ACTiveRehab and ACTiveAssessment in chronic pain rehabilitation

1 The nuts and bolts of ACT-consistent interprofessional assessment

1.1 What is this chapter about?

In this book you have you been reading about ACT interventions in different contexts and conditions and when it comes to chronic pain, there are many books and articles that explain how the ACT psychologist can work. However, in the area of pain **rehabilitation**, there are some extra ingredients to consider. The state-of-the-art for specialty pain rehabilitation clinics are **group interventions delivered by an inter-professional team**, which adds some challenges in the implementation of the ACT principles for each profession. Furthermore, patients with persistent[1] pain have different needs of rehabilitation, different pace and capacity to make changes. ACTiveRehab's assessment module, the ACTiveAssessment, offers a comprehensive model to identify these needs in terms of ACT processes and be able to profile patients according to their behavioral profiles with in turn will inform the therapists how to design each rehabilitation program for each one of the profiled groups.

1.2 The problems/pitfalls of implementing ACT in an inter-professional setting

The implementation of ACT in an inter-professional team that deliver group-based interventions, encounter several other challenges: 1) ACT is a psychotherapy and thus can be difficult to safely/accurately translate its principles into the other professions of the team, 2) it is difficult for the team to find a common language and shared and system to assess (in ACT we call it "conceptualize") the patient, generating more than often conflicts in the team, 3) the assessment, selection and allocation of patients into these groups is complicated and there is a lack of systematization and evidence based guidance to do so and 4) we have good scientific and clinical evidence that shows that not all patients in a group benefit so some clinics go back into working individually losing the important synergy and therapeutic capacity of the group intervention.

1.3 The aim of this chapter

ACTiveRehab offers a comprehensive infrastructure for the interprofessional pain rehabilitation team to organize their clinical work around ACT principles both at an organizational level

[1] Chronic pain is the international term for a long-lasting or persistent pain. In this chapter they will be used interchangeable, however with a preference of the last two, since the term chronic has a more 'permanent' meaning, a more rigid tone.

(standards of performance for activities undertaken supporting the delivering patient care) as well as therapeutically (the delivering of an evidence-based patient care).

In this chapter, however we will focus on the ACTiveAssessment module, how to triage and understand the different rehabilitation needs of our patients in ACT terms, offering the team a common language and a systematic way to assess, match, group and then tailor rehabilitation programs for these different profiled groups. In the chapter xx we will be more focused on hwo the non-psychotherapists in the team can operationalize the ACT principles with ACTivePhysio, ACTiveBODY and ACTiveOT applications.

2 Evidence of ACT in the area of chronic pain rehabilitation

2.1 ACT and pain

Acceptance and Commitment Therapy (ACT) has strong evidence in the area of chronic pain (1). With short interventions, patients are able to regain a vital and meaningful life, despite experiencing daily pain and other discomfort (1-5). ACT focuses on improve the Behavioral Flexibility (BF) required to respond to pain in a more functional and adaptive way (6). This adaptive response can be called Pain Acceptance, a flexible behavior in the face of pain that has direct impact on our functional level (physical, mental and social) allowing us to minimize the consequences that pain avoidance may have on our life (7-11).

2.2 Pain Acceptance

Pain acceptance consists of two behaviors, a mental one (covert) and a physical and/or social one (overt). The mental one is called Pain Willingness described as an attitude and openness to the idea that pain is a natural and normal part of our life. The opposite will be to think in terms of "*why me? it is unfair!"* The physical and social behavior is called Activity Engagement, which measures in which extent I am engaged in important activities despite of experiencing pain. The instrument used to measure pain acceptance is the Chronic Pain Acceptance Questionnaire (CPAQ) 20-items, well validated and used in many languages (12). In this chapter, we introduce the 8-items (13-16) since it is more pragmatic and clinical useful in order to recognize different pain acceptance behavioral profiles (17).

Pain acceptance moderates between pain intensity and catastrophizing (18) altering the impact of pain-related thoughts and feelings on behavior (19) without necessarily changing the content of thoughts and feelings themselves (20-22). It also impacts the responsiveness (21) and the reactivity (8), and tolerance to pain (23) influencing the recovery time (24). Furthermore, pain acceptance has been found to moderate between pain severity and negative affect (25) and mediate between pain and physical function (26) suggesting that pain acceptance **alters the impact of pain on both emotions and behaviors**, allowing effective management of the pain condition, thus decoupling the functional relationship between these two variables (27).

2.3 Pain Acceptance as mechanism of action (mediator) and as indicator of rehabilitation needs (moderator).

Pain acceptance is good candidate to test as both a treatment *moderator* and *mediator*. Treatment *moderators* are 'pretreatment or baseline variables that identify subgroups of patients within the population who have different effect sizes' (28). As such, pain acceptance has the capacity to moderate intervention response—who responds and who does not—being a promising indicator useful to create subgroups among the chronic pain population.

As *mediator*, pain acceptance is considered as the 'mechanism or process through which a treatment might achieve its effects' (29, p. 878), allowing professionals to be more targeted in composing the different rehabilitation packages. In other words, if pain acceptance can be both a mediator and a moderator, pre-treatment assessment of acceptance may provide useful information for clinical decision making on how to optimally target the intervention, and to seek better interventions for non-responders (30).

