

**Relationships between Daily Acceptance and Commitment Therapy(ACT), Coping,  
Acceptance and Life Satisfaction in Chronic Pain**

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## Abstract

The aim of this study is to investigate relationships between daily practice of Acceptance and Commitment Therapy (ACT), coping strategies, acceptance of chronic pain and satisfaction with life for individuals living with chronic pain. Eighty-one participants, with 59 meeting eligibility criteria, (14 males and 45 females) were recruited using a snowball sampling method (N=59). A quantitative, correlational study design was employed and participants completed an online self-report questionnaire measuring three scales, Coping Strategies Questionnaire-Revised (CSQ-R), Chronic Pain Acceptance Questionnaire-Revised (CPAQ-R), and Satisfaction with Life Scale (SWLS). Correlational and regression analysis was carried out and results showed significant relationships between the number of ACT exercises practiced per day and coping-self statements and the number of ACT exercises practiced per day and catastrophizing. Furthermore, significant relationships were found between number of ACT exercises per day and activity engagement, pain willingness and satisfaction with life. Limitations and implications for future research are discussed.

## Chapter 1: Introduction

Chronic pain can be described as a prevalent, debilitating and costly condition for both quality of life and society, (Treede et al., 2015). According to the International Association for Study of Pain (IASP), chronic pain can be defined as pain persisting or recurring for longer than 3-6 months (Gannon, Finn, O'Gorman, Ruane, & McGuire, 2013) resulting in overwhelming effects on psychological, physical and social functioning. Jakobsson's (2010) research into the epidemiology of chronic pain explains this widespread condition is associated with decreased mobility, increased body mass index, sleeping difficulties or fatigue. Furthermore, it can be a risk for heart disease and respiratory failure making it a global priority due to the serious consequences on daily activities and daily quality of life. Subsequently, it is of vital importance to research areas which can help individuals with chronic pain live a meaningful, valued and satisfying life and the current study aims to do that.

Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) is a contextual therapy based on Relational Frame Theory (RFT), a basic experimental analysis of human language and cognition (Hayes, 2004). It focuses on psychological flexibility (McCracken & Vowles, 2014) and can be applied in many different areas including chronic pain. Its aim is to change the relationship with thoughts as opposed to changing actual thoughts, like in traditional Cognitive Behavioural Therapy (CBT), emanating from the idea that it is not the content of experiences causing distress, but rather avoidance or suppression of them, causing increased frequency and intensity of suffering. ACT promotes connecting with the present moment through awareness and openness, increasing psychological flexibility, accepting and committing to experiences in the face of difficulties ("ACT Now Ireland", 2017). Whilst CBT to date has yielded success both clinically and costly with

chronic pain (Turk & Burwinkle, 2005; Gatchel & Okifuji, 2006), limits in effectiveness have been found (McCracken & Vowles, 2014) and the development of ACT and mindfulness-based approaches have shown potential for progress in many psychological difficulties including chronic pain.

Currently, the most common treatment for chronic pain uses analgesic drugs and opioids, however, side effects like addiction for long-term users may result (Gannon et al., 2013). Accordingly, treatments like ACT show potential as an effective alternative (Cederberg, Cernvall, Dahl, Essen, & Ljungman, 2015; Trompetter, Bohlmeijer, Fox & Schreurs, 2015; Henriksson, Wasara & Rönnlund, 2016). In a republished article, Hayes et al. (2016) explain that ACT, as a third wave intervention, appears to be revolutionising traditional behaviour therapies, moving toward a different direction and building upon first and second wave interventions. A vast amount of empirical research has found ACT to be effective in helping individuals deal with chronic pain, however, while these effects have been well documented, little research exists investigating time spent practising ACT on a daily basis and its subsequent relationship with coping, acceptance and life satisfaction for those living with chronic pain. Consequently, the current study aims to address this and also add to current research in this important area with a broader focus on the processes of acceptance, coping and satisfaction with life in chronic pain. Using measures of the Coping Strategies Questionnaire Revised (CSQ-R), the Chronic Pain Acceptance Questionnaire Revised (CPAQ-R) and the Satisfaction with Life Scale (SWLS), the study will investigate the use of ACT on a daily basis given that chronic pain continues to be a costly condition to both society and the daily lives of individuals.

### *1.1 Chronic Pain and Coping*

Research has shown coping as an important contributing factor for adjustment in an individual's life to chronic pain (McCracken, Vowles & Eccleston, 2005). Coping strategies refer to how an individual attempts to deal with pain and the validated Coping Strategies Questionnaire (CSQ) (Rosenstiel & Keefe, 1983) is a widely used tool to measure cognitive and behavioural coping strategies in pain including both active and passive coping strategies. The measure assesses the type of coping strategies used when pain is experienced, and how effective such strategies are in controlling or reducing pain. Individuals who engage in active coping strategies like increasing activity or coping self-statements have been found to adaptively cope with pain, but on the contrary, those who engage in maladaptive or passive coping strategies like catastrophizing or hoping pain goes away have led to negative pain outcomes (Higgins, Bailey, Lachapelle, Harman & Hadjistavropoulos, 2014) which was identified in their study conducted on 211 patients with chronic back pain. Participants completed self-report measures including the CSQ which showed those who used more active coping strategies displayed less pain behaviour and greater pain related outcomes than those using passive strategies.

Similarly, in a study comparing coping strategies for patients with fibromyalgia and chronic neuropathic pain (Baastrup et al., 2016) participants completed the CSQ and rated daily pain. Results showed participants using high levels of passive strategies felt less in control than those using low levels of passive strategies. Accordingly, it can be suggested that passive coping strategies should be restructured into active coping strategies to allow individuals cope successfully with chronic pain and it can be suggested practising ACT exercises on a daily basis might be a viable means to do this.

Furthermore, as Fox et al. (2016) explain the presence of chronic pain demands attention and focusing on pain could prove beneficial with growing evidence linking pain and

cognition. In their study assessing cognitive coping styles, 43 chronic pain patients, following completion of questionnaires on coping style, pain intensity, self-efficacy and trait anxiety, were divided into groups and instructed to focus on pain sensations or engage in a distraction task during and after these conditions. Results revealed a reduction in anxiety following sensation focused intervention but no effect on perceived pain. Interestingly, the distraction focused group displayed no reduction in anxiety or pain suggesting tailoring strategies to individual coping styles could prove beneficial in coping with chronic pain and the study highlights future research could investigate the most effective ways to alter maladaptive theories of pain. The current study aims to identify if ACT can do such that by exploring its relationship with coping strategies in order to help individuals on a daily basis cope adaptively with chronic pain.

### *1.2 Acceptance and Commitment Therapy (ACT) and Coping*

ACT aims to increase psychological flexibility in order to connect to the present moment. With chronic pain ACT helps individuals live according to values despite pain, through six core processes namely Acceptance (willingness to experience events as an alternative to experiential avoidance), Cognitive Defusion (noticing and observing thoughts and helping to let go of them), Being Present (paying attention to the moment without judgement using language to describe rather than predict or judge), Self As Context (observing oneself), Values (chosen qualities of purposive action for life direction) and Committed Action (linking to chosen values and action of such). These core processes can be achieved through ACT exercises like mindfulness activities, defusion activities, valued directions and goal worksheets, experiential processes and metaphors which play a large role in ACT to help understanding of how thoughts and feelings influence actions (“ACBS”, 2017).

