willen blijven volgen en eenmaal ongeveer een maand na de behandeling een laatst interview afnemen. Het laatste interview kan telefonisch. Voor de andere staat dit tijdstip gepland. We hebben elke week maximaal 30 minuten. Hierbij is het voor mij heel handig als ik dit opneem, zodat ik later alles nog eens rustig terug kan luisteren. Uw gegevens worden uiteraard anoniem verwerkt. De interviews kunnen u helpen, alles nog een keer op een rijtje te zetten wat u zo allemaal geleerd en ervaren hebt tijdens de behandeling hier. Deze interviews zijn al een keer gedaan met eerdere pijn patiënten in het Roessingh en zij vonden het een waardevolle ervaring die hun hielp.

Uw beleving van de behandeling staat centraal bij dit interview. Wij willen iets weten over de ervaringen vanuit de revalidanten en zien u dus als de expert.

De interviews staan in zoverre los van de behandeling die u hier krijgt dat wat u gaat vertellen geen invloed op de behandeling zal hebben. De behandelaars krijgen de interviews niet te zien.

Vindt u het goed als het interview wordt opgenomen?

Als er iets is wat voor u onduidelijk is, of waar u het niet mee eens bent, dan kunt u mij dat gewoon laten weten.

Patiënt leren kennen

Ik heb net een heleboel verteld. Kunt u mij iets over uzelf vertellen, zodat ik een indruk kan krijgen, wie u bent?

Interview in 8^e behandelweek

Afsluiten

Mag ik u tenslotte vragen hoe het voor u was deze interviews te doen?

Afspraak voor follow up interview. (wanneer en hoe)

Follow up interview

Inleiding:

Fijn u weer te spreken. De laatste keer is al wat langer geleden.

Openingsvraag

Hoe gaat het nu met u?

Hoofdvraag 1

Eerst wil ik graag een vraag stellen op dezelfde manier als de andere interviews:

Wat heeft u sinds de behandeling is beëindigd geleerd en ervaren?

Doorvragen conform algemene interviewschema

Hoofdvraag 2

Graag wil ik nog een vraag stellen. Hierbij heeft u alle ruimte om te vertellen.

Kunt u beschrijven hoe u uw eigen ontwikkeling tijdens de gehele behandeling vanaf de intake tot nu heeft beleefd?

Doorvragen, meer open interview

Is er een terugval tijdens de behandeling geweest?

Als u zichzelf vergelijkt tussen nu en het moment van de intake, bent u dan veranderd?

Wat is het belangrijkste wat u geleerd heeft?

Wanneer heeft deze verandering plaatsgevonden?

Is een moment bepalend geweest in de behandeling?

Afsluiting

Formulier laten onderschrijven: In het formulier wordt aan de revalidanten gevraagd of hun interviews geanonimiseerd mogen worden gebruikt om ervaringsverhalen te schrijven bij 'Leven met pijn – online'. Misschien worden citaten gebruikt of worden verhalen samen gesteld op grond van de interviews. Men krijgt van tevoren te zien wat verwerkt wordt.

Ik wil u heel erg bedanken voor de deelname aan dit onderzoek. Ik vond het erg interessant om naar uw verhaal te luisteren.

Mocht u geïnteresseerd zijn in de resultaten van het onderzoek dan kunt u dit nu aangeven, zodat ik u te zijner tijd een samenvatting van wat we gevonden hebben zal toesturen.

Appendix 3

Overzicht scoring

1 punt	Acceptatie	Het vermijden van pijn en andere negatieve (private) ervaringen en daaraan gerelateerde gedachten en gevoelens staan centraal.
	Functie van gedrag	Het gedrag van de revalidant wordt volledig bepaald door externe/ interne en/of sociale motivatoren.
	Toepassing	Het is helemaal niet gelukt om het geleerde toe te passen.
2 punten	Acceptatie	Het vermijden van pijn en andere negatieve (private) ervaringen

	<p>Functie van gedrag</p> <p>Toepassing</p>	<p>bepalen grotendeels hoe de revalidant zich gedraagt. Er ontstaat een besef dat het anders moet.</p> <p>De revalidant handelt grotendeels vanuit externe/ interne en/of sociale motivatoren.</p> <p>Het geleerde is niet toegepast, maar er is een besef dat het anders moet.</p>
3 punten	<p>Acceptatie</p> <p>Functie van gedrag</p> <p>Toepassing</p>	<p>Deels wordt pijn en negatieve (private) ervaringen vermeden, deels is er acceptatie.</p> <p>De revalidant handelt deels vanuit externe/ interne en/of sociale motivatoren en deels vanuit waarden.</p> <p>Het lukt deels het geleerde toe te passen, deels zijn er nog aspecten van het geleerde die niet toegepast zijn.</p>
4 punten	<p>Acceptatie</p> <p>Functie van gedrag</p> <p>Toepassing</p>	<p>De revalidant accepteert grotendeels dat pijn en negatieve (private) ervaringen aanwezig zijn.</p> <p>De revalidant handelt grotendeels vanuit zijn waarden. /grotendeels onafhankelijk van externe/interne en/of sociale motivatoren.</p> <p>Het geleerde is grotendeels toegepast.</p>
5 punten	<p>Acceptatie</p> <p>Functie van gedrag</p> <p>Toepassing</p>	<p>Dat pijn en negatieve (private) ervaringen aanwezig zijn wordt volledig geaccepteerd.</p> <p>De revalidant handelt volledig volgens zijn waarden/ volledig onafhankelijk van externe/interne en/of sociale motivatoren.</p> <p>Het lukt het volledig het geleerde toe te passen.</p>