2.4 Measuring pain acceptance

Pain acceptance consists of two behaviors, a mental one (covert) and a physical and/or social one (overt). The *mental* one is called *Pain Willingness (PW)* described as an attitude, an openness to the idea that pain is a natural and normal part of our life. The opposite will be to think in terms of "why me? it is unfair to experience pain!" The *physical and social* behavior is called *Activity Engagement (AE)*, which measures the extent of engagement in important activities despite of experiencing pain. In the Chronic Pain Acceptance Questionnaire (CPAQ) 20-items (12) both behaviors are measured. In this chapter, we introduce the clinical pragmatic CPAQ 8-items[2] (13-16, 31), and based on the patient's AE and PW scores in AE and PW, four different behavioral patterns or ways to relate and accept pain emerged (17).

2.5 Pain acceptance patterns, a non-stigmatizing indicator of heterogeneity among patients with chronic pain.

Patients with persistent pain cope and react to their pain differently, even among them with the same diagnosis. These coping behaviors may be in the long run, more or less functional and effective. While some pain conditions are resistant to current medical treatments, leading to persistent pain; how we handle, cope and behave in the presence of pain, is modifiable. This insight is important for the patients to understand why we focus on behavioral changes and not on changing the pain: we target what we know we can change: that is behaviors, how we 'navigate' with pain.

Not only we cope with our painful situations in different ways, but we also have varying capacity to change our behaviors both between individuals and within the same person. We can accept and adapt flexibly to new situations and explore new behaviors when we feel safe, while when we are threatened we do not have that freedom or flexibility, it is all about to survive and not explore new frontiers. Our flexibility and capacity to be open to pain (physical, mental and or

[2] CPAQ-8- German version and its calculation template (Appendix 1 and 2: on-line material].

social), to change our behaviors and to sustain is observed in the everyday clinical practice and also in most of the studies and reviews concluding that even if ACT has positive impact on outcomes, the responsiveness is uneven (which can be seen by the medium to low effect sizes in 3, 10, 32)). To overcome this heterogeneity, we need to better understand the differential needs and responsiveness of each individual. Then we be able to more precisely combine the active therapeutic components (the 'how' and 'why' the therapy works, i.e. mediators) to meet with precision the patient's needs (the for 'whom' i.e. moderators) by tailoring different rehabilitation packages.

2.6 ACTiveAssessment, using the CPAQ to understand each individual way to relate to (or accept) their pain and their capacity to make behavioral changes

Combining AE and PW scores, four different patterns of behavioral profiles emerge (see Figure 1). These different patterns indicate the capacity to accept pain and to relate to it in a functional and adaptive way, a behavior also known as behavioral flexibility (BP) (33). These four ways to accept and relate to the pain also indicates the individual physical, mental and social function, the quality of life, vitality level and indicate the current capacity and readiness to change behaviors and thus, potential needs in rehabilitation (17).

These four pain acceptance functioning patterns are the following (see Figure 1):

1. Low AE- Low PW: in the ACTiveAssessment model this functioning called "the Threaten pattern", since the pain is experience as a thread for survival and this fear or stress can be paralyzing. When operating from a threaten place we ae in survival mode and the physical, mental and social functions are frozen and not growing. The quality of life is low, no much vitality and there is not readiness to do any change, just wait for the threaten to go away and survive this crisis or trauma.
2. Low AE- Higher PW: after 'surviving' a crisis we get a feeling of emptiness and lost. We are not sure were to move towards to, this functioning mode is characterized by a simultaneous contradictions, called "the ambivalent pattern" that when under stress, a tendency to react with a 'flight'-response (numbing feelings, memories by shuting down or using alcohol or drugs, or other avoiding strategies like depressive and alexitimic patterns) and fighting with others (complaining, being irritated, angry, aggressive, etc). There is potential for physical and mental functioning, but no much social interactions. The quality of life and vitality is in general low and the readiness to change can sometimes be lower than the former group, it can be a permanent feeling of exhaustion and fatigue.
3. High AE - Low PW: when we start finding a direction, we start moving and mastering new skills, we try to control the situation and may get into a functioning characterized by anxiety-driven and a tendency of overdoing and a reward/approval seeking pattern (a good girl-attitude). When under stress, re-acts with a typical 'fight'-response, with a struggling or trying to control both oneself and others, however with a prosocial intention of being accepted. This is the "warrior" or the "wonder-woman" pattern, the one that take care of others and seldom set boundaries or say 'no'. The physical functioning is higher than the mental and the social interactions are there but are also

problematic. The quality of life and vitality is in general high but since these is a difficult to stop and 'charge the batteries, the vitality will crash generating a roller coaster pattern. There is a good readiness to change but for different reasons, difficult to sustain.

4. High AE - High PW: a functioning and attitude of exploring, curiosity and reframing the pain as a 'teacher' or a 'guide' to find new ways to grow in life. This is the 'safe-and growing pattern' and have a higher quality of life, vitality and a curiosity and high readiness to change.