Relational Frame Theory (RFT) and human language and cognition, explains why cognitive fusion and experiential avoidance are harmful (Hayes, 2016). In a study examining associations between coping and experiential avoidance, results revealed that the higher individuals are in experiential avoidance the more they tend to utilise avoidant types of coping strategies (Karekla & Panayiotou, 2011). Furthermore, Samwell, Evers, Crul & Kraaimaat (2006) explain passive behavioural coping strategies like avoidance of activity can predict disability with supporting research showing passive strategies such as praying and hoping, diverting attention or catastrophizing are related to increased pain and psychological distress (Vowles, Mccracken & Eccleston, 2008).

ACT aims to increase engagement with activities, to bring meaning, vitality and value to the lives of those living with chronic pain (Pielech, Vowles & Wicksell, 2017) which is relevant when pain experiences cannot be avoided and, moreover, can be exacerbated if trying to avoid them. The role of coping in chronic pain is well established (Vowles, McCracken, Sowden & Ashworth, 2014) but the challenge is to identify what forms of coping lead to better health outcomes. The adoption of psychological flexibility has been suggested to relate to this. For example, in a study comparing the role of psychological flexibility and traditional pain management coping strategies in chronic pain treatment outcomes (Vowles & McCracken, 2010), over the course of an interdisciplinary treatment programme, 114 participants were exposed to additional treatment methods promoting acceptance, mindfulness, values-based action and cognitive defusion, namely psychological flexibility. Results highlighted traditional methods of coping were unrelated to treatment improvements but significant treatment improvements were shown to be related to psychological flexibility.

Correspondingly, in a study conducted to improve diabetes self-management, (Gregg, Callaghan, Hayes, & Glenn-Lawson, 2007) 81 participants with Type-2 diabetes took a one-

day education workshop as part of their diabetes medical management. Groups were randomly assigned to either education alone or a combination of education and ACT. Both groups received teaching in how to manage diabetes but those in the ACT condition were also taught how to apply ACT to difficult feelings and thoughts related to their diabetes. Of note, participants in the ACT condition reported better diabetes self-care with changes in acceptance, coping and self-management behaviour. This study suggests it is possible for coping strategies to be impacted quickly and effectively through intervention, however the follow-up period was only three months following intervention and did not assess use of strategies on a daily basis. The current study aims to build upon this research because active coping strategies, as literature highlights, are associated with decreased disability and distress whereas passive coping strategies can lead to increased disability and distress (Higgins et al., 2014) making it vital to investigate ACT and its relational effects to encourage adaptive coping strategies through psychological flexibility on a daily basis.

### *1.3 Chronic Pain and Acceptance*

Acceptance, it can be said, acknowledges pain leading to the suggestion pain has been incorporated into life and therefore, it can be lived regardless of pain thus achieving a full and satisfying life. However, a move towards acceptance and willingness to experience pain and engagement in activities can be difficult due to the limitations and life changes chronic pain creates (Esteve, Ramírez-Maestre & López-Martínez, 2007). The chronic pain acceptance questionnaire (CPAQ; McCracken, Vowles, & Eccleston, 2006) measures acceptance of pain which has the possibility of reducing unsuccessful attempts to control or avoid pain by engagement in valued activities and pursuing meaningful goals. It focuses on activity engagement and pain willingness. The two-factor revised version, the Chronic Pain Acceptance Questionnaire – Revised (CPAQ-R) is used in the current study as it has been shown to have predictive validity in pain related disability or distress (Wicksell, Olsson, &

Melin (2009). The questionnaire focuses on the pursuit of life activities regardless of pain and recognises avoidance and control are not cohesive in adapting to chronic pain unlike pain willingness.

Numerous studies support the role of acceptance in daily functioning of people with chronic pain, moreover, acceptance of pain has been associated with less disability and distress (Mccracken, Vowles & Eccleston, 2005) with improved psychological wellbeing (Viane, Crombez, Eccleston, Devulder & Corte, 2004) and improved emotional psychosocial, physical functioning and reduced healthcare use (Dahl, Wilson & Nilsson, 2004; Wicksell, Melin & Olsson 2007). Furthermore, a study of the importance of pain acceptance in relation to headache disability and pain interference of women with migraine and obesity, Lillis et al. (2017) assessed whether high levels of pain acceptance through pain willingness and activity engagement affected headache-related disability. One hundred and twenty-six participants completed the CPAQ, a headache impact test and the brief pain inventory as baseline measures. Frequency and intensity of pain were assessed by a smartphone diary and results found higher pain willingness associated with lower levels of headache related disability and pain interference. As it can be seen, research supports the positive role of acceptance in chronic pain and the current study aims to build upon such research by investigating the relationship between ACT and acceptance of chronic pain in the daily lives of individuals.

#### *1.4 Acceptance and Commitment Therapy (ACT) and Acceptance*

Improvements in functioning for individuals with chronic pain to gain effective and meaningful lives, even when painful circumstances exist, is not reliant on a reduction in pain intensity, but rather effective responses and acceptance of pain to pursue values and goals despite pain (Vowles, Witkiewitz, Levell, Sowden & Ashworth, 2017). There have been a number of studies suggesting low pain acceptance, as measured by the CPAQ, is a strong

indicator of poor adjustment in individuals with chronic pain and, conversely, acceptance has been related to positive adjustment.

For example, in a study by Kratz, Hirsh, Ehde, & Jensen (2013) evaluating acceptance of pain in neurological disorders, 508 participants diagnosed with muscular dystrophy, multiple sclerosis, post-polio syndrome and spinal cord injury completed self-report measures of pain acceptance, intensity, interference, depression, social role, satisfaction and quality of life. The study examined how the pain acceptance subscales of activity engagement and pain willingness predicted adjustment to pain. Results revealed activity engagement predicted adjustment more so than pain willingness but subscales together corresponded with previous literature in relating pain acceptance to positive adjustment. However, a limitation of this study could be that cognitive factors such as catastrophizing and other pain coping responses, which also predict pain adjustment, were not evaluated together. Consequently, the current study will evaluate both coping and acceptance of pain to aid better understanding of responses to chronic pain in the daily lives of individuals.

Furthermore, Shaveste, Parviz, Majid, Aliakbar & Mansour (2017) highlight how chronic headaches and migraines severely affect and decline daily functioning of individuals and in their study evaluating the effect of ACT on the acceptance of pain among women with chronic headache, 30 participants were randomly divided into experimental and control groups each measured by pain acceptance and psychological flexibility questionnaires. After eight weeks of one and a half hour sessions of ACT, results showed a significant difference between the experimental and control group following ACT intervention which highlighted the importance of this intervention in treating chronic headaches. Additionally, chronic pain can have an overwhelming effect on the elderly and impact greatly on their daily lives. Widayati, Yusuf & P.k., (2016) explain acceptance can increase daily activities, comfort and quality of life as demonstrated when 32 participants with chronic joint pain who

completed the CPAQ, a comfort measure and also a quality of life measure, were divided into a control and experimental group. Results showed an influence of ACT for improvements in acceptance, comfort and quality of life. While sample size was small, nevertheless, results can be built upon and the current study aims to do that.