Appendix 4

Voorbeelden voor scoring

Acceptatie

1 A1, S2: Rust nemen. Vermijding van onrust (“... word ik weer onrustig van en dan merk ik toch dat ik snel wel iets ga doen.... Ja, ik denk om een beetje ... afleiding te hebben.”) en vermijding van pijn (... maar dan heb ik genoeg afleiding, zodat ik niet merk dat ik heel erg hoofdpijn heb.”).

2 E2, S1: vakken schrappen. Patiente kan niet accepteren dat ze haar oorspronkelijke doel, de p in één jaar halen, los moet laten, ze is teleurgesteld. “Ik dacht er meer over na dat ik het zo graag wou, maar dat het gewoon niet kon. Dat kan ik voor mezelf niet hebben. Ik ben een hele, iemand die heel perfectionistisch is en alles moet met een goed eind aflopen. [...]Ja, teleurgesteld in mezelf dat ik het allemaal niet trek.” Er is wel een besef dat het anders moet. Ze geeft aan geleerd te hebben “om het

toch voor mezelf wat makkelijker te maken. Minder dingen; ik wil heel veel dingen, maar ik moet toch begrijpen dat het allemaal niet kan.” Verderop zegt ze ook: “Dus ik moet nou toch maar accepteren dat het gewoon niet gaat lukken en dat ik misschien toch maar bepaalde vakken af moet zeggen voor dit jaar, maar het volgend jaar ga doen.”

3 A6, S2: omgaan met lekkage. Hij doet er iets aan, dus hij vermijdt niet, maar kan niet accepteren dat hij dingen niet zelf kan doen, dus hij wil controle houden.

4 B8, S4: Plannen en rustmomenten pakken. Patiente lukt het om in het huishouden de dingen meer los te laten: “Waarin ik eerst begon en eindigde en daartussen niets zat, ben ik daar nu wel veel meer rust in.” Ze heeft ook concrete voorbeelden: “Zelfs dat meteen na het eten afruimen, dat doe ik niet meer.” Het lukt haar, verantwoording aan haar partner af te geven en dus de controle los te laten: “Maar Milo krijgt nu ook de kans om dingen te doen. [...] Want ik deed eerder wel alles. Ik hield alles vast.” Het is een 4, omdat het nog niet altijd even gemakkelijk voor haar is: “Er is nog wel een drempeltje.”

5 D5, S4: Nee zeggen. Patiente verteld iemand, die ze niet zo goed kent, uitgelegd waarom ze op het Roessingh is. “Ja, dat ik wel vind, dat ze wel mogen weten hoe het er nu bij staat. Dus, dat ik mij daar nou minder voor schaam en ja niet meer zo stoer over ben van het gaat niet zoals ik zou willen.” Hieruit spreekt grote acceptatie, zo veel, dat ze er zelf met andere over durft te praten.

Functie van gedrag

1 B4, S1: Meerdere externe redenen: omdat iemand anders het voorstelt (sociaal), automatisme, dienstbaar zijn (sociale reden), “eigenlijk is het niet belangrijk”.

2 D1, S3: “Thuis hou ik me ook wel bewust stil, gewoon toch, mijn partner niet daar meer mee te belasten. Kom er nu achter dat ze juist wel graag wil wat meer informatie. Dat het voor haar wel prettig is om te weten hoe ik erbij zit. Dat is, ja, ik zie wel dat ik niet verder mee kom met die houding van ik houd het wel voor mezelf.” Externe reden (partner niet willen belasten), wel besef dat het niet goed is, dat het anders moet.

3 D8, S2: Body scan toepassen in het ziekenhuis. Op de vraag waarom patiente het belangrijk vindt om de body scan toe te passen, antwoordt zij dat ze het doet om niet om te slaan in paniek. Ze handelt dus deels uit een interne motivator, namelijk om een naar gevoel, paniek, te voorkomen. Ze handelt echter ook vanuit wat ze geleerd heeft. Zij zegt: “Dat zijn allemaal dingen uit het verleden die je tuurlijk wel herkent. Dus. En nu anders doet.” Ze wil meekrijgen wat de arts verteld, dus ze handelt vanuit haar gezondheidswaarde.