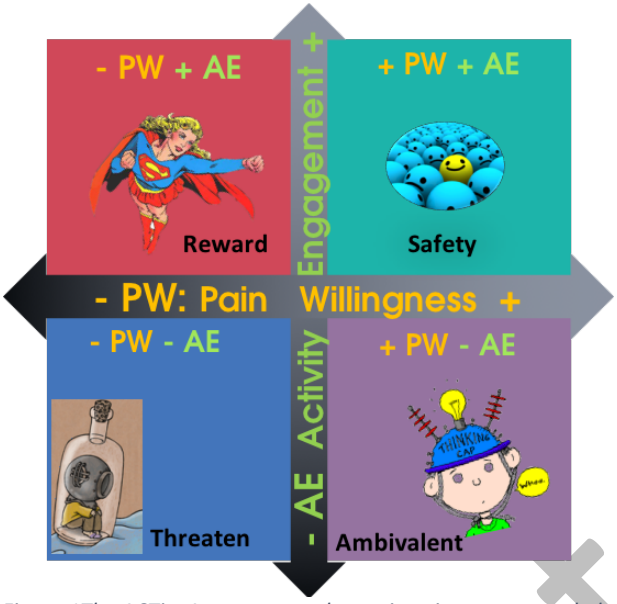

Figure 1The ACTiveAssessment schematic pain acceptance behavioral patterns

2.7 ACTiveAssessment: how we function and navigate in life

These four functioning modes are in ACTiveRehab explained as 'Navigation styles" meaning that these are not traits or something that characterize a person, these are normal and functional ways to operate in different situations that we all need to have access to. The upper right corner of the model (see Figure 2) shows how we may operate when we navigate in a nice weather, a perfect wind and sea conditions: we feel free to choose. We can lay down on the deck, we can decide to cook a nice meal and we can even put up a spinnaker and get a bit adventurous. However, we know that the life of a sailor is not always that comfortable, every now and then we endure storms, a kind of "life crisis" for the sailor. At that point, the sails need to get down, and it is about to find a secure spot or hold ourselves onto the mast, call Mayday and wait for help (see Figure xx at the lower-left corner). When in crisis we operate automatically since we should not be very flexible or creative in those situations, just follow strict routines and guidelines to save our lives.

Figure 2 The ACTivRehab navigation styles methafor

After the storm we come out wet (see Figure 2, on the lower-right corner), shivering, perhaps wounded, with a damaged boat, sails or helm, and it is difficult to find and keep a direction. At that point it is not even sure we want to keep sailing. We cannot see the lighthouse, and besides, we might not even interested to sail to the former destination. We feel lost and ambivalent. The fears and memories of the past storm can be mentally re-experienced (flash-backs), filling the emptiness that is left after the severe storm, a post-crisis vacuum. The most common strategy to try to push these memories out of our mind, avoid talking but on the other hand ruminate excessively in a way that prevent us from come into terms with the problem , with the broken boat, the persistent pain (like asking ourselves how this pain could have been prevented, or if one can take revenge, etc.) or to find a new direction to navigate to. We are stuck in rumination such as: “who’s mistake was all that?” There is a lot of shame and blame.

Eventually we may get new energy and decide to learn to navigate another kind of boat and we move to the upper left corner where we start mastering the new boat, we get inspired and skilled, we probably will overdo it by participating in several competitions. This is a fun place to be, however it can be quite exhausting if not being able to soften this tension and recharge the batteries. Eventually we get more relaxed and free to choose to do a lot of things when it is the best weather until we need some change, some stimuli or challenge to grow (or something happens in our life, that will create a new storm, as usual while starting a new phase in life.

2.8 ACTiveAssessment: Functional navigation style vs dysfunctional navigation style

In this navigation model, all the navigation styles reflect normal behaviors for a life- sailor. Sometimes, we may need to access different navigation-styles at the same time, because we can have a storm at our workplace but a very nice weather at home. Function and health depends upon our behavioral flexibility, that is our capacity to operate (navigate) the actual situation with the appropriate sail and navigation according to the ACTiveRehab’s framework. Dysfunction or ill-health will be 1) not being able to read what the situation requires (i.e. not being sensitive and present to the weather conditions) and 2) not being able to act or have access to responses that are adapted to what the situation requires (like acting as if it were a

storm when it is a nice weather, or putting up a spinnaker in the middle of the storm). Health is defined by both the mental and the physical behavior, a sensitivity and openness to situations or weather just as they are (like pain willingness) and the capacity and skillfulness to navigate in each of these situations (activity engagement).

3 ACTiveAssessment: the four-pain acceptance behavioral patterns and their implication for the therapeutic decision making

3.1 Rehabilitation and our "flex-ability" to make behavioral changes

"The pessimist complains about the wind;
the optimist expects it to change;
the realist adjusts the sails."
William Arthur Ward

The above four profiles reflect four basic 'navigation' patterns that are related to our capacity to make behavioral changes, in other words, our behavioral flexibility (BF). There are three main components or mechanisms that determine whether or not we have the **ability** to make and sustain a change: 1) the level of **insight,** the awareness that something needs to be changed and that is me that needs to do this, 2) next we need a strong **motivation**, a WHY we want to change and clarifying the benefits of this change and 3) probably the most difficult part, how to be open and have access to **sustainable strategies to deal with the discomfort** that a behavioral change implies (34). These three components have been referred as the Tri-flex: to be **open**, **aware** and **active** or **engaged** (34, 35) visualized in **Error! Reference source not found.** with the three pillars o f ACT (36).

After doing the triage and profile the patients' way to operate with their pain, we use the thermometers on the pillars in **Error! Reference source not found.** to first assess the existing a bilities, which will guide us to tailor the rehabilitation plan to cultivate these three main behaviors (37):

1. **Awareness**, to improve the sensitivity to the present moment, and the accuracy to read what is happening in the here and now in our inner and outer context, and also the capacity to see these events from different perspectives.
2. **Engagement**: to support the patient to formulate and be connected to what is important, the values and meanings in life, which will provide motivation for the behavioral change; and then to set goals to how, step by step, operationalize the commitment to live and act in line with these values.
3. **Openness**: to acquire or reinforce existing strategies to handle the discomfort or set back that all painful situations and changes generate. To improve the willigness to embrace undesirable and painful thoughts, feelings, and sensations without necessarily changing their content and with the aim to create sustainability in keeping the commitment to our values.