### *1.5 Chronic Pain and Satisfaction with Life*

Satisfaction with Life Scale (SWLS; Diener et al., 1985) is a measure of subjective judgement of one's own life, and predictive of future behaviour having been used as a measure for individuals experiencing serious health issues (“MIDDS”, 2017). In a study of chronic pain in Europe and its impact on daily life, a survey found 19% of the quality of adults social and working lives were seriously affected by chronic pain (Breivik, Collett, Ventafridda, Cohen & Gallacher, 2006). Additionally, pain severity has been shown to significantly and consistently negatively correlate with satisfaction of life among chronic pain patients (Walker & Esterhuysen, 2013). Moreover, in a large cross-sectional survey of 5,004 respondents investigating the prevalence of chronic pain and its impact on daily life in India, research found a significant negative link with quality of life leading to disturbances in sleep, exercise, relationships, independence leading quite often to disability (Dureja et al., 2013). Furthermore, in an evaluation of survey data in Australia, assessing the relationship between chronic pain and life satisfaction (McNamee & Mendolia, 2014) results found chronic pain associated with poor health, disability, less labour participation, lower quality of life with a negative impact on life satisfaction for individuals and their families and a significant cost to society and the healthcare system.

Additionally, Hunfeld (2001) researched chronic pain and its impact on quality of life for adolescents and their family. Adolescents kept a daily diary of pain and completed a questionnaire on quality of life, while mothers rated impact of their adolescent's pain on the family. Results revealed the higher the pain intensity and frequency, the lower the self-

reported quality of life. Due to the staggering effect chronic pain has been shown to have on quality and satisfaction with life, there is a need for more research of mechanisms to increase satisfaction with life on a daily basis for individuals with chronic pain. This study aims to do just that by exploring the relationship between satisfaction with life and ACT.

### *1.6 Acceptance and Commitment Therapy (ACT) and Satisfaction with Life*

As well as the physical and functional limitations associated with chronic pain, there are many secondary pain related challenges (Dezutter, Robertson, Luyckx & Hutsebaut, 2010) such as strain on family, job loss and social isolation which has a negative impact on subjective well-being of individuals. In a randomised controlled trial assessing exposure and acceptance strategies on life satisfaction in people with chronic pain and whiplash associated disorders (Wicksell, Ahlqvist, Bring, Melin & Olsson, 2008) 21 participants were randomised to either a treatment or a waitlist control condition. The treatment group were exposed to an intervention emphasizing values-based exposure and acceptance strategies. Significant differences in life satisfaction, measured by the SWLS, pain disability, fear of movement and depression were seen in favour of the treatment group compared to the control group. Interestingly, the study noted participants behaviours of not engaging in activities like working, visiting friends or playing sport which, it can be suggested, are required to produce life satisfaction. A limitation of the study was the small sample size and it was recommended further studies were required to investigate exposure and acceptance strategies to increase life satisfaction and functioning in this population. The current study aims to do that.

In a further study by Wicksell, Melin, Lekander & Olsson (2009) evaluating the effectiveness of ACT on quality of life and functioning in paediatric pain, 32 participants completed assessments before and after treatment of 10 weekly sessions of ACT and at 3.5 and 6.5 month follow up. Results showed significant improvements in favour of an ACT treatment group compared to a control group. Graham, Gouick, Ferreira & Gillanders,

(2016) examined the influence of psychological flexibility on life satisfaction and mood in muscle disorders and the longitudinal observational study revealed psychological flexibility positively influenced life satisfaction and anxiety suggesting ACT, which aims at increasing psychological flexibility, may be suitable for improving quality of life for patients with mood and muscle disorders.

Moreover, (Batink et al., 2016) measured the use of ACT in daily life using a mobile application aimed at encouraging individuals to practice exercises like mindfulness, metaphors, defusion and values to guide actions in daily life in a natural environment. Following completion of a six-week ACT training programme for patients with mental health disorders, it was demonstrated, while use of this technology stimulated ACT in daily life with participants practising an average 10.4 exercises per week, it did not show significant effects on psychological flexibility, avoidant coping or quality of life. This current study aims to test this theory further to see if practicing ACT exercises, and the frequency of practising ACT exercises on a daily basis will predict satisfaction with life.

### *1.7 Conclusion*

The World Health Organisation claims chronic pain is one of the most underrated issues for healthcare (Cederberg et al., 2015) and this study aims to investigate ACT as a viable treatment in living with chronic pain on a daily basis due to the sheer prevalence and subsequent staggering impact on the lives of individuals. Moreover, findings from this study could influence policy in a health societal setting and benefit participants in coping and living with chronic pain in daily life. An estimated 100 million Americans live with chronic pain (Rolbiecki et al., 2017), while chronic pain results in over 500 million sick days per year in Europe with a financial cost of €34 billion to the European economy and €5.34 billion to the Irish economy (“Irish Pain Society”, 2017).

Chronic pain as it has been shown results in a host of psychological problems including a belief that pain must be reduced to lead a meaningful life (Dysvik, Vinsnes & Eikeland, 2004). However, this is often a futile effort with chronic pain, leading to attempts to avoid or control the pain which only increases distress, fear anxiety and negatively impacts an individual's quality of life. Subsequently, findings from the current study aims to help individuals connect to the present moment, create a meaningful values-based life while reducing the impact of chronic pain in daily functioning. The study will also address some limitations in previous literature and investigate acceptance as a prediction of pain adjustment by evaluating both coping responses and acceptance together. Additionally, the need for more research in the relationship between chronic pain and its effects on satisfaction with life will be addressed. The study will evaluate time spent practising ACT on a daily basis, where there appears to be a gap in research, and its subsequent relationship with coping, acceptance and life satisfaction. It will also add to the wealth of previous literature and existing knowledge to increase understanding further and to benefit society and the daily lives of individuals living with chronic pain.

### *1.8 Main Hypotheses*

The main purpose of the current study is to investigate the relationship between the number of ACT exercises practiced per day and coping strategies, acceptance of chronic pain and satisfaction with life for individuals living with chronic pain.

Hypothesis 1:

There will be a significant positive relationship between number of ACT exercises practised per day and coping self-statements used as an adaptive coping strategy.

Hypothesis 2:

There will be a significant negative relationship between number of ACT exercises practiced per day and catastrophizing used as a maladaptive coping strategy.

Hypothesis 3:

There will be a significant positive relationship between number of ACT exercises practiced per day and activity engagement.

Hypothesis 4:

There will be a significant positive relationship between number of ACT exercises practised per day and pain willingness.

Hypotheses 5:

Number of ACT exercises practised per day will positively predict satisfaction with life.

## Chapter 2: Methodology

### *2.1 Participants*

A total of 59 consenting adults over the age of 18 who experience chronic pain and who had undergone ACT participated in this study. The sample consisted of 14 males (23.73%) and 45 females (76.27%) aged between 27 and 62 ( $M = 46.33$ ,  $SD = 8.89$ ). Out of the responses received ( $N=82$ ), those who did not meet the inclusion criteria ( $N=23$ ), i.e. individuals who did not experience chronic pain, had not undergone ACT and did not understand instructions or give informed consent, were not analysed. Participants were recruited as part of an online survey and accessed through a link inviting them to take part in the study through social media (Facebook/Twitter) and a chronic pain website. Permission was sought from moderator/website coordinator. Non-probability sampling was used with both snowball and purposive aspects. The study has a purposive aspect as users of targeted websites are a special population of interest to the current study. Additionally, the study has a snowball element allowing for contacts to be identified through other contacts. All participation was voluntary, anonymous and confidential and no financial inducements were offered for participation.

### *2.2 Design*

A quantitative, correlational study design was employed to investigate relationships between the number of ACT exercises practised per day and coping strategies measured by the CSQ-R (see Appendix A), acceptance of chronic pain measured by the Chronic Pain Acceptance Questionnaire-Revised (CPAQ-R; McCracken, Vowles, & Eccleston, 2006) (see Appendix B), and satisfaction with life, measured by the Satisfaction with Life Scale (SWLS; Diener et al., 1985) (see Appendix C), for individuals living with chronic pain. No treatment

interventions took place during the study. Demographic information was gathered for age and gender.