4 C3, S2: bewuste keuze om vriend te helpen. Hij moet lang rijden, wat voor hem erg lastig is. Hij zegt: “... dat wist ik bij voorbaat, had ik heel bewust voor gekozen, maar jongens, dat accepteer ik, omdat ik gewoon graag die persoon een keer mee wil helpen.” Hij maakt duidelijk keuzes naar zijn waardes. Het is echter geen 5, omdat hij later zegt dat het ook belangrijk voor hem was omdat hij iemand daar een plezier mee doet. Dit duidt op een sociale motivator.

5 B5, S1: Leuke dingen doen ondanks pijn. Op de vraag, waarom het belangrijk is om weer leuke dingen te doen zegt zij: “Ja, omdat, dat is gewoon zoals ik ben, gewoon de gezelligheid en het ja, met

vriendinnen.” Ze is blij dat ze nu voelt dat je je leven ook weer uit de ijskast kunt halen, dat deed ze namelijk een hele tijd. Ze wordt nu weer ze zelf, dat is duidelijk een waarde voor haar.

Toepassing

1 C5, S1: Omgaan met griep. Revalidant zegt op dat vraag, wat hij geleerd en ervaren heeft dat hij het gevoel heeft dat de tijd achteruit is gerold. “Ja, voor de rest alles wat, of heel veel wat bijgebracht is hier, is eigenlijk in de afgelopen twee weken heel weinig van benut.” Op de vraag of er iets anders was in vergelijking met hoe hij daarvoor met pijn is omgegaan geeft hij aan: “Nee, denk ik niet. Denk niet dat er veel verschil in zit. [...] weer snel dat je op dit soort momenten wel heel snel weer terug valt in oude gebruiken en rituelen.”

2 D2, S1: Stoppen met tennis. “Ja, dat vind ik gewoon leuk, ik heb jaren getennist en ik had echt zoiets van nou, kom maar op. En na 10 minuten merkte ik al wel, dat mijn rechterschouder zoiets had van hmhm, dat gaan we niet meer doen. Maar dan ga ik toch door, omdat ik het dan leuk vind.” Ze geeft aan “Dan druk ik het weg en dan ga ik gewoon door met het spelletje.” Ze gaat dan zelfs op hetzelfde tempo door. Ze ziet achteraf wel, dat ze ook gewoon langzamer had kunnen doorgaan, en dat ze het dan ook langer had volgehouden. Er is besef te zien, dat het anders moet: “Ik kom er nu wel achter dat [...] het ook wel handig is om even te stoppen.

3 B8, S3: Anderen niet steunen om in je kracht te blijven. Revalidant stuurt zijn vrienden naar huis, die er zijn om hem te helpen, omdat hij het niet aankan hun problemen aan te horen. Hij geeft zichzelf echter slechts de cijfer 6, omdat hij vindt dat hij te lang daarmee gewacht heeft. Hij vindt dat hij het eerder had moeten doen, de frustratie was aan het eind vrij hoog. Door zijn eigen ontevredenheid krijgt deze situatie slechts een 3, het is deel gelukt, maar deels ook niet.

4 B4, S5: Thuis rustiger aan doen lukt wel, maar ze heeft daarbij nog een duwtje in de rug nodig van haar man.

5 E7, S1: Plezier in andere dingen zoeken. Vroeger ging ze graag shoppen en ze hield ervan om uit te gaan met vrienden. Dat kan ze nu niet meer. In plaats daarvan schildert ze nu. Ze heeft op het Roessingh een pasteltekenen cursus gehad. Thuis is ze dan van zelf met acryl schilderen aan de slag gegaan. “Dat zijn toch wel dingen waar ik nou mijn ontspanning in kan vinden en waar ik plezier aan beleef.” Ze wil ook volgend jaar een cursus volgen. Verder is ze begonnen met werken aan foto’s. Nu neemt ze zich de tijd ervoor, dat gunde ze zich vroeger niet. Ze wil een album maken met foto’s van de verbouwing van het huis van haar vriend. Ze heeft een goede manier gevonden om ermee om te gaan dat ze niet meer alles kan doen: “ Dus ook op avonden wanneer we bijvoorbeeld mijn vriend met kameraden lekker de kroeg in gaat of zo, dan kan ik daarmee bezig zijn. Ik denk dat dat voor mij ook wat makkelijker is om dan te aanvaarden van nee, ik kan inderdaad niet mee naar de kroeg en ik kan niet mee stappen en ja, dat maakt denk ook wat makkelijker omdat ik dan mijn eigen bezigheden heb, waar ik ook plezier in beleef.