Figure 3 The pillars that measure the level of Awareness, Commitment/Engagement and Openness of the individual. Adapted and used with permission of Patricia Robinson

In the next section we will see how these three therapeutic and behavioral domains relate to the four navigation-styles of pain acceptance in four of our patients, Sofie, Clara, Gretel and Ursula.

3.2 Low in both Activity Engagement and Pain Willingness: the 'threaten' pattern

"Pain is the body and pain is the world." (38) page 5

Sofie, 31, alone mom of a 15 months toddler, scored low in both mental and physical capacity to accept pain or discomfort (AE=5 and PW=4), she experiences her pain as a threaten to her existence; so to accept it will be conceived as a failure (39). She grew up in a challenging home with criminality and violence, she also was involved in drugs, but most as a way to escape from her suffering. Sofie is now, aside from the pain, in the midst of a life crisis, where she feels that this pain will not allow her to take care of her child. Her behaviors are in a highly survival mode and can react to situations that are not dangerous as if they were dangerous. The capacity to orient attention is very low.

Metaphorically: She experience as being target of a beach balloons attack, everyone throwing balls to her. She tries to escape but those that throw the bolls run faster than her. Exhausted, she just squats down and protect her head and wait until it ends. If you cannot escape, you freeze.

Therapist: (Guiding the following 5 minute's exercise: 'noticing the breathing' for the group) – We have talked about the importance to be able to pay attention to what is here and now we will do an exercise that strengthen that capacity. I invite you to find an alert sitting position, where your spine is aligned, vertebrae by vertebrae with a minimum need of muscular involvement. Try not to recline onto the back of the chair so you back have the freedom to find its curvature and also to expand backwards with your breath. You now will just observe your breathing just as it is and follow your ins and outs by for example saying silently to yourself *"iiiiiiiiin-ouuuuuuuuuut"* and If thoughts, emotions, memories or other sensations show up, just notice them, thank your mind for saying "hi" and go back to following the breathing.) – Anyone wants to share their experience? Sofie, what happens with you now?

Sofie: (standing up crying before the exercise is finished) –– Nobody understands what is to live with this excruciating pain. I have never been able to do these things! This body would not allow me to sit still not even 5 minutes and feed my baby, my back is burning, this pain is killing me! This pain is physical and … if something is physical, someone can do something about it… what about massage? [Sofie is not able to focus on other than pain, nor able to sit still, is not answering the question of how it is right now. Is more in touch with how it "always been", how is going to be and magnifying the danger of the pain sensation all this experienced as a thread for survival (*is killing me!).* The body in pain is out there and seen in a dualistic way (is physical) and the body fragmentized (different body parts), the help expected is some 'magic' coming from out there (you and the massage)].

Recommended intervention: With Sofie we need to focus is on the center pillar, the '**awareness** pillar' to increase her ability to perceive what is here and now (being present). We will do that by stimulating her exteroceptive and interoceptive sensibility and accuracy. Exteroceptive skills

involves the use of the five senses to perceive the external context. This was done with a plethora of exercises, such as mindful eating, painting, playing music, singing, stimulating her senses in various and creative ways. The interoceptive training is probably the most neglected one in our cultures and essential in order to learn to relate to our own experiences in a new way. The first step is to ensure an accurate reading of our sensations, feelings and thoughts here and now in order to then be able to create new ways to relate to them.

At the beginning it is recommended to just focus on the body, and anchor to the here and now. Exercises can include orienting attention to different body parts (one by one at firt), their form, weight also sensations like feeling the heart bits, hunger, tiredness, follow the ins and out of the breathing and its movements, to get in contact with the signals from the body (hunger, tiredness, heartbeats, posture and how the gravity act on it, the clothing touching the skin, etc.). At the beginning the exercises need to be short and continuously guided. Later can be a bit longer, keeping silence for some seconds, and also include some static balance postures and strength. Balance is an effective way to orient and allocate attention. The verbal ques need to be repetitive, not much variation in vocabulary, like the way we talk when we meet a baby “look at this” and wait for the toddler to bring the attention to what we are showing (and we cannot point with the hand, they will look at your hand!). So, we need to have attention here, not there!). We do not need verbalize at this point, do not talk much just bring back the wandering attention over and over again, noticing what is there in awareness and help our patient to make immediate contact with feared or avoided sensations.

During these exercises, we need to notice the scape routines, Sofie cried, stand up, talked about something else. We need to bring attention to that behavior with gentleness and compassion keep the attention to whatever she was trying to avoid. First, when we saw that Sofie was looking at the direction we were pointing at (metaphorically) the she was paying attention to what was going on in the room and between us, when she could sustain some seconds eye contact, when she was answering the questions we are asking without changing the subject or asking us to repeat the question and when she started to get some physical balance and could keep one position or sitting still for some minutes we went ahead and moved on to the next level of therapy: to help her to shift attention and to name and describe what she found.