For hypothesis 1 predictor variable was number of ACT exercises practiced per day and criterion variable was coping self-statements. For hypothesis 2 predictor variable was number of ACT exercises practiced per day and criterion variable was catastrophizing. For hypothesis 3 predictor variable was number of ACT exercises practiced per day and criterion variable was activity engagement. For hypothesis 4 predictor variable was number of ACT exercises practiced per day and criterion variable was pain willingness. For hypothesis 5 predictor variable was number of ACT exercises practiced per day and criterion variable was satisfaction with life. A Spearman's rho was performed to test hypothesis 1, 2, 3 and 4. A linear regression was used for hypothesis 5 to analyse if acceptance of chronic pain will predict satisfaction with life.

### *2.3 Materials*

Materials consisted of an online survey comprising of information sheet (see Appendix D) and consent, demographic questions and three self-report questionnaires combined into one electronic Google document questionnaire. Participants were invited to take part in the study via an online link and responses were collected following electronic submission. Demographic questions established sex and age. Participants were asked if they experienced chronic pain and if they had undergone ACT in order to establish inclusion criteria. Information cover sheet outlined the purpose of study, predicted duration of questionnaire and details of data storage and destruction. Participants were advised that participation was entirely voluntary, anonymous and confidential and were made aware of the potential risk of developing minor negative feelings by completing the questionnaire. Participants were advised contact information for support services were available (see Appendix E).

The 3 self-report questionnaires used in the online survey are standardized and have been used previously with target population.

### *2.3.1 Coping Strategies Questionnaire- Revised (CSQ-R; Rosenstein and Keefe, 1983)*

The CSQ-R is used to measure the extent to which individuals use 6 different cognitive coping strategies and one behavioural coping strategy when pain is experienced and how effective the strategies are in controlling or reducing pain. It is a widely used measure in the area of chronic pain. It can be said it is important to identify coping strategies that may encourage adaptive functioning despite the presence of pain, and techniques which may help adjustment to chronic pain (Monticone et al., 2014). The CSQ-R is a shortened version from the CSQ which originally consisted of 48 items. The revised version consists of 27 items. The 27 items describe different coping responses using 6 cognitive coping subscales (diverting attention, reinterpreting the pain sensation, catastrophizing, ignoring sensations, praying or hoping, and coping self-statements) and one behavioural coping measure (increased behavioural activities). Participants are presented with a list of 27 statements asking how frequently they engage in a pain related coping responses like “It’s terrible and I feel like it’s never going to get any better” (Catastrophizing) or a response like “I tell myself to be brave and carry on despite the pain” (Coping self-statements). Catastrophizing is seen as a maladaptive coping strategy and coping self-statements are seen as an adaptive coping strategy (Monticone et al., 2014). Responses are rated on a 7-point Likert scale ranging from 0 (never do that) to 6 (always do that). For the final two behavioural items participants are instructed to answer, based on what is done to cope or deal with pain on an average day, how much control they have over pain with the response format ranging from 0 (no control) to 6 (complete control) and how much they are able to decrease pain with the response format ranging from 0 (can’t decrease it at all) to 6 (can decrease it completely). Responses are added together to obtain a score. In

the cognitive coping strategies scores range from 0 to 36 and for each subscale total scores are gathered by adding the individual item scores. Highest scores indicate a higher use of that coping strategy. In the behavioural coping measure scores range from 0 to 6 with a higher score indicating a better ability to control or decrease pain.

The CSQ-R has proven to be a reliable measure. Previous research reported a Cronbach's Alpha coefficient of 0.74 for Coping Self-Statements and 0.85 for Catastrophizing (Burckhardt & Henriksson, 2001) indicating a medium to high level of internal consistency. Furthermore, it has proven to be a valid and predictive measure with maladaptive strategies like catastrophizing negatively associated with activity level and positively associated with negative effects. Similarly coping self-statements have been positively associated with activity level (Monticone et al., 2014).

### *2.3.2 Chronic Pain Acceptance Questionnaire – Revised (CPAQ-R; M. McCracken, Vowles, & Eccleston, 2006)*

The CPAQ-R measures the acceptance of chronic pain rated on a 7-point Likert scale, factored on activity engagement (pursuing life activities regardless of pain) and pain willingness (recognising avoidance and control can be unhelpful methods of adapting to chronic pain) ranging from 0 (never true) to 6 (always true). Participants are presented with a list of 20 statements and asked to rate the truth of each statement according to how it applies to them on a rating scale from 0 (never true) to 6 (always true). Examples of statements include, “There are many activities I do when I feel pain” and “I avoid putting myself in situations where my pain might increase”. The items for activity engagement and pain willingness are added to get a score for each factor. Total score is obtained by adding the scores for each factor together. The higher the score the higher the level of acceptance of chronic pain. It can be said acceptance of pain and pain willingness may help to promote engagement in activities and work towards meaningful and valued goals.

The CPAQ-R has proven to be a reliable measure. Previous research demonstrated a medium to high level of internal consistency with a Cronbach's Alpha coefficient of .82 for Activity engagement and .78 for Pain willingness. (McCracken, Vowles & Eccleston, 2004). Furthermore, it and has proven to be valid and predictive measure of pain related disability and distress (McCracken, Vowles & Eccleston, 2006).

### *2.3.3 Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen & Griffin, 1985)*

The Satisfaction with Life Scale is a measure of the subjective judgement of ones' life satisfaction. It contains 5 items rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Participants are asked to indicate their agreement with 5 statements. Examples of statements include 'The conditions of my life are excellent' and 'I am satisfied with my life'. Scores are added together for each item to give a total satisfaction with life score. The range of scores are from 5-35 and the higher the score the greater satisfaction with one's life. 20 represents a neutral score on this scale, scores ranging between 5 to 9 indicate extreme dissatisfaction with life and scores between 31-35 indicate extreme satisfaction with one's life.

The SWLS has proven to be a reliable measure. Previous research reported a Cronbach's Alpha coefficient of .86 (Dezutter, Robertson, Luyckx, & Hutsebaut 2010) demonstrating a high level of internal consistency and also good test-retest reliability (Diener et al., 1985).

### *2.4 Procedure*

Prior to recruiting participants, ethical approval was sought and received from Dublin Business School Ethics Committee. A link to online survey was posted on social media and participants were invited to take part in the study. Prior to taking part in study an information sheet at beginning of survey was provided containing purpose of study, expected duration time, details of anonymous, voluntary and confidential participation and details of data

storage and destruction. Participants were informed they were not obliged to take part in the study and advised that by completing and submitting responses they were consenting to participate. Due to the anonymous nature of the study, participants were advised they could not withdraw from participation after submitting the questionnaire. Participants were also advised of the potential risk of questions causing negative feelings and contact details were available in this event. Before proceeding to questionnaire, participants were asked if they were 18 years or over, if they consented to take part in the study, if they experienced chronic pain and if they currently or had in the past received ACT in order to establish inclusion criteria. If 'no' was answered to any of these questions, participants were automatically directed to the end of questionnaire, thanked for their time and provided with contact details for support services. Demographic questions followed establishing sex and age. Participants were then asked how many times per day they practised ACT ranging from 0 times per day to 10 or more times per day. The three questionnaires followed this response with instructions for completion of questions given at the beginning of each questionnaire. In order to proceed all questions were required to be answered. After completion and submission of responses, contact details were provided for support services and also contact email of researcher and supervisor were provided. Data was collected, stored on a password protected computer, and analysed using SPSS Version 24. A Spearman's rho was performed to test hypothesis 1, 2, 3 and 4 in order to analyse relationships between the number of ACT exercises practiced per day and coping self-statements as an adaptive coping strategy, catastrophizing as a maladaptive coping strategy, activity engagement and pain willingness. A linear regression was used for hypothesis 5 to analyse if the number of ACT exercises practiced per day will predict satisfaction with life.