3.3 Lower in Activity Engagement and higher in Pain Willingness: the 'ambivalent' pattern

Clara, 28y/o in a 2 years' relationship with a "loving and caring" man. She scored low in Activity Engagement (AE=9) and higher in Pain Willingness (PW=11). She is aware that she endured and resolved many severe adverse life events: such as a step mother that was violent, a father that could not defend her, a period of self-harm (cutting) at early teenage and bulimia at later teenage. She smokes 10 cigarettes per day and eat once a day. She has been in sick leave for 6 months from a design studio since she couldn't work due to a debilitating tension-type headache, feeling physically weak and depressed spending many hours in bed and not exercising. Social withdrawal "my friends shouldn't see me like this". "

Clara feels overwhelmed expresses frustration and hopelessness and then she shuts down. She cannot see the meaning of the pain and keep asking "why me? This is unfair' and gets pissed off. Claire is depressed and stuck in rumination and blaming others. She has difficulties to express herself both verbally but even physically, her face and body expressions seldom are coherent with what she is saying. She knows what she hates but have difficulties in formulate what she likes or wants. Everything is uncertain, her life, the signs from her body in pain, she cannot understand why she is angry and aggressive with her loving partner. She goes from being pissed-off to shut down.

Metaphorically: Clara has survived the beach balloons attack. She could look up now and see that she was left alone with all the balloons, and they were attached to her with some kind of elastic bands. Even if this is better than the war, she feels overwhelmed by these balloons, she doesn't want to see them anymore. She walks into the sea and start pushing these balloons down, first one with one hand, and the other with the other hand, then she sits on the third and the tries to push the others two down with her feet. She de-press them. All her energy is invested in not seeing, in numbing whatever these balloons are about. And if she gets distracted or relaxed or someone comes near, then a balloon or two will pop up uncontrollably and that is something intolerable "nobody should see that!"

So, Clara is aware that there are some balloons and somehow, she deals with them, pushing and pressing them down, actively denying them, de-pressing them. She may not allow others to come near so that they do not see them either, and she can get a bit violent, aggressive. But when alone she ruminates and blame her step mother and father for giving her those horrible balloons. She is also frustrated with the health care system that could not give her the correct diagnosis for some years and now she feels that she has been medicated too late in order to have a good management of her head pain.

Therapist: (After the 5 minutes breathing exercise). —Thanks, any one wants to share their experience? Clara, what happens with you now?

Clara: [sitting there quite slouched and with a neutral face] —What do you mean, I was breathing, as you said.

Therapist: — I mean, can you share what happens with you just now?

Clara: [Looking down] – Nothing special… or what do you mean? [Clara is pushing back, both the experience and the therapist.

Therapist: — [Looking around to the group and pointing where for example another patient cries, others seem a bit relaxed] – This exercise creates different reactions for different people, what was <u>your</u> reaction?

Clara: — Reaction? I do not know what you want me to say, I felt nothing, I just breathed as you said… [Clara is not getting in contact with her emotions and expresses a numbness ('felt nothing') which is not a feeling but she thinks it is. She also seems to just follow rules ("as you said") instead to be in her experience. The therapist digs deeper into this nothingness ad a mean to discriminate any emotion].

Therapist: — This nothingness you say you felt, can you explore it a bit, for example, if you were to put this nothing somewhere in your body, where do you feel this 'nothing'? show me with your hands [the therapist chooses to work with the body and point in a non-verbal way, with the hands first] and continue, please, can all of you close your eyes and also explore if there is a feeling of nothing in your body and place your hands on it? If you do not find a place, just leave your hands on your lap with palms up.

Clara: [Searching a place with her hands, first she puts then on the neck, but then move them to the front, the throat] – Hmm… I thought that it was the neck, but then I realized that I felt pain and tension there, so here, my throat has a nothingness feeling…

Therapist: — I see [and puts also her hands on her throat] so if this nothing feeling had a color or a form, what would that be?

Clara: — It is like a very light blue, something that tries to pass, like a stream.. [get silent, first it seems that she is getting in touch and also being able to put some descriptive words on the sensation] *(In an irritated tone of voice)* This is not good, I felt sad there is no point to do these things, why would this matter? [The therapist will keep guiding her back and with the physio and the OT she will keep working on this nothingness, please see chapter xx).

<u>Recommended intervention:</u> with Clara, we still need to work on the **awareness** pillar in order to keep developing attentional aspects and then start moving into formulate values to bring about motivation to engagement. Clara has the ability to orient and allocate attention, but she cannot discriminate or be attentive to several or different events at the same time, nor talk about them (alexithymic behavior). The capacity to hold opposite experiences and shift attention when needed is important before moving into the most important aspect for her rehabilitation: the capacity to name, to put words and describe (without qualifiers or judgment) her experiences in order to bring these experiences into cognitive awareness, acquiring a higher vocabulary with more nuances and richness.

It is essential that the clinician is able to stay in the numbness and uncertainty with Clara and not push. She needs help to explore what nothing is, and the clinician may teach her different words as a discrimination training in order to help her to start processing these emotions or

sensations in a more nuanced way. The best way to access this new vocabulary is to start from symbolic and nonverbal expressions, such as dancing, painting, modeling with clay, singing playing music or doing other physical or creative activities with the aim to describe the experience. Working with expressive painting (preferably expressionistic or just free painting) may offer further development by asking the patient to write a saga about what is going on in this painting. Then music or dance movements can be created to embody the painting reaching eventually more rich verbalizations. These activities bring Clara out from her old ways to express herself and her 'stories' that if we allow them to come we may cement them and harm the therapeutic process (this is not to say that if she gets in contact with an old traumatic event and start showing feelings that are appropriated, the clinician will interrupt her, all in the contrary, in that case, this situation can be used to get in touch with other feelings than emptiness). Normally from these deeper pains, life meaning will emerge and the important outcome for Clara at this first phase of therapy is to get in touch with her valuable areas in life and the way she wants to do what is important. Then it will be important to target lifestyle factors such as smoking and diet, two behaviors that are pro-inflammatory and that also influence the pain mechanisms. In chapter xx we will follow Clara's rehabilitation process step by step.

3.4 High in Activity Engagement and lower in Pain Willingness: the 'overdoing and reward seeking' pattern

Gretel, 42, married and two daughters in high school and live in a nice house with a big garden. She scored AE=19 and PW=5 implying that she is committed to important activities but she struggles with and tries to control her pain. She is a nurse and love her job. She is involved in her daughters' activities, she loves outdoors activities and gardening and to go to the gym. She also takes care of her sick parents that live nearby. In a smaller car accident, she got a Whiplash trauma and her neck and shoulders pains are worsen and wide-spreading to other body regions. She is in sick leave back and forth, she really wants to go to her job but when in sick leave, she get stressed and cannot just relax, she tries on the contrary to make the most of it, fixing at home, doing the laundry, cleaning the windows, arranging the wardrobes, helping her parents and her girlfriends with their needs and traying to exercise.

Metaphorically, Gretel is also in the pond with the balloons, but she really wants to swim and go somewhere, but first she starts battle with these balloons, like kicking and punching them but they of course bounce back to her and knock her for some days. She regains some energy and start all over again and try to swim but they get on her way and she start punching and struggling with them, and they bounce back. She is understanding that she may not be able to get rid of them, but do not really know how to swim with them along. The therapy will help her to swim with them even if sometimes is tiering, so she will learn to float on her back, breath and charge her batteries to keep on swimming to her desired direction.

Therapist: (After the 5 minutes breathing exercise). –Thanks, any one wants to share their experience? Gretel, what happens with you now?

Gretel: – Oh, I felt how tens my neck and shoulders were, I tried to relax, but was impossible. And I am not sure I am breathing in a right way, (and pointing to the upper chest) it felt only up here, but I should have breathed with my belly right? [

Therapist: – Oh, I see. You mean that your mind was there trying to make you relax, and at the same time controlling that you were doing a good job with the breathing and making you unsure about if you are breathing 'right'?

Gretel: (with a smile and whispering) – …yesss… that will be my mind in a nut shell… [such a response suggest that Grete can see her 'mind' as separated from her

Therapist: (smiling back) – Well, our minds tells as a lot of things, asks us to be productive and perform well, a very useful operative system indeed in many occasions…however I am not sure that this was what we were trying to do in this very excercise… can you recall the words I used to guide the exercise?

Gretel: – Yes, well you didn't say relaxation on the contrary you talked about alertness and then just follow our breath in order to train ourselves to pay attention to what is here and now, no….? But I was unsure if I was doing it right, I wanted to get the most of the exercise and to it right, of course! [Gretel demonstrates to be able to read the here and now and also shift focus from her mind telling her things, however she still follows and reacts to what her mind tells her. She also shows that she has difficulties to just staying with what it's there, like just following her

breathing, she needs to perform and be a good girl and has a high level of self-criticism]

Recommended intervention: Gretel have good capacity to pay attention and formulate what is important for her, actually her list of values is impressive. She needs to start with sorting out which of all these values, interests and activities are the most essential for her, and choose just two values to work with during the rehabilitation. We may need to help her to identify values more as a 'quality of doing' and preferably related with self-care and with a softening and compassionate nature. These values will help Gretel to start opening to discomfort (the openness pillar) and learn a novel navigation pattern instead of the one she is used to: the "I am a 'warrior' and 'won't-give-up'- way to do things. She struggles against her pain and other discomforts and gets stuck into an endless battle of overdoing and then crashing.

Gretel needs is to find self-caring ways to regulate her energy, to soften and listen to her inner signs and to recharge her batteries. After revising the awareness and the engagement pillars, the main focus for Gretel's rehab will be to deepen into the **openness pillar**. Firstly, by softening as soon as she feels discomfort, physically with for example parasympathetic training and mentally with defusion exercises like "I have a thought (or my mind is offering me a thought that) I need to breath better (or relax, or do this right)." The next step for her to learn will be to just let this discomfort be there, observe it and not react to it. The above exercise was good to show her how she 'reacts' to what her mind says to her: "Breath better! Relax! Do it right!" and is a good exercise to practice **non-reactivity**. In this exercise Gretel will learn to stay there with her mind telling her to do a lot of things, and just answer: "Thanks mind, I will now go back to follow my breath just as it is. That is the only thing I need to do for now." This may or may not stimulate the parasympathetic nervous system, so in addition she may need to learn specific and short exercises or activities to do during her day, to improve her capacity to listen to her inner signals and stop before it is too late and actively be able to re-load her energy.

3.5 High in Activity Engagement and high in Pain Willingness: the 'safety and curiosity/explorative' pattern

Ursula, 56, married and mother of three and one grandchild. She is the CEO of an architecture studio. She scored AE=16 and PW=18. Her back pain started at young age, and she have many strategies to deal with it, with both walking, swimming, biking, yoga, cutting sedentary time and eating healthy. However, the pain now is getting worse, especially her left groin and sometimes the knee. She is a bit concerned, she wants to keep exercising but worried if that will increase her problems and also some thoughts that it could be cancer as the one that her mother had. However, the tests could not find the reason for the groin pain. She visits the specialty clinic with the intention to get a diagnosis in order to know if she can keep on with her life and activities of if she needs to cut down or change things.