### *2.5 Ethical Issues and Risk*

There is a minimal risk of harm or distress to participants. It can be suggested taking time to complete a questionnaire may cause inconvenience. To address this, participants were advised of expected duration of survey completion on the information sheet prior to taking part in study. Due to the sensitive nature of questions and the self-reflective process of filling out questionnaires, participants may uncover unexpected facts about themselves which could potentially cause distress. In order to address this and protect their welfare, participants were advised on the information sheet before taking part about the possibility of developing some minor negative feelings and were informed the questions have been widely used in research. Furthermore, contact details for support services were provided for this eventuality.

Another concern for participants may exist over confidentiality. To address this, participants were advised participation was anonymous, voluntary and confidential and provided with details of data storage and destruction. Additionally, internet forums rules may be challenging. To address this, it was important to become familiar with special conditions which applied regarding participation or consent. Emails of access were sought for permission to solicit study participants from board moderator on internet forums. Crucially, it was important to ensure results were not affected by researcher bias and expectations. In order to address this, it was important to maintain competency, responsibility, integrity and accuracy of results. Moreover, it was important to respect the rights and dignity of participants and abide by the Psychological Society of Ireland Code of Professional Ethics (2003) (“DBS”, 2017).

## Chapter 3: Results

### *3.1 Descriptive statistics*

The main predictions for this study was that there would be a significant positive relationship between the number of ACT exercises practiced per day and coping self-statements used as an adaptive coping strategy, correspondingly, the second prediction was that there would be a significant negative relationship between the number of ACT exercises practiced per day and catastrophizing used as a maladaptive coping strategy. Third, it was predicted there would be a significant positive relationship between the number of ACT exercises practiced per day and activity engagement, and fourth there would be a significant positive relationship between the number of ACT exercises practiced per day and pain willingness. Finally, it was predicted number of ACT exercises practiced per day will predict satisfaction with life. Participants ( $N = 59$ ) consisted of 14 males and 45 females with a mean age of 46.33 years, meeting the inclusion criteria. Twenty-two respondents did not meet the inclusion criteria therefore were not analysed. Tests of normality were carried out to see if data was normally distributed. Non-parametric analysis was used for hypotheses 1, 2, 3 and 4 (Spearman's rho) as the assumptions were not met and regression analysis was used for hypothesis 5 (Linear regression). Regression results were interpreted with caution as assumptions were not met.

Table 1 below illustrates the descriptive statistics, including means and standard deviations of each of the variables tested. It can be seen the mean number of exercises practiced per day was 3.42. For coping self-statements used as an adaptive coping strategy ( $M = 15.29$ ,  $SD = 6.09$ ) indicating a medium to high use of coping self-statements. The minimum score was 3 and maximum was 23 demonstrating a variation in the use of coping self-statements as an adaptive coping strategy in dealing with chronic pain ranging from very

low to very high. For catastrophizing ( $M = 16.29$ ,  $SD = 8.90$ ) indicating a medium use of catastrophizing as a maladaptive coping strategy in dealing with chronic pain. The maximum score for catastrophizing was 36 which indicates a very strong use of this coping strategy and the minimum was 4 indicating a very low use. So once more there is a large variation in using catastrophizing as a maladaptive coping strategy to deal with chronic pain.

For activity engagement ( $M = 37.47$ ,  $SD = 14.46$ ) indicating a moderate pursuit of life's activities regardless of pain. The minimum activity engagement score was 11 which is very low suggesting a lack of activity engagement and pursuit of life's activities, and the maximum score was 55 which is high suggesting a high level of activity engagement. This demonstrates there was a wide range of scores seen for activity engagement which could be related to the number of ACT exercises practiced per day. For pain willingness ( $M=24.56$ ,  $SD = 9.99$ ) indicating a moderate level of pain willingness and a recognition that avoidance and control may not be helpful methods of adapting to pain. Scores ranged from a minimum of 11 to a maximum of 46 indicating again a wide range of pain willingness scores also, from a low score of pain willingness at 11 to a much higher score of pain willingness at 46. Once more this could be related to the number of times ACT exercises are practiced per day.

Finally, for satisfaction with life was ( $M = 20.63$ ,  $SD = 6.27$ ) indicating a medium mean score for satisfaction with life. The minimum score of satisfaction with life was 8 which is extremely low and indicates extreme dissatisfaction with life. However, the highest score was 34 indicating an extreme satisfaction with life.

Table1: *Descriptive statistics of variables*

	Sex	Age	Number of exercises per day	Activity engagement	Pain willingness	Coping self- statements	Catastro- phizing	Sat. with life
N	59	57	59	59	59	59	59	59
Missing	0	2	0	0	0	0	0	0
Mean	-	46.33	3.42	37.47	24.56	15.29	16.29	20.63
Median	-	47.00	4.00	41.00	23.00	16.00	14.00	22.00
SD	-	8.89	2.03	14.46	9.99	6.09	8.90	6.27
Min	-	27	0	11	11	3	4	8
Max	-	62	7	55	46	23	36	34
Range	-	35	7	44	35	20	32	26
Skewness	-	-.24	-.27	-.44	.29	-.46	.63	-.23
Kurtosis	-	-.60	-1.14	-1.24	-1.17	-1.05	-.82	-1.02

Test of normality were carried out for catastrophizing as a subscale of the CSQ-R.

There are 6 questions in the catastrophizing subscale (N=6) and a Cronbach's Alpha coefficient of .96 indicating high and satisfactory consistency levels. Positive skewness and negative kurtosis was seen for catastrophizing. Furthermore, there are 4 questions in the coping self-statements (N=4) subscale with a Cronbach's Alpha coefficient of .95 indicating high and satisfactory levels of consistency. Coping self-statements showed negative skewness and negative kurtosis. All items in the item statistics and item total of catastrophizing and coping self-statements are positive indicating questions are coded correctly.

Tests of normality were carried out for the two individual factors of the CPAQ-R (activity engagement and pain willingness). For the first factor activity engagement there are eleven questions (N=11). Cronbach's Alpha coefficient score is .97 indicating strong reliability. All items in the item statistics and item total are positive indicating questions are coded correctly. Negative kurtosis and a negatively skewed distribution was seen. For the second factor, pain willingness, there are nine questions (N=9). Cronbach's Alpha coefficient score is .95 indicating strong reliability. All items in the item statistics and item total are positive indicating questions are coded correctly. Negative kurtosis and slightly positive skewed data was seen.

There are 5 questions (N=5) for Satisfaction with Life and assumption checks revealed a Cronbach's Alpha coefficient score of .95 indicating strong reliability. All items in the item statistics and item total are positive indicating questions are coded correctly. Negative kurtosis and negative skewness was seen.

Interestingly, the majority of participants (N=18) practiced on average 5 exercises per day as the graph below illustrates (see Figure 1) and the sex breakdown of participants below displays an overwhelming majority of female participants (76.27%) to male participants (23.73 %) (see Figure 2).

A Histogram showing the distribution of the number of ACT exercises practiced per day

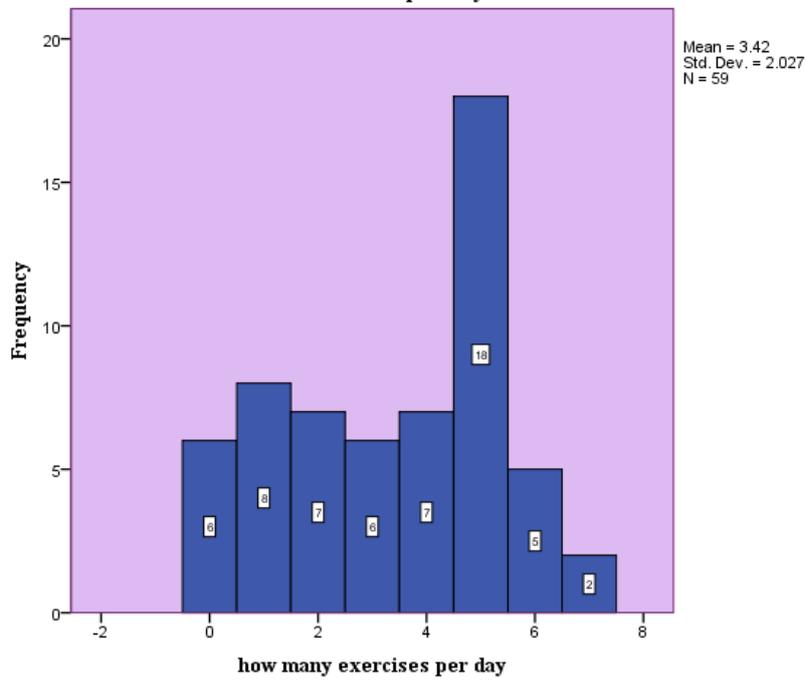


Figure 1: Distribution of the number of ACT exercises practiced per day

A Pie Chart showing the breakdown of sex

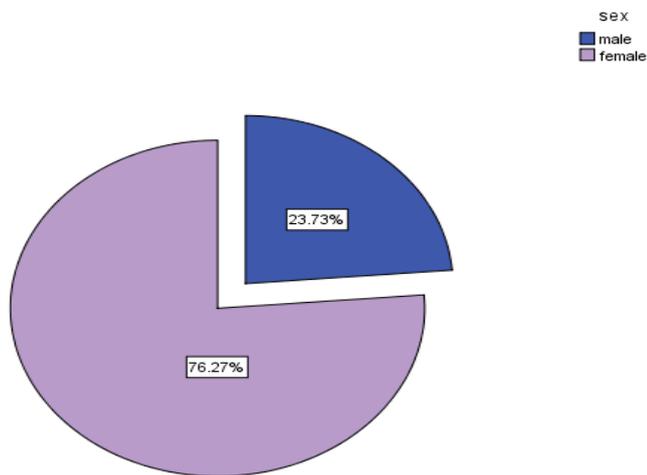


Figure 2: Pie chart showing breakdown of sex

### 3.2 Inferential Statistics

#### Hypothesis 1

There will be a significant positive relationship between number of ACT exercises practised per day and coping self-statements used as an adaptive coping strategy.

A Spearman's rho correlation found that there was a significant strong positive association between number of ACT exercises practices per day and coping self-statements ( $r_s(59) = .70$ ,  $p = .001$ ). Results suggest as the number of ACT exercises practised per day increases the adaptive coping strategy of coping self-statements also increases. Therefore, the null hypothesis is rejected.

#### Hypothesis 2

There will be a significant negative relationship between number of ACT exercises practiced per day and catastrophizing used as a maladaptive coping strategy.

A Spearman's rho correlation found that there was a significant strong positive association between how many ACT exercises practised per day and catastrophizing ( $r_s(59) = -.74$ ,  $p = .001$ ). These results suggest that as the number of ACT exercises practiced per day increases catastrophizing, which is often used as a maladaptive coping strategy, decreases. Therefore, the null hypothesis is rejected.

#### Hypothesis 3

There will be a significant positive relationship between the number of ACT exercises practiced per day and activity engagement.

A Spearman's rho correlation found that there was a significant strong positive association between the number of ACT exercises practiced per day and activity engagement ( $r_s(59) =$

.81,  $p = .001$ ). These results suggest that as the number of ACT exercises practiced per day increases, activity engagement and pursuit of life activities also increases. Therefore, the null hypothesis is rejected.

#### Hypothesis 4

There will be a significant positive relationship between number of ACT exercises practised per day and pain willingness.

A Spearman's rho correlation found that there was a significant strong negative association between how many exercises practiced per day and pain willingness ( $r_s(59) = -.72, p = .001$ ) Results suggest that the number of ACT exercises per day does not increase willingness to experience chronic pain. Therefore, the null hypothesis is accepted.

#### Hypotheses 5

Number of ACT exercises practiced per day will positively predict satisfaction with life.

Using simple linear regression, it was found that number pf ACT exercises per day significantly predicted satisfaction with life. ( $F(1,57) = 121.60, p < .001, R^2 = .67$ )

(Exercises,  $\beta = .825, p < .001, CI (95\%) 2.09 \rightarrow 3.01$ . These results, however, are to be interpreted with caution as assumptions were not met.

## Chapter 4: Discussion

The main aim of the current study was to investigate relationships between the number of ACT exercises practiced per day and coping strategies, acceptance of chronic pain and satisfaction with life for individuals living with chronic pain. Due to the overwhelming prevalence of chronic pain and its impact on the daily lives of individuals, an objective of this study was to investigate ACT as a viable treatment in living with chronic pain on a daily basis. Results supported hypotheses 1, 2, 3 and 5 and accorded well with literature, however, findings for hypothesis 4 contradicted previous research and conflicted what was expected.

The first hypothesis was that there would be a significant positive relationship between the number of ACT exercises practiced per day and coping self-statements used as an adaptive coping strategy. Results confirmed the hypotheses and as the number of ACT exercises practised per day increased so too did the use of coping self-statements. Fox et al. (2016) explain there is growing evidence linking pain and cognition and previous research found individuals who engage in active coping strategies like coping self-statements to adaptively cope with pain (Higgins et al., 2014). Such that, findings from the current study suggest ACT exercises may help encourage adaptive cognitive coping strategies like coping self-statements to deal with chronic pain and possibly lead to a better pain outcome, however, it should be noted results indicate correlation, not causation. Conversely, the second hypothesis was that there would be a significant negative relationship between the number of ACT exercises practiced per day and catastrophizing used as a maladaptive coping strategy. Results confirmed the hypotheses and as the number of ACT exercises practised per day increased the use of catastrophizing as a maladaptive coping strategy decreased. Previous research has shown maladaptive coping strategies like catastrophizing are related to increased pain and psychological stress (Vowles et al., 2008) and negative pain outcomes (Higgins et

al., 2014). Findings from this study support the use of ACT exercises in reducing catastrophizing as a maladaptive coping strategy, subsequently leading to a more positive pain outcome. However, as the current study focused on correlations between variables results do not indicate causation.

Third, it was predicted there would be a significant positive relationship between the number of ACT exercises practiced per day and activity engagement. Results showed a significant strong positive association between the number of ACT exercises practiced per day and activity engagement. The more ACT exercises practiced, the more activity engagement was demonstrated. Previous research has shown acceptance of pain is associated with less disability and distress (McCracken et al., 2005) and improvements in emotional psychosocial and physical functioning. Furthermore, Widayati & Yusuf, (2016) explain acceptance can increase daily activities and the current study strengthens and builds upon these findings. Whilst results do not indicate causation, it can be suggested practising ACT exercises can help individuals increase activity and pursuit of activities and goals in order to achieve a full and satisfying life regardless of pain.