Metaphorically: Ursula found a swimming style that works pretty well together with her balloons. As a matter of fact, the balloons became useful buoys, so the boats can see her when

se adventurously swim in unknown water allowing her to explore new islands and places she never been before. She doesn't know, but she may eventually come to a balloon war like Sofie, but she knows how to handle these situations and go back to find a new swimming style to keep thriving in life.

Therapist: (After the 5 minutes breathing exercise). –Thanks, any one wants to share their experience? Gretel, what happens with you now?

Ursula: – Wow, this was interesting! Normally I cannot sit still that long and I really wanted to move and change position, but I stayed there with my pain and the ins and outs of the breathing… It didn't make the pain go, but I could sit still. That was peaceful and painful, both at the same time… Interesting! I often use to change position when I feel the pain, and it helps. The problem is that I feel as a prisoner of it and have hard time to go to the opera or theater, but I see now that I can be still, find peace even if I feel my groin…

Therapist: – What is the most interesting, is that you could hold both the discomfort and the peaceful feeling at the same time?

Ursula: –Yes, and also good to know that I can respond to the pain in many other ways, that I can challenge my old strategies, this is fun. Another thing is that I understand now is that I do not need to get a clear diagnosis in order to relate to this pain in a different or better way, I need to come to terms with the fact that there is no diagnosis

Recommended intervention: Ursula has a quite full tool box already, she can pay attention, can be connected to valued activities while challenged by discomfort. She sees herself as being in the driver seat. With a patient with such high resources we should create different scenarios that help her to move **from pillar to pillar** and **navigation style from navigation style**, increasing her awareness, re-defining values and vitality and finding new ways to be open and explore 'places,' feelings, thoughts or behaviors in a flexibly and always changing way.

Appendix 1
ON-line material
CPAQ-8 German version

4 REFERENCES

1. American Psychological Association A. Acceptance and Commitment Therapy for Chronic Pain 2011 [Available from: https://www.div12.org/treatment/acceptance-and-commitment-therapy-for-chronic-pain/.
2. Hann KEJ, McCracken LM. A systematic review of randomized controlled trials of Acceptance and Commitment Therapy for adults with chronic pain: Outcome domains, design quality, and efficacy. Journal of Contextual Behavioral Science. 2014;3(4):217-27.
3. Hughes LS, Clark J, Colclough JA, Dale E, McMillan D. Acceptance and Commitment Therapy (ACT) for Chronic Pain: A Systematic Review and Meta-Analyses. Clin J Pain. 2017;33(6):552-68.
4. Veehof MM, Trompetter HR, Bohlmeijer ET, Schreurs KM. Acceptance- and mindfulness-based interventions for the treatment of chronic pain: a meta-analytic review. Cogn Behav Ther. 2016;45(1):5-31.
5. Veehof MM, Oskam MJ, Schreurs KM, Bohlmeijer ET. Acceptance-based interventions for the treatment of chronic pain: a systematic review and meta-analysis. Pain. 2011;152(3):533-42.
6. McCracken LM, Turk DC. Behavioral and cognitive-behavioral treatment for chronic pain: outcome, predictors of outcome, and treatment process. Spine (Phila Pa 1976). 2002;27(22):2564-73.
7. Cederberg JT, Cernvall M, Dahl J, Essen L, Ljungman G. Acceptance as a Mediator for Change in Acceptance and Commitment Therapy for Persons with Chronic Pain? Int J Behav Med. 2015;23(1):21-9.
8. Wicksell RK, Olsson GL, Hayes SC. Mediators of change in acceptance and commitment therapy for pediatric chronic pain. Pain. 2011;152(12):2792-801.
9. Wicksell RK, Olsson GL, Hayes SC. Psychological flexibility as a mediator of improvement in Acceptance and Commitment Therapy for patients with chronic pain following whiplash. Eur J Pain. 2010;14(10):1059 e1- e11.
10. McCracken LM, Vowles KE. Acceptance and commitment therapy and mindfulness for chronic pain: Model, process, and progress. Am Psychol. 2014;69(2):178-87.
11. McCracken LM, Sato A, Taylor GJ. A trial of a brief group-based form of acceptance and commitment therapy (ACT) for chronic pain in general practice: pilot outcome and process results. J Pain. 2013;14(11):1398-406.
12. Nilges P, Koster B, Schmidt CO. [Pain acceptance - concept and validation of a German version of the chronic pain acceptance questionnaire]. Schmerz. 2007;21(1):57-8, 60-7.