The fourth hypothesis was that there would be a significant positive relationship between the number of ACT exercises practiced per day and pain willingness. It was predicted as the number of ACT exercises practiced per day increased so too would willingness to experience chronic pain. However, from which it can be seen, results did not support the hypothesis and conflicted what was expected. ACT promotes acceptance and willingness to experience painful thoughts, feelings and sensations as one of its core processes. Previous research showed that acceptance of chronic pain has been associated with less disability and distress (McCracken et al., 2005) and improved psychological well-being (Viane et al., 2004). Results of the current study suggest daily ACT exercises did not increase pain willingness, in fact, as ACT exercises increased, pain willingness decreased.

However, results are based on correlations and do not infer causation. Results do not strengthen current research and it can be suggested a reason for this may have been because some responses in the CPAQ-R measure like “I need to concentrate on getting rid of my pain” are interpreted as positive and rate a high score in this measure. Yet this may conflict with the components of willingness to experience distressing pain or thoughts in ACT and defusion or letting go of unhelpful thoughts which psychological flexibility promotes. A measure like the Acceptance and Action Questionnaire II (AAQ-II; Hayes, Luoma, Bond, Masuda and Lillis, 2006), which measures psychological flexibility (Ruiz et al., 2016) may be a more consistent tool to use with ACT and could have yielded different acceptance results. Future research should consider this.

Moreover, it was predicted the number of ACT exercises practiced would significantly positively predict satisfaction with life. Results support hypothesis and strengthen previous research like that of Wicksell et al. (2009) who demonstrated significant improvements in quality of life following ACT, similarly with Graham et al. (2016) who demonstrated psychological flexibility positively influenced life satisfaction. However, Batink et al. (2016) when measuring daily use of ACT, did not demonstrate significant effects on psychological flexibility or quality of life and an aim of the current study was to further test this hypothesis. As it can be seen results support the use of ACT exercises in daily life to positively predict satisfaction with life and extend previous search. Results, however, are to be interpreted with caution as assumptions were not met.

#### *4.1 Limitations and Strengths*

The sampling method used in the current study aimed to move beyond clinical samples to a general population in an everyday setting, however, the relatively small sample size may be as a result of this objective, which could affect generalization of findings. Moreover, limited data is available to conduct reliable and valid analysis. Additionally, the

vast majority of participants were females and it can be said a gender imbalance could also affect generalization of findings. Research has shown that gender differences can influence behavioural responses and symptoms. In a study assessing differences in coping strategies for 158 patients with lower back pain (Zavarize & Wechsler, 2016), results demonstrated females had a significantly greater pain perception than males with a higher frequency of social activities observed in females. This could affect coping strategies used in dealing with chronic pain which may alter results. Furthermore Leung (2012) explains in a review of pain catastrophizing, studies have shown a female predominance in catastrophizing as a coping strategy, with females catastrophizing more readily than males. Results may have been different if a more equal balance of gender existed. For this reason, it may not be possible to accept results as being generalised to the public. It could also be argued measures used did not allow for expanding on individual feelings, attitudes and personal limitations in chronic pain. It could be suggested the addition of a qualitative element to the study could have changed or supported findings.

Unexpected results may be accounted for by the type of measure used to analyse pain willingness in acceptance of chronic pain. Whilst the CPAQ-R is widely used in chronic pain, a measure like the AAQ-II measuring psychological flexibility and experiential avoidance in acceptance and action may be a more consistent measure to use and could have yielded different acceptance results. Moreover, types of ACT exercises used by participants or duration of exercises were not established. It would be interesting for future research to identify the most popular exercises practiced and to analyse pain outcomes of type and duration of exercises used. Findings from the current study contribute to and build upon current literature which can be seen as a strength, moreover, the current study differs from previous literature as it focuses on the number of ACT exercises practiced on a daily basis and the subsequent relationship with coping, acceptance and life satisfaction for those living

with chronic pain. This can be seen as a strength due to the fact chronic pain has an overwhelming impact on daily life and it is important to research what promotes psychological and physical health and well-being in the daily lives of individuals living with chronic pain.

#### *4.2 Future recommendations and practical implications*

Future research in this area should consider the strengths and limitations discussed. Additionally, future research should consider using a bigger sample size and aim for a more equal gender divide since results from the current study may not be accepted as being generalised to the public. As mentioned previously, the addition of a qualitative element to the study could allow for further elaboration of responses and insight in order to tailor treatments to individual needs. It may be interesting also for future research to further test daily use of ACT using the AAQ II which may yield different results more consistent with psychological flexibility components. Furthermore, future research could analyse the types of exercises and duration spent on exercises to test which prove to be most successful in dealing with chronic pain in tailoring treatment requirements. Findings from the current study build upon and strengthen current research and can be applied in a health and societal setting to develop successful strategies in coping with chronic pain and encourage daily use of ACT exercises to help individuals living with chronic pain. The findings could be applied to and incorporated in existing pain management programmes to bring ACT exercises into common everyday use in the treatment of chronic pain for a meaningful, valued and satisfied life.

#### *4.3 Conclusion*

The current study investigated relationships between ACT, coping, acceptance and life satisfaction in chronic pain. Results confirmed a significant positive relationship between the number of ACT exercises practiced per day and coping self-statements used as an adaptive coping strategy. Additionally, results confirmed a significant negative relationship

between the number of ACT exercises practiced per day and catastrophizing used as a maladaptive coping strategy. Furthermore, results confirmed a significant relationship between the number of ACT exercises practiced per day and activity engagement. However, results conflicted with expectations of a significant positive relationship between the number of ACT exercises practiced per day and pain willingness, instead findings demonstrated a significant negative relationship, contrary to what was expected. Finally, results confirmed the number of ACT exercises practiced per day positively predicted satisfaction with life, though results were interpreted with caution as parametric tests were not met. Findings from the current study build upon and strengthen previous research in this area. Future research should consider the limitations and recommendations discussed as future research is warranted to investigate these areas further in the daily use of ACT for individuals living with chronic pain.

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## Appendices

### Appendix A: Chronic Pain Acceptance Questionnaire – Revised (CPAQ-R)

Below you will find a list of statements. Please rate the truth of each statement as it applies to you. Use the following rating scale to make your choices.

0	1	2	3	4	5	6
Never true	Very rarely true	Seldom true	Sometimes true	Often true	Almost always true	Always true

- \_\_\_\_\_ 1. I am getting on with the business of living no matter what my level of pain is.
- \_\_\_\_\_ 2. My life is going well, even though I have chronic pain.
- \_\_\_\_\_ 3. It's OK to experience pain.
- \_\_\_\_\_ 4. I would gladly sacrifice important things in my life to control this pain better.
- \_\_\_\_\_ 5. It's not necessary for me to control my pain in order to handle my life well.
- \_\_\_\_\_ 6. Although things have changed, I am living a normal life despite my chronic pain.
- \_\_\_\_\_ 7. I need to concentrate on getting rid of my pain.
- \_\_\_\_\_ 8. There are many activities I do when I feel pain.
- \_\_\_\_\_ 9. I lead a full life even though I have chronic pain.
- \_\_\_\_\_ 10. Controlling my pain is less important than any other goals in my life.
- \_\_\_\_\_ 11. My thoughts and feelings about pain must change before I can take important steps in my life.