13. Fish RA, McGuire B, Hogan M, Morrison TG, Stewart I. Validation of the chronic pain acceptance questionnaire (CPAQ) in an Internet sample and development and preliminary validation of the CPAQ-8. Pain. 2010;149(3):435-43.
14. Fish RA, Hogan MJ, Morrison TG, Stewart I, McGuire BE. Willing and able: a closer look at pain Willingness and Activity Engagement on the Chronic Pain Acceptance Questionnaire (CPAQ-8). J Pain. 2013;14(3):233-45.
15. Baranoff J, Hanrahan SJ, Kapur D, Connor JP. Six month post-treatment deterioration in acceptance (CPAQ-8) and cognitions following multidisciplinary pain treatment. J Behav Med. 2014;37(3):469-79.
16. Rovner GS, Årestedt K, Gerdle B, Börsbo B, McCracken LM. Psychometric properties of the 8-item Chronic Pain Acceptance Questionnaire (CPAQ-8) in a Swedish chronic pain cohort. J Rehabil Med. 2014;46(1):73-80.
17. Rovner GS, Vowles KE, Gerdle B, Gillanders D. Latent Class Analysis of the Short and Long Forms of the Chronic Pain Acceptance Questionnaire: Further Examination of Patient Subgroups. J Pain. 2015;16(11):1095-105.
18. Crombez G, Viane I, Eccleston C, Devulder J, Goubert L. Attention to pain and fear of pain in patients with chronic pain. J Behav Med. 2013;36(4):371-8.
19. Hayes SC, Bissett RT, Korn Z, Robert D. Zettle, Rosenfarb IS, Cooper LD, et al. The Impact of Acceptance versus Control Rationales on Pain Tolerance. The Psychological Record. 1999;49(1).
20. McCracken LM, Gutiérrez-Martínez O, Smyth C. "Decentering" Reflects Psychological Flexibility in People With Chronic Pain and Correlates With Their Quality of Functioning. Health Psychol. 2012.
21. Zettle RD, Rains JC. Group cognitive and contextual therapies in treatment of depression. J Clin Psychol. 1989;45(3):436-45.
22. Gutiérrez O, Luciano C, Rodríguez M, Fink BC. Comparison between an acceptance-based and a cognitive-control-based protocol for coping with pain. Behav Ther. 2004;35(4):767-83.
23. Takahashi M, Muto T, Tada M, Sugiyama M. Acceptance rationale and increasing pain tolerance: Acceptance-based and FEAR-based practice. Japanese Journal of Behavior Therapy. 2002;28(35-46).
24. Feldner MT, Hekmat H, Zvolensky MJ, Vowles KE, Secrist Z, Leen-Feldner EW. The role of experiential avoidance in acute pain tolerance: a laboratory test. J Behav Ther Exp Psychiatry. 2006;37(2):146-58.
25. Kratz A, Davis M, Zautra A. Pain acceptance moderates the relation between pain and negative affect in female osteoarthritis and fibromyalgia patients. Ann Behav Med. 2007;33(3):291-301.
26. Gillanders DT, Ferreira NB, Bose S, Esrich T. The relationship between acceptance, catastrophizing and illness representations in chronic pain. Eur J Pain. 2013;17(6):893-902.
27. Hooper N, Larsson A. The research journey of acceptance and commitment therapy (ACT). Houndmills, Basingstoke, Hampshire ; New York, NY: Palgrave Macmillan; 2015. pages cm p.

28. Kraemer HC, Frank E, Kupfer DJ. Moderators of treatment outcomes: clinical, research, and policy importance. JAMA. 2006;296(10):1286-9.
29. Kraemer HC, Wilson GT, Fairburn CG, Agras WS. Mediators and moderators of treatment effects in randomized clinical trials. Arch Gen Psychiatry. 2002;59(10):877-83.
30. Kraemer HC, Kiernan M, Essex M, Kupfer DJ. How and Why Criteria Defining Moderators and Mediators Differ Between the Baron & Kenny and MacArthur Approaches. Health Psychol. 2008;27(2 Suppl):S101-S8.
31. Rovner GS. Indicators for behavioral pain rehabilitation: impact and predictive value on assessment, patient selection, treatment and outcome [Diss Göteborg Göteborgs universitet, 2014]. Gothenburg, Sweden: Department of Clinical Neuroscience and Rehabilitation, Institute of Neuroscience and Physiology, Sahlgrenska Academy at University of Gothenburg,; 2014.
32. Wetherell JL, Afari N, Rutledge T, Sorrell JT, Stoddard JA, Petkus AJ, et al. A randomized, controlled trial of acceptance and commitment therapy and cognitive-behavioral therapy for chronic pain. Pain. 2011;152(9):2098-107.
33. Wicksell RK, Vowles KE. The role and function of acceptance and commitment therapy and behavioral flexibility in pain management. Pain management. 2015;5(5):319.
34. Hayes SC, Villatte M, Levin M, Hildebrandt M. Open, aware, and active: contextual approaches as an emerging trend in the behavioral and cognitive therapies. Annu Rev Clin Psychol. 2011;7:141-68.
35. Bond FW, Hayes SC, Barnes-Holmes D. Psychological Flexibility, ACT, and Organizational Behavior. J Organ Behav Manage. 2006;26(1-2):25-54.
36. Robinson PJ, Gould DA, Strosahl K. Real behavior change in primary care : improving patient outcomes and increasing job satisfaction. Oakland, CA: New Harbinger Publications; 2010. x, 251 p. p.
37. McCracken LM, Morley S. The psychological flexibility model: a basis for integration and progress in psychological approaches to chronic pain management. J Pain. 2014;15(3):221-34.
38. Finlay L. ‘‘Writing the pain’’: engaging first-person phenomenological accounts. Indo-Pacific Journal of Phenomenology. 2012;12(Special edition):83-91.
39. Biguet G, Nilsson Wikmar L, Bullington J, Flink B, Lofgren M. Meanings of "acceptance" for patients with long-term pain when starting rehabilitation. Disabil Rehabil. 2016;38(13):1257-67.

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