- \_\_\_\_\_ 12. Despite the pain, I am now sticking to a certain course in my life.
- \_\_\_\_\_ 13. Keeping my pain level under control takes first priority whenever I'm doing something.
- \_\_\_\_\_ 14. Before I can make any serious plans, I have to get some control over my pain.
- \_\_\_\_\_ 15. When my pain increases, I can still take care of my responsibilities.
- \_\_\_\_\_ 16. I will have better control over my life if I can control my negative thoughts about pain.
- \_\_\_\_\_ 17. I avoid putting myself in situations where my pain might increase.
- \_\_\_\_\_ 18. My worries and fears about what pain will do to me are true.
- \_\_\_\_\_ 19. It's a great relief to realize that I don't have to change my pain to get on with life.
- \_\_\_\_\_ 20. I have to struggle to do things when I have pain.

## Appendix B: Coping Strategies Questionnaire-Revised CSQ-R

Individuals who experience pain have developed a number of ways to cope or deal with their pain. These include saying things to themselves when they experience pain or engaging in different activities. Below is a list of things that people have reported doing when they feel pain. For each activity, I would like you to indicate, using the scale below, how much you engage in that activity when you feel pain. A 0 indicates that you never do that activity when you are experiencing pain, a 3 indicates you sometimes do it when you are experiencing pain, and a 6 indicates you always do it when you are experiencing pain. Remember, you can use any point along the scale.

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<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<i>Never</i>			<i>Sometimes</i>			<i>Always</i>
<i>do</i>			<i>do that</i>			<i>do that</i>

1. I try to feel distant from the pain, almost as if the pain was in somebody else's body.

2. I try to think of something pleasant.

3. It is terrible and I feel it is never going to get any better.

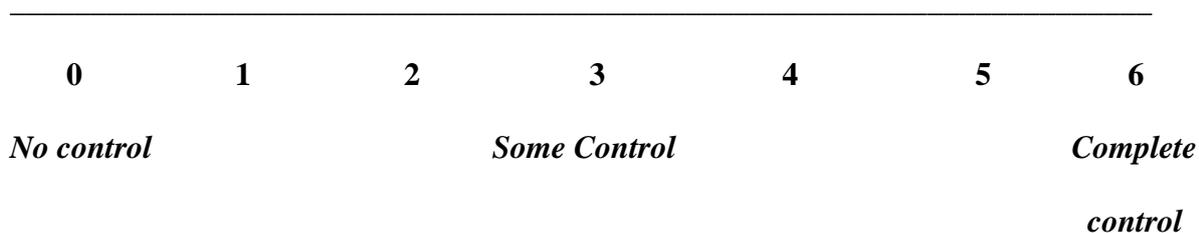
4. I tell myself to be brave and carry on despite the pain.

5. I tell myself that I can overcome the pain.

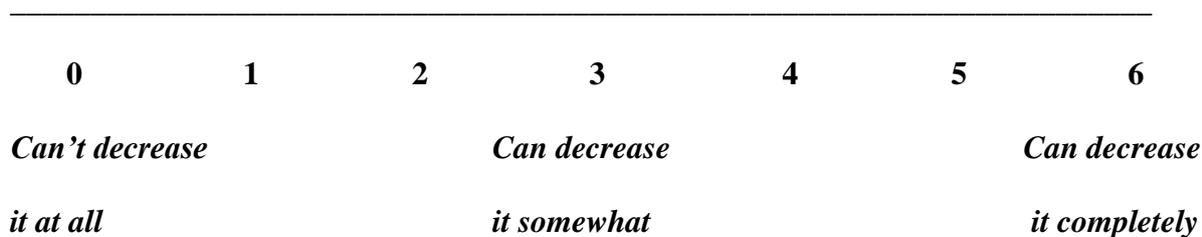
- 6. It's awful and I feel that it overwhelms me.
- 7. I feel my life isn't worth living.
- 8. I pray to god it won't last long.
- 9. I try not to think of it as my body, but rather as something separate from me.
- 10. I don't think about the pain.
- 11. I tell myself I can't let the pain stand in the way of what I have to do.
- 12. I don't pay any attention to it.
- 13. I pretend it is not there.
- 14. I worry all the time about whether it will end.
- 15. I replay in my mind pleasant experiences in the past.
- 16. I think of people I enjoy doing things with.
- 17. I pray for the pain to stop.
- 18. I imagine that the pain is outside of my body.
- 19. I just go on as if nothing happened.
- 20. Although it hurts, I just keep on going
- 21. I feel I can't stand it anymore.
- 22. I ignore it.
- 23. I rely on my faith in God.

24. I feel like I can't go on.
25. I think of things I enjoy doing.
26. I do something I enjoy, such as watching television or listening to music.
27. I pretend it is not part of me.

Based on all the things you do to cope or deal with your pain, on an average day, how much control do you feel you have over it? Please choose the appropriate number. Remember, you can choose any number along the scale.



Based on all the things you do to cope or deal with your pain, on an average day how much are you able to decrease it? Please choose the appropriate number. Remember, you can choose any number along the scale



### Appendix C: Satisfaction with Life scale (SWLS)

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item. Please be open and honest in your responding.

- 7 - Strongly agree
- 6 - Agree
- 5 - Slightly agree
- 4 - Neither agree nor disagree
- 3 - Slightly disagree
- 2 - Disagree
- 1 - Strongly disagree

\_\_\_\_ In most ways my life is close to my ideal.

\_\_\_\_ The conditions of my life are excellent.

\_\_\_\_ I am satisfied with my life.

\_\_\_\_ So far, I have gotten the important things I want in life.

\_\_\_\_ If I could live my life over, I would change almost nothing.

## Appendix D: Information Sheet

### Relationships Between Acceptance and Commitment Therapy (ACT), Life Satisfaction, Coping and Acceptance in Chronic Pain

My name is Lynn Gerty and I am conducting research in the Department of Psychology that explores relationships between the practice of Acceptance and Commitment Therapy (ACT) and life satisfaction, acceptance of pain and coping strategies for individuals who experience chronic pain. This research is part of my studies and will be submitted for examination.

You are invited to take part in this study and participation involves completing and submitting the anonymous survey which follows. It should take approximately 10-15 minutes to complete. While the survey asks some questions that might cause some minor negative feelings, it has been used widely in research. If any of the questions do raise difficult feelings for you, contact information for support services will appear at the end of survey.

Participation is completely voluntary and so you are not obliged to take part.

Participation is anonymous and confidential. Thus, responses cannot be attributed to any one participant. For this reason, it will not be possible to withdraw from participation after the questionnaire has been submitted. The questionnaire will be securely stored on a password protected computer and destroyed after one year following examination process.

Presentation of the report will take place on college campus as part of examinations.

It is important that you understand by completing and submitting the questionnaire that you are consenting to participate in the study. It is also important to answer each question truthfully for the validity of the study.

Should you require any further information about the research, please contact me at xxxxxxx@mydbs.ie or my supervisor, Dr. John Hyland, at xxxxxxx@dbs.ie.

Thank you for taking the time to complete this survey.

Appendix E: Contact details for support services:

If this survey has raised any issues/feelings that you may want to discuss further, please consider contacting the support services listed below, or speak to a friend, family member or professional.

AWARE:

Aware Support Line 1800 80 48 48

Available Monday – Sunday 10am-10pm

Email for support at: [supportmail@aware.ie](mailto:supportmail@aware.ie)

Samaritans:

Call on: 116 123

Available 24hrs a day. 365 days a year.

Email for support at: [jo@samaritans.org](mailto:jo@samaritans.